A DYADIC THEORY OF CONFLICT: POWER AND INTERESTS IN WORLD POLITICS

DISSERTATION

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By

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ABSTRACT

Power is perhaps the most important concept in political science, and this is no different in the field of international relations. In particular, one ‘power question’ has dominated theoretical and empirical work: is it balances of power or preponderances of power between states that are more pacific? Seemingly distinct theoretical arguments have grown up around each of the two positions and the bulk of the recent empirical literature has found that it is preponderances of power that are more pacific. This dissertation re-examines the balance-preponderance question at the level of the interstate dyad, and argues that in order to arrive the correct answer we must take state interests into account – something that most empirical work on the subject fails to do. This is surprising because most of the classical literature on power and conflict, particularly work within the Classical Realist tradition, argues that the effect of power on conflict is conditioned by state interests.

Operating at the level of the interstate dyad gains us tremendous empirical leverage with which to re-examine the classical literature on the ‘balance-preponderance’ question. Not only am I able to show that the foundations of the two main schools of thought are remarkably similar, but I am able to demonstrate an important shortcoming in the classical arguments. They do not allow for independent and conditional effects for
power and interests on conflict. These shortcomings prompt me to develop a dyadic theory of conflict that does allow for these two key variables to have independent and conditional effects on severe military conflict. The dyadic theory of conflict has four main hypotheses. First, dyadic balances of power are more peaceful than dyadic preponderances of power. Second, dyads with similar interests will experience less conflict than dyads with dissimilar interests. Third, there is a significant conditional relationship between power and interests when determining dyadic conflict. Finally, interests have a greater effect on dyadic conflict than power.

After carefully conceptualizing and operationalizing ‘power’ as relative power and ‘interests’ as dyadic interest similarity, these four hypotheses are tested using descriptive and multivariate statistical techniques on four sets of dependent variables which encompass the definition of severe military conflict: conflict occurrence, conflict severity, conflict timing, and inter-conflict (de)escalation. I find strong support for hypothesis one, and very strong support for hypotheses two, three, and four; even in the face of numerous competing hypotheses.
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Ph.D. candidates often begin their list of acknowledgements with members of their dissertation committee. I began accruing debts long before this committee was formed. In particular, I would like to thank Professors Paul Beck and Donald Sylvan for helping me through a tumultuous time. At the start of my second year in graduate school my graduate career almost foundered on the rocks of a trying family emergency that required me to spend most of that year, and parts of the next two, away from Columbus. Professor Beck, the departmental Chair, assured me that I would always have a place in the department. His invaluable assurance enabled me to focus on what I needed to do at home without worrying what was going to happen with my career. Professor Sylvan, the IR field coordinator, helped me engineer a program of study that fulfilled requirements, despite my lengthy absences, and got me to where I am today. I hope this dissertation justifies the confidence they had in me.

This particular project benefited from an amazingly diverse, and just plain amazing, dissertation committee. Jan Box-Steffensmeier offered timely and insightful comments and encouragement on all aspects of this project, but her indelible mark is most obvious on its methodological sections. I consider myself very fortunate to be trained by one of the foremost political methodologists in the country, and hope my work meets her lofty standards. I did well if I came close, and could not have even come close
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be able to discern that the largest impact on this dissertation was made by Randy
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incisive comments on all parts of this project. I took as much of his advice as a mere
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conversations, he taught me how to do ‘political science.’ This dissertation marks my
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There are a few people to whom this dissertation could be dedicated. My father, Charles, passed away in 1997, and I wish he could be there to see me finally graduate. My mother, Kathleen, suffered a debilitating brain injury in 1997, and her courage and perseverance since then have been a true inspiration. My cousin, Port Authority Police Officer Alfonse Niedermeyer, died a hero on September 11, 2001 and left behind a wife and two small children. Most importantly my wife, Kelly, has shown unbelievable patience and given unconditional support to me during my time in graduate school. She has more confidence in me than I have in myself, and I am very fortunate to have the love of such a wonderful person. If this dissertation becomes a book, I will dedicate it to her, because I am going to need more of that patience and support to get it there. The dedication for this dissertation, the first significant work I have completed, however, was sown up before I came to graduate school.
Dedicated to the Memory of
Matthew James Arroyo
June 12, 1974 - August 21, 1991

Since he left this world, Matt has always been with me. Writing this dissertation has been a long and difficult journey, at least I was not alone.

My Guide and I crossed over and began to mount that little known and lightless road to ascend into the shining world again.

He first, I second, without thought of rest we climbed the dark until we reached the point where a round opening brought in sight the blest

and beauteous shining of the Heavenly cars.
And we walked out once more beneath the Stars.

-Dante Alighieri
The Inferno
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INTRODUCTION

…the fact remains that there are two necessary conditions for war: a distribution of power that makes war appear an effective option, and a conflict of interest. The first without the second will not produce war.

-Richard Betts

This dissertation develops, and tests, a Realist theory of why pairs of states (dyads) engage in severe military conflict. The theory I develop, which I term a dyadic theory of conflict, is a Realist theory because it relies on the two primary variables in Classical Realist theory, power and interests, to derive conflict expectations. What is unique about my argument is that I posit both independent and interactive effects for these two variables, and I take care to assess whether such effects exist with respect to severe military conflict between states. Given that these two variables have been termed the “twin pillars” of realist theory (Schweller 1998), this is an important task.

The quotation that begins this chapter is emblematic of a long tradition of Realist thought that holds it is the distribution of power between states and the extent to which their interests clash that determine interstate conflict. I place the focus back on these two

---

1 Betts (1999, 192).
key independent variables and explicate the proper relationship between them. Betts’ thought, while elegant, begs the two questions around which this dissertation will be built. First, which distributions of power, dyadic balances or preponderances,² make war seem an effective option? Second, how are conflicts of interest related to both the distribution of power and military conflict?

The balance-preponderance question has been one of the most central questions in the international relations literature, and theoretical opinion on which condition is more peaceful is split. The ‘balance leads to peace’ school argues that balances of power are more pacific because under such a condition both states, being of roughly equal power, will be deterred from what is sure to be a long and hard fought conflict. The ‘preponderance leads to peace’ school, on the other hand, argues that dyadic preponderances of power are more peaceful because the weaker side, knowing it has little chance at victory in a military conflict, will not fight and the stronger side will, thus, easily be able to attain its goals. Empirically, a few studies support the once popular theoretical notion dyadic balances of power are more peaceful, while most recent studies argue that dyadic preponderances are more peaceful. The recent wave of empirical support for the ‘preponderance leads to peace school’ has seemingly ended the debate. Yet even a quick glance at the history of interstate conflict since the Congress of Vienna

² A dyad is ‘balanced’ if the military power of each state is roughly equal. A dyad is ‘preponderant’ if one of the states is much more powerful than the other. I consider the questions of how best to conceptualize and operationalize both power and dyadic power ratios in Chapter Two.
shows many cases of war where either preponderant or balanced dyads were involved in bloody clashes, and seems to make this new found consensus questionable.³

Some examples of the preponderant case include the 1823 Franco-Spanish War where France invaded Spain to restore the Spanish Monarchy and recoup some international prestige lost at the Congress of Vienna (Schroeder 1996, 624-8). The French, clearly preponderant, were roughly four times more powerful than the Spanish (Singer, Bremer, and Stuckey 1972). In fact, Great Powers have often attacked weaker states. This was the case for the United States in the Mexican-American War (1846-1848), and The Spanish-American War (1898);⁴ for Prussia/Germany in the First (1848-1850) and Second (1864) Schleswig-Holstein Wars against Denmark; for the United Kingdom in the Anglo-Persian War of 1856-7, and the Anglo-Egyptian War of 1882; for Russia in the Russo-Turkish Wars of 1828-9 and 1877-8, the Russo-Polish War of 1919-20, The Russo-Finnish War of 1939-40, and the Russo-Hungarian War of 1956; for Italy who attacked Ethiopia in 1935; for China who attacked Vietnam in 1987, and for the French, who apart from the Franco-Spanish War, attacked the Mexicans in the Franco-Mexican War of 1862-1867, and Thailand in the Franco-Thai war of 1893 (Sarkees 2000). In all of these cases the attacker was more than three times the strength of its

³ War is the most obvious type of severe interstate conflict, an explicit discussion of the types of severe military conflict is located in Chapter One. War is defined as a military conflict between two interstate system members that results in at least 1,000 battle related deaths (Sarkees 2000). The examples I give here are illustrative and not exhaustive; a complete analysis will be given in Chapter Three.

⁴ Although the United States was not a Great Power according to the Correlates of War Project until 1898 (Correlates of War Project 2003), this is a debatable point, and it was four times as powerful as Mexico in 1846 and over ten times as powerful as Spain in 1898 (Singer, Bremer, and Stuckey 1972).
target. This contrasts with a similarly long list of wars that occurred between two states, or in some cases coalitions of states, of relatively equal strength: the Seven Weeks War of 1866, The Franco-Prussian War (1870-1), The Russo-Japanese War (1904-5), World War One, and World War Two.

What this list of conflicts tells us is not only that there are many cases of conflicts between preponderant dyads, something that runs counter to the current prevailing wisdom; but also that the distribution power alone, while certainly not unimportant or superfluous, may be an indeterminate cause of conflict. A review of the theoretical and empirical literature on the balance-preponderance question substantiates this position. The theoretical literature is seemingly split between two diametrically opposed arguments; however, as I show in Chapter One, there is a great deal of similarity in these two arguments when we consider their full specifications. Moreover, the empirical record on the balance-preponderance question is much more ambiguous than is currently thought. My first argument is that this combination of the theoretical uncertainty and empirical ambiguity implies the balance-preponderance question is still open. Answering

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5 Examples of Wars between preponderant dyads are, in fact, not limited to the Great Powers. For example, Spain attacked Morocco in the Spanish-Moroccan War of 1859-60, Italy attacked the Papal States in the Italo-Roman War of 1860, Poland attacked Lithuania in 1920, India attacked Pakistan in 1948, 1965, and 1971, Turkey attacked Cyprus in 1974, and Vietnam attacked Cambodia in 1975. Moreover, it is even sometimes the case that the weak attack the strong. For instance, the Greeks attacked the Turks in 1897, the Somalis attacked the Ethiopians in 1977, the Argentineans attacked the British in 1982, and the Japanese attacked the United States in 1941 (Sarkees 2000; see also Fischerkeller 1998).

6 The examples of balanced wars include several that are less noteworthy than these few, including no less than four Central American Wars (1876, 1885, 1906, 1907), the Chaco War (1932-5) between Paraguay and Bolivia, the Ecuadorian-Columbian War of 1863, the Saudi-Yemeni War of 1934, and the Changkufeng War (1938) between Japan and the Soviet Union (Sarkees 2000). Chapter Three will decompose the coalitional wars in order to assess how many instances of war occurred in balanced versus preponderant dyads.
it requires us to re-examine the classical works on the subject. Doing so highlights that there is a second variable that has long been thought to condition the effect of the distribution of power on dyadic conflict.

As Classical Realist Theorists have pointed out, that second variable is interests, but this begs the second question around which this dissertation will be built. How are conflicts of interest related to both the distribution of power and military conflict? All would agree that states with common interests are less likely to come into conflict and states with conflicting interests are more likely to conflict, but few explicitly relate the concept of interests to the concept of power. Below I show that the proper relationship between these two variables is one of conditionality – the effect of the distribution of power on military conflict varies as the level of interest similarity varies. As I point out, there is a great deal of support for this notion within Classical Realist Theory. Moreover, there is actually a great deal of support for this notion among the founding fathers of both the balance leads to peace and the preponderance leads to peace schools. My second argument is that explicitly relating interests to power in this way solves the theoretical and empirical ambiguity surrounding the balance-preponderance question. We can derive clear hypotheses about the independent and interactive effects of the dyadic distribution of power and the level of dyadic interest similarity on conflict. This has the additional benefit of improving upon classical theory. As I show below, classical theory does argue for an important relationship between power and interests, on the one hand, and conflict on the other; but does not posit true independent and interactive effects for these two variables. The theory I develop below does.
The development of this theory is facilitated by the focus on pairs of states, or dyads. There are several reasons why the dyad is the proper unit of analysis to use below. First, it is ultimately pairs of states that come into conflict with each other. This point is most clear in bilateral conflicts where State A and State B fight each other. However, I argue that even multilateral conflicts should be broken down into their dyadic components because doing so allows us to differentiate between pairs of states that were fighting each other at different levels. For instance, during World War Two both the United Kingdom and Costa Rica opposed Nazi Germany, but the extent of the Anglo-German conflict was much greater. Breaking World War Two down to its component dyads allows us to make this distinction.

Second, and possibly more important, the two key independent variables in the dyadic theory of conflict, power and interests, are inherently relative concepts. This is easiest to see with respect to power – which does not exist in a vacuum. A state is only more or less powerful with respect to another state, and the only way to measure the concept properly is with relative power. Such a measure is easy to arrive at when dyads are the unit of analysis. Interests, too, are best understood as a relative concept. As I argue below, the popular notion of typologizing states by their interests into ‘status quo’ and ‘revisionist’ powers is not as informative as informative as a dyadic measure. While we know that two status quo states will be less likely to conflict, and we know that status

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7 Technically, the unit of analysis employed in this dissertation is the non-directed dyad year. This means that every pair of states for every year, between 1886 and 1992, is included in the dataset. This differs from the directed dyad year unit of analysis, in which every pair of states is listed twice for each year: once with dyad AB as unit of analysis and once with dyad BA as the unit of analysis. We do not use directed dyads below because I do not develop expectations about conflict initiation, that is which side in the dyad starts the conflict, I only develop expectations about conflict occurrence.
quo and revisionist states may be more likely to conflict, the relationship is indeterminate
with respect to a pair of revisionist states. We cannot say whether they will agree on the
means, and ends, of revision. If they do, they will likely cooperate. If they do not, they
will likely conflict. It is far better to measure whether any pair of states has similar
interests, because it yields determinate expectations for all pairs of states. In short, it is at
the level of the interstate dyad where we get the most analytical leverage on the two
central questions.

Third, focusing on interstate dyads gives us a degree of modeling flexibility that is
not possible with other units of analysis. Not only can we include inherently dyadic
variables, like relative power, in model estimation, but we can include both unit level and
system level variables as well. This will enable us to test the dyadic theory of conflict
against a full set of control variables, a process which should buoy our confidence in the
robustness of the results. Finally, casting this study in dyadic terms will allow it to speak
to the bulk of the current literature on international conflict. The advantages of dyadic
analysis have not been lost on international relations scholars, and it has become the
dominant unit of analysis for studies of the balance-preponderance question, as well as
several other major research programs (e.g. the democratic peace). The results from this
dissertation will, thus, fit neatly into the most current literature.

*   *   *

*   *   *

______________________________________________________________
This dissertation is structured as follows. The first chapter begins by defining severe military conflict – the dependent variable in all subsequent analysis. I then turn to an investigation of the theoretical and empirical literature on the balance-preponderance question. I show that the theoretical literature has been portrayed as a stark dichotomy between proponents of the ‘balance leads to peace’ and the ‘preponderance leads to peace’ schools, and that the empirical literature on the question has yielded ambiguous results on this question. This prompts me to investigate the roots of the two arguments to find answers to the quandary. I find that the fathers of both schools argued that interests had an important conditioning effect on the relationship between relative power and conflict. When we recognize this fact, the arguments of these two supposedly diametrically opposed schools of thought seem quite similar. However, when we consider their arguments in a dyadic framework it becomes clear that power and interests do not have both independent and interactive effects on interstate conflict as the theories are currently stated. This prompts the development of the dyadic theory of conflict, whose four central hypotheses not only allow for independent and interactive effects for power and interests, but allow us to hypothesize about which of the two variables is likely to have the greater influence on military conflict.

The second chapter conceptualizes and operationalizes both relative power and dyadic interest similarity. I begin by reviewing the literature on national power, and arrive at an operational measure that taps a nation’s actual military power – the portion of the concept that is most relevant to interstate conflict. I then operationalize national power in a dyadic framework, effectively making the measure a gauge of relative military
power that varies from balanced (.5) to preponderant (1). The second half of the chapter follows the same procedure for interests, and arrives at a measure of dyadic interest similarity that varies from dissimilar (.5) to similar (1).

The third chapter has two parts. In the first part of the chapter I seek to test the face validity of the operational measures of relative power and interest similarity that were developed in Chapter Two. To do this I chart the two measures over time for four important dyads: United States-Russia/Soviet Union, France-Germany/West Germany, Israel-Egypt, and Israel-Syria. This process shows that both measures perform very well for both the great power and the non-great power dyads. The measure of relative power responds to significant military buildups, periods of industrialization, and economic growth. The measure of interest similarity corresponds well with significant periods of both cooperation and tension. I am also able to demonstrate that both measures vary substantially over time. The second part of the chapter begins testing the dyadic theory of conflict with descriptive and non-parametric statistics on interstate conflict. Even with such a cursory test, I am able to demonstrate substantial support for the core hypotheses.

The fourth and fifth chapters present the multivariate tests of the dyadic theory of conflict. In Chapter Four I test the four central hypotheses on dispute severity using a sample selection model that includes numerous control variables. Even in the face of these controls, there is strong support for the central hypotheses. Moreover, I am able to demonstrate just how strong this support is by using simulation techniques to generate model predictions, and confidence intervals around those predictions, as each variable in the model varies. Chapter Five adds a dynamic element to the dyadic theory of conflict,
and contains two quantitative models which test dependent variables that round out our definition of severe military conflict. The first model uses event history techniques to discern the effect of changes in the balance of military capabilities and changes in the level of dyadic interest similarity on the timing of disputes within disputatious dyads. The second model uses sample selection techniques to do the same. In both cases I find strong support for the central hypotheses, even in the face of numerous confounding variables.

Chapter Six concludes by reiterating the main results from Chapters Three, Four, and Five. This not only serves as a summary of the findings, but will also allow us to compare results across chapters – a process that will yield some additional conclusions. Subsequent sections of the concluding chapter place the dyadic theory of conflict within the larger debate between realist and liberal theories of international relations, examine how additional insights from realist theory may be used to improve the arguments made here, and highlight some interesting avenues for future research.
CHAPTER 1

POWER AND INTERESTS IN WORLD POLITICS:
A DYADIC THEORY OF CONFLICT

1.1 Introduction

As I noted in the introduction, the question of whether it is dyadic balances or
preponderances of military power that are more pacific is central to the study of severe
military conflict. This chapter reviews its centrality, and highlights a number of
problems with the current theoretical and empirical literature on the balance-
preponderance question. I develop a new theory, which not only posits an answer to the
balance-preponderance question, but also develops an answer to the question of how
dyadic interest similarity is related relative military power and interstate conflict.

This chapter is organized as follows. The next section defines severe military
conflict, which is the dependent variable in this study. In section 1.3 I explore the
underlying logic on both sides of the balance-preponderance question, and examine the
literature that has sought to test it empirically. It is here that I establish that there is a
good deal of theoretical and empirical ambiguity on this question. Section 1.4 argues the
reason for this ambiguity is that scholars have often omitted the crucial conditional
variable from their analysis. I show that almost all Classical Realist scholars argued that the proper relationship between the distribution of power and interests was conditional. In fact, when we include the interest variable in the equation we see that the fathers of the balance leads to peace argument (Morgenthau 1948/1985) and the preponderance leads to peace argument (Organski 1958/1968) make strikingly similar points. The effect of the distribution of power on conflict varies as interest similarity varies, and final section of the chapter offers a theory that is much more explicit about the independent and interactive effects of power and interests on conflict than its predecessors. I build upon the Classical Realist literature to offer a constraints-based model of dyadic conflict which explicitly focuses on the distribution of power and the level of interest similarity. I term this theory the dyadic theory of conflict, and it yields the four central hypotheses that will be tested in the subsequent chapters.

1.2 Defining Severe Military Conflict

Before addressing the theoretical arguments and empirical tests it is important to define what I mean by severe interstate conflict, and how my definition compares to others that are standardly used in empirical studies. My goal is to adequately capture what the theoretical scholars, on whose arguments my own is based, meant by severe conflict while at that same time arriving at dependent variables that are not only robust for statistical estimation but adequately speak to the current empirical literature in the field. This is a difficult task that we cannot accomplish with a single dependent variable. Classical theorists considered severe interstate conflict to be characterized by war, and
often only the most serious of wars. The current empirical literature in the field tends to investigate conflict at a lower level, and has introduced the concept of interstate rivalry to characterized dyads who have repeated forms of such conflict. We need a conceptualization of severe military conflict that encompasses all three aspects of the literature: war, lower level militarized conflict, and repeated conflict over a period of time. For our purposes severe military conflict, within interstate dyads, can be conceptualized as the occurrence of a specific militarized clash, such as a war, or a state of relations in which repeated militarized clashes create the atmosphere of interstate rivalry where war is a real possibility.8 I argue we can observe such severe military conflict within interstate dyads in three ways: conflict severity, conflict frequency, and conflict escalation.

Conflict Severity. When scholars in the classical literature referred to severe interstate conflict they meant war (Morgenthau 1945/1985, Claude 1962, Kissinger 1964, Organski 1968).9 It is not difficult to understand why, as these scholars wrote while

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8 Many scholars writing in the Realist tradition argue that the anarchical structure of the international system (i.e. there is no central governing authority) makes the possibility of war ubiquitous (Waltz 1979). While the anarchic nature of the international system certainly makes drives for power ubiquitous (Mearsheimer, 2001), the notion that the possibility of war is ever-present is more controversial. At the level of the system this point is debatable (Milner 1991, Wendt 1992, 1999), but at the level of the dyad it is clearly false. There are thousands of interstate dyads, and war, or even lower level conflict, is only even a possibility in a small percentage of them. As Diehl and Goertz (2000, 1) point out, “Wars do not suddenly occur between two states, but rather almost always arise in situation in which the two countries had serious conflict and have been using the military instruments of foreign policy against one another.” These dyads comprise a relatively small percentage of all possible dyads, but account for a very large percentage of interstate wars.

9 The lack of clear operationalizations is rampant in this early literature, and what exactly these scholars meant by war is a case in point. Morgenthau (1985, 392) argues that war has become total in “our time” with respect to four criteria, “(1) the faction of the populations completely identified in its emotions and conviction with the wars of its nation, (2) the fraction of the population participating in the war, (3) the fraction of the population affected by the war, and (4) the objective pursued by the war.” It is clear that, by severe militarized conflict, scholars like Morgenthau meant the most acute and rarest form of conflict.
World War Two was still fresh in their memories and the Cold War conflict between the United States and Soviet Union seemed to threaten global destruction. There is, however, a sharp contrast between what these scholars conceived of as their ‘dependent variable’ and the way that variable has been operationalized in the recent quantitative literature. Overwhelmingly, the recent literature has operationalized conflict as a Militarized Interstate Dispute (MID), which includes many incidents in which military force was not even used (threats) and excludes all incidents where military force was used but there were more than 1,000 battle related fatalities (e.g. Oneal and Russett 1999). Those uses of force with over 1,000 fatalities are considered interstate wars (Sarkees 2000) and are often omitted from the analysis despite the fact that these are the conflicts with which the classical theorists were most likely concerned.

While the statistical reasoning for the decision to focus on MIDs rather than Wars is understandable, wars are rare events that are not particularly amenable to quantitative analysis (King and Zeng 2001); it would be far better to remove the artificial 1,000 battle death distinction and combine the MID data set with the War data set. This would enable us to speak to the current quantitative literature and the classical theoretical literature simultaneously, and allow us to generate expectations from our models that can be substantively interpreted along the entire range of militarized conflict. The first

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10 A MID is defined as a militarized conflict between two members of the international system involving the threat, display, or use of force (Jones, Bremer, and Singer 1996).

11 Between 1886 and 1992 there are only 53 Interstate Wars in the Correlates of War data (Sarkees 2000). When broken down so that the dyad-year is the observation, only 991 of 475,820 observations experience war. MIDs are rare too, but the problem is not nearly as acute.
dependent variable, *conflict severity*, does exactly this. It comes from a combination of the MID (Jones, Bremer, and Singer 1996) and Interstate War (Sarkees 2000) data sets and ranks conflicts by their severity (Diehl and Goertz 2000).\(^{12}\)

*Conflict Frequency and Escalation.* While the data on conflict severity both speaks to the classical literature’s focus on interstate war and the current quantitative literature’s focus on lower level conflicts it does not identify those dyads that have repeated militarized conflict. The recent focus on the subset of dyads that are interstate rivals has been impressive both in its volume and its quality (Goertz and Diehl 1992, 1993; Bennett 1996, 1998; Diehl and Goertz 2000). It has established that the majority of interstate conflict is generated by the relatively small sample of dyadic interstate rivals, and that relations between rivals are characterized by the constant possibility of war. Because of this, relations between rivals, even when there is not an ongoing dispute, are a form of severe militarized conflict. The seriousness of the militarized conflict between rivals is a function both of the frequency of the disputes, and whether those disputes tend to escalate (become more severe) over time. These specific dependent variables will be investigated in Chapter Five, but when we refer to severe military conflict in this chapter we mean not only the severity of a particular conflict, but also the frequency and escalation of those conflicts that tend to recur within specific dyads.

\(^{12}\) Severity is a function of each conflict’s level of hostility (threat, display, use of force), and the number of fatalities, given that there were fatalities. A full operationalization of this dependent variable is provided in Chapter Four, where that variable is used in the empirical tests.
1.3 The Balance-Preponderance and Conflict Question

The question of whether balances or preponderances of power are more peaceful is one of the most often theorized and examined questions in the International Relations literature. It is often theorized because power and conflict are two central concepts in international relations and understanding their relationship has long been thought to be important. The question is often tested because scholars have advanced two equally intuitively satisfying and seemingly contradictory claims concerning dyadic power distributions and the likelihood of severe conflict.

According to the balance produces peace argument, two states, being of equal capability will be deterred from conflict with each other because the equal balance means the winner of any conflict will be uncertain and the conflict will likely be long and hard-fought. When one of the states, on the other hand, holds a preponderance of capability, it assumes the outcome in any conflict with its adversary will be an easy victory, and will seek to take advantage of this knowledge with aggressive behavior that will lead to severe conflict. This makes conflict less likely under a dyadic balance of power and more likely under a dyadic preponderance of power (Claude 1962, Liska 1962, Wolfers 1962, Wright 1965, Kissinger 1979, Morgenthau 1948/1985). Proponents of this argument

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13 Another way to read Classical Balance of Power Theory is that balances are beneficial because they produce greater autonomy of action for states and/or because a balance assures that states will not be eliminated from the system. While this may be true, the point is outside my focus as I am interested in testing propositions related only to the likelihood of conflict.

14 While it is true that many of the scholars who have theorized about the pacific benefits of a balance have done so at the systemic level, it is legitimate to transfer these expectations down to the dyadic level. First, prominent balance of power theorists often conceptualize the balance as working with as few as two actors, be they coalitions or single nations. For instance, Wolfers (1962, 118) refers to a balance as a, “roughly equal distribution of power between two opponents,” and Morgenthau himself often used explicitly dyadic arguments, noting (1985, 193) that, “It is in situation such as these that the balance of power operates and
often cite many of the examples of Great Power aggression mentioned in the introduction to substantiate their argument. The intuitive appeal of this hypothesis is obvious and as a result, perhaps not surprisingly, Blainey (1988, 109) notes, “That a lopsided balance of power will promote war is probably the most popular theory of international relations.” Despite its popularity, not all agree with the basic premise of the balance leads to peace school.

An equally intuitively appealing and “diametrically opposed” theory has been proposed by the Power Transition Theories (Bueno de Mesquita 1989, 151). According to the Power Transition Theorists a preponderance of power produces peace because under a preponderance the weaker state will not fight to get what it wants, because it will certainly lose, and as a result the stronger state will not have to fight to get what it wants.

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15 The primary critic of balance of power theory (see below), agrees with this assessment, “The idea of a balance of power is certainly plausible and surely interesting. Indeed, it has been proclaimed so many times and by such august authorities that it has entered into that realm of ideas that people almost take for granted” (Organski 1968, 282).
In other words, two states, where one is much more powerful than the other, will not fight because the chance of conflict is greatest when both sides see a chance for victory - that is, when a balance is present.\textsuperscript{16} Therefore, a dyadic preponderance of power will be more peaceful (Organski 1968, Organski and Kugler 1980, Blainey 1988, Kugler and Lemke 1996, Lemke 2002).\textsuperscript{17}

1.3.1 Empirical Tests of the Balance-Preponderance Question

On their face, there is little to distinguish which of the two arguments is more convincing,\textsuperscript{18} and both sides to the debate have strong adherents. The stark theoretical dichotomy, unsurprisingly, has led to a bevy of empirical tests that have sought to answer the balance-preponderance question. On the whole this literature is hampered by the fact that the studies in it analyze different time periods (which are often constrained to only a short duration), utilize different samples, employ different operational definitions of both power and conflict, and use a bevy of statistical methods; but a review of the empirical record is necessary. While the bulk of the recent empirical evidence has leaned in favor of the preponderance is more peaceful argument, we will be able to show the empirical

\textsuperscript{16} As Organski (1968, 294) puts it, “Nations are reluctant to fight unless they believe they have a good chance of winning, but this is true for both sides only when the two are fairly evenly matched, or at least when they believe they are. Thus a balance of power increases the chances of war. A preponderance of power on one side, on the other hand, increases the chances for peace, for the greatly stronger side need not fight at all to get what it wants, while the weaker side would be plainly foolish to attempt to battle for what it wants.”

\textsuperscript{17} Unlike the Balance of Power Theorists (above) it is clear that the Power Transition theorists who argue that preponderances of power are more peaceful are clearly speaking in dyadic terms (e.g. Organski and Kugler 1980).

\textsuperscript{18} Non-participants to the debate essentially agree with this assertion. For instance, Bremer (1992, 313) notes, “Both sides make convincing arguments that appeal to common sense.”
record is actually much more ambiguous than that. Not only have there have been some studies that have found a balance is more peaceful, but those that have found the opposite can both be critiqued on several fronts and often actually present ambiguous results. It is to a review of that literature I now turn.¹⁹

There have been a few empirical studies that support the balance leads to peace argument. Ferris (1973) found that 34 of 42 interstate wars between 1850 and 1966 occurred in dyads where the stronger states had a military capability score at least 1.45 times greater than its adversary and concluded (92), “Force is more likely to be threatened and more likely to be used as the disparity [in military power] increases… As disparity increases the number of intense conflicts increases, while the number of nonconflict events diminishes.” Bueno de Mesquita (1980) found that initiators of interstate wars between 1816 and 1974 were approximately twice as likely to be significantly more powerful than their targets. Siverson and Tennefoss (1984) reported that conflicts between major powers escalate to war much less often than do those in major power-minor power dyads. Finally, using a systemic power variable that taps the degree to which power is dispersed among system members Singer, Bremer, and Stuckey (1972), find that a balance of capability is associated with peace in the nineteenth century, but they found the opposite relationship in the twentieth century.

¹⁹ I will only discuss the ‘static’ literature on the ‘balance-preponderance’ question here. The static literature investigates how particular distributions of power, not shifts in those distributions, effect conflict. The dynamic literature, which investigates shifts in distributions of power, can really be considered as distinct from the static literature because it is rare to find a study that tests both specifications. We will consider the question of dynamism in depth in Chapter Five.
Many more empirical studies have found in favor of the preponderance leads to peace argument. In one of the first explicit empirical tests of the balance verses preponderance debate, Garnham (1976a) investigated 30 dyadic interstate wars that took place between 1816 and 1965. He expected, and found, that more of those wars occurred between states that were relatively balanced in terms of military power. In a separate study Garnham (1976b) limited the temporal domain to the period from 1969 to 1973 and compared 16 ‘lethal dyads’ to 62 ‘non-lethal dyads’ and found that the lethal dyads tended to exhibit power parity while the non-lethal dyads tended to exhibit power preponderance. Weede (1976) reaches a similar conclusion for all Asian dyads between 1950 and 1969. Organski and Kugler (1980) demonstrate that balances, more specifically shifts toward balances, are more conflictual than preponderances among a subset of dyads drawn from the system leader and major power contenders.

While the short temporal or spatial domain of these studies may cast some doubt on their conclusion, in a seminal study Bremer (1992) uses data on all interstate dyads between 1816 and 1965 and finds a weak statistical relationship between balanced dyadic power and war. Stronger evidence in favor of the hypothesis has been found in virtually all of the numerous studies either supporting or critiquing the ‘democratic’ or ‘Kantian’ peace. They have controlled for dyadic power distributions and demonstrated dyadic preponderances are associated with a decreased likelihood of militarized conflict (Maoz

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20 For Garnham, ‘lethal’ dyads are those pairs of states that both have a history of militarized conflict and are geographically contiguous. The ‘Non-lethal’ dyads are contiguous, but do not have a history of militarized conflict.

21 Additional studies that have found an association between preponderance and peace include Mihalka (1976), Mandel (1980), Moul (1988), and Geller (1993).
Based on the evidence it may seem as if the preponderance leads to peace argument has won substantial support. A variety of studies have found dyadic power balances to be positively related to a variety of measures of interstate conflict, and only a few have found in favor of the opposite. This has led to what some have claimed to be a consensus in the field. For instance, Geller (2000, 268) concludes a review of the extant literature on the topic by noting, “The analysis indicates a growing and cumulative body of evidence pointing to the salience of both static and dynamic capability balances for the occurrence and initiation of militarized disputes and warfare. Specifically, conditions of approximate parity and shifts toward parity are consistently and significantly associated with conflict and war irrespective of [sample].” Yet, without exception those studies that have found in favor of the preponderance hypothesis can be heavily critiqued and/or actually contain mixed empirical evidence. This casts doubt on the seeming consensus.

Some of the studies can be critiqued to the point that it one becomes doubtful that they actually answer the balance-preponderance question. For instance, the studies by

22 Many of these studies also employ some subset of all dyads reflecting political relevancy. See Chapter Four for a discussion of this topic.

23 This is the same temporal domain as I cover in the empirical chapters that follow.
Garnham (1976a,b), and Weede (1976) can be criticized both because of their limited temporal and spatial domains, and also because of peculiar data coding decisions that leave their conclusions questionable at best. Garnham (1976a) rank orders all states in the system at the time each of the 30 dyadic wars under investigation broke out in terms of his measures of national power. On any of the measures a few of the nations are likely to have very high values, while most have relatively small values. Rank ordering obscures the cardinal differences between the ‘top dogs’ and the rest of the states in the system, and biases the results in against the balance leads to peace argument. Consider an example from Garnham’s (1976a) article using the total population measure. The rank order difference between France and Spain in 1823, an example I used in the introduction to demonstrate that preponderant dyads engaged in severe conflict quite often, is 4. According to his analysis, Garnham (1976a) considers this dyad to be fairly balanced because their rank order on this measure is fairly similar, however reviewing the data on populations in 1823 shows that France was over two and a half times as populous as Spain. Thus, this war could easily be construed as a war within a preponderant dyad. Indeed, when we use all six measures from the Correlates of War Composite Index, no

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24 Those measures were: geographical area, population size, fuel consumption, and steel production. It is odd that none of these indicators measure military power directly (see Chapter Two for a discussion of conceptualizing and operationalizing national power), but this is a fairly minor criticism compared to the problems created by rank ordering nations.

25 In 1823 there were 23 states in the international system, so the rank order difference could have been as great as 22.

26 France’s population in 1823 was 34,940,000 and Spain’s was 11,672,000 according to the Correlates of War data (Singer, Bremer, and Stuckey 1972).
doubt a more robust indicator of national power than relying on population alone, we see that France was over four times as powerful as Spain.\textsuperscript{27}

Garnham (1976b) encounters a different problem. Because he attempts to control for positive relationship between geographical contiguity and conflict by examining cases of conflict among contiguous states, his results are biased against finding many of the cases of conflict in preponderant dyads. This can be most easily seen by considering Great Powers, like the United States, who are able to project their power of large distances. The United States has had many conflicts with weaker states located some distance away precisely because of its power advantage. Yet, all such cases are excluded from Garnham’s (1976b) analysis. Subsequent studies (e.g. Oneal and Russett 1999) have found that Great Powers are much more likely to have militarized disputes than other states, but Garnham’s (1976b) dataset consists of only one great power dyad (Soviet Union-China) among the 78 dyads analyzed. Including more Great Power dyads, no doubt, would have weakened his results (Siverson and Sullivan 1983).

Weede (1976) encounters a similar problem because he restricts his study to contiguous nations as well, but there are other, more fundamental problems with using Weede’s (1976) study to substantiate the preponderance leads to peace hypothesis. Weede considers dyads where a 10:1 ratio in power indictors, which include GNP and military expenditures, exists preponderant, and dyads with a smaller ratio than that balanced. However, ratios of 9:1 or even 5:1 may be considered too large to be treated as

\textsuperscript{27} This method contrasts with Ferris (1973) who uses several continuous measures of national power and obtains an index that, if one were to accept his operational definitions, reflects the cardinal nature of power distributions.
a balance. In a review of these three studies (Garnham 1976a,b; Weede 1976), and several others from the early quantitative literature on the balance-preponderance question, Siverson and Sullivan (1983, 491) conclude the question, “…has not been addressed sufficiently to produce any fully satisfying answers. Those studies that have tended to support the theory that power parity leads to war have drawn their data from extremely restricted samples of data or have transformed the data in a way that restrict variance in the indicators of power.”

Problems exist with the more modern studies as well. The democratic peace studies are constructed far better than the earlier studies, but they suffer from another problem. The balance-preponderance question has most often been phrased with respect to war, or at least severe interstate conflict. This was certainly the case with the balance of power theorists (e.g. Morgenthau 1948/1985, Kissinger 1979) and the power transition theorists (e.g. Organski 1958/1968, Organski and Kugler 1980). Yet these studies collapse all interstate conflict into a dummy dependent variable where the ones include everything from disputes between the United States and Canada over fishing rights to World War Two between Germany and the United Kingdom.28 A closer examination of the data used to code the dependent variable in these studies reveals that over 25% of the disputes did not even involve the use of force one of the sides (Jones, Bremer, and Singer 1996, 197), and (as I mentioned above) conflicts that do involve the use of force but result in over 1,000 battle related deaths are excluded because they are interstate wars.

28 For a definition of the coding rules typically used to code the dependent variable in these studies see Jones, Bremer, and Singer (1996). The militarized interstate disputes that form the 1s on this dependent variable are all threats, displays, or uses of military force from one member of the interstate system to another.
While it is clearly the case that preponderant dyads are less likely to have militarized disputes,\(^{29}\) the heterogeneity of that category calls the result into question with respect to severe interstate conflict. Frequent dyadic conflict, escalatory conflict, and war are not analyzed. When this heterogeneity is accounted for there is good reason to believe the results will differ.

Moreover, several of the studies actually contain ambiguous evidence on the balance-preponderance question. For instance, while Organski and Kugler (1980) do demonstrate that balanced contender dyads where the weaker state is growing in power relative to the stronger state are the most conflict prone type of dyads, a closer look at their results shows a great deal of ambiguity. When they remove the dynamic element from the test they find that 13.8% of stable preponderant dyads experience war (13 of 94). That percentage increases to only 18.8% (6 of 32) for the stable balanced dyads. This difference is neither statistically nor substantively significant. Moreover, their results indicate that no stable balanced or stable preponderant contender dyad (a subset of all of the dyads in their analysis that includes only the most powerful states in the system) had experienced war.\(^{30}\) This certainly seems to cast doubt on the conclusion that only preponderances are more peaceful.\(^{31}\)

\(^{29}\) The democratic or Kantian peace literature has been a major focus of the field in the past decade, and the basic results (reported first in full by Maoz and Russett (1993) and Oneal and Russett (1997)) have been critiqued on a number of fronts ranging from methodology (Beck, Katz, and Tucker 1998, Green, Kim, and Yoon 2001) to model specification (Gartzke 1998). The finding that dyadic preponderances deter militarized interstate disputes has been robust across critiques. In fact, this consistency has typecast the once central balance-preponderance question to a relatively minor role in these studies (for instance in their 2001 opus on the Kantian peace Russett and Oneal spend exactly one paragraph on the question).

\(^{30}\) See Organski and Kugler (1980, 50-52) for a discussion of these results. This may say something about shifts in the dyadic power distribution and conflict, a subject we will investigate in Chapter 5.
Upon further inspection, this type of ambiguity is actually quite common. For instance, while Bremer (1992) finds a statistical relationship between balanced dyadic power and war, an inspection of his conditional probabilities of war (1992, 326) shows little actual relationship between the dyadic power balance and war. Bremer breaks all of the dyads in the international system into three categories: those with a large difference in military capability (stronger side ten times stronger than the weaker side), those with a small difference in military capability (stronger side less than three times as powerful as the weaker side), and those dyads in between. Dyads with a large difference in military capability experienced 27 wars, dyads with medium differences in military capability experienced 28 wars, and dyads with small differences in capability experienced 29 wars. In bivariate analysis, which controls for the numbers of each type of dyad, the differences between them are not statistically significant. Indeed, several other studies also fail to find a significant relationship between the dyadic distribution of power and conflict (e.g. Kim 1989, Kim and Morrow 1992).

This discussion leads to two clear conclusions. First, there are convincing theoretical arguments on either side of the balance-preponderance debate with little to distinguish which of the two sides is correct. As a result, scholars have turned to empirical tests of the question to find a winner. This leads to the second conclusion. The extensive record of empirical tests of the question only accurately reflects the theoretical

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31 Indeed, based on these results from the Organski and Kugler (1980) a recent study Kadera (2002, 26) concludes, “...[Balance of Power] arguments cannot be dismissed.”
ambiguity – no clear winner is obvious.\textsuperscript{32} Could it really be the case that power, long thought to be the most important independent variable in international relations, is unrelated to conflict? It has been over fifty years since the question was first posed, and it is still very much an open question: are dyadic balances or preponderances of power more conflictual? I argue a great deal of light can be shed on the question by considering the effects of an important conditioning variable that is often omitted from the empirical studies: interests.

\textit{1.4 Interests and the Balance-Preponderance Question}

The state of the literature on the balance-preponderance question is perplexing. Reasonable arguments can be made claiming either dyadic balances or preponderances of power are associated with increased conflict, and the empirical literature seeking to put the question to the test has yielded ambiguous results. This section argues that adding interests to the equation provides a solution to the question. I demonstrate that this is not a unique argument. When we consider the arguments of the founding fathers of the two schools three facts become clear. First, both schools have their roots in scholars who argued that it was crucial, when assessing how the distribution of power affects the likelihood of severe interstate conflict, to include a measure of interests. Second, as a

\textsuperscript{32} Several other notable recent studies (e.g. Powell 1999, esp. 109-10) have expressed a similar take on the state of the empirical literature on the balance-preponderance question. Kadera (2002, 27-8) concludes, "To date, straightforward statistical analyses that assess the relationship between power distributions and the outbreak of war... have proven largely unsatisfactory. Neither inequality nor equality is clearly associated with war proneness." Some even argue that the empirical ambiguity is to be expected, "the logical contradictions between the balance of power and the preponderance models make it likely that neither would prove to be correct" (Vasquez 1993, 55).
result of the fact that many have overlooked this part of their arguments, the chasm between the two schools is not as wide as is commonly assumed. In fact, in only one of the four conditions generated by variation on interests and variations on the distribution of power do they differ. Third, by investigating the arguments of the founding fathers of these two schools of thought in depth, we can see that both have important shortcomings that can be improved upon.

1.4.1 Interests and the Balance Leads to Peace Argument

Hans Morgenthau’s *Politics Among Nations* (1948/1967/1985) is typically cited as the foundation of the balance leads to peace argument. Morgenthau was clear that vast preponderances of power did open the gate for the stronger state to pursue imperialistic policies with respect to the weaker state – a situation which often ended in military conflict. Yet it is incorrect to say that Morgenthau argued the opposite situation, a balance of power between two states, necessarily produced peace. Indeed, as he points out (1985, 230), many wars have been fought to both maintain and restore the balance of power between states. A definitive statement regarding power balances and war or peace could only be made when one factors the interests of the states into the equation.

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33 Pairs of states may either have a balanced or a preponderant distribution of power between them, and they may have either similar or dissimilar interests.

34 This is the case only if the more powerful state is pursuing an imperialistic foreign policy. As we will see below, Morgenthau distinguished between such states and status quo states, who seek only to protect what they have. Although Morgenthau does not explicitly treat the case of preponderant status quo powers and their relations with weak states it is reasonable to assume that when a status quo state has a preponderance of power over another state, by definition, it will not pursue an aggressive foreign policy and conflict will not ensue.
The third of Morgenthau’s six principles of political realism makes this point explicit. Morgenthau (1985, 10-2) approvingly cites Thucydides, Lord Salisbury, George Washington, and Max Weber in arguing conflict will not exist where common interest prevails.\textsuperscript{35} In fact, he argues a balance of power will only ensure peace when those involved in it have a common interest in its maintenance. He states (239),

\begin{quote}
Before the balance of power could impose its restraints upon the power aspirations of nations through the mechanical interplay of opposing forces, the competing nations had first to restrain themselves by accepting the system of the balance of power as the common framework of their endeavors… It is this consensus - both child and father, as it were, of common moral standards and a common civilization as well as of common interests - that kept in check the limitless desire for power, potentially inherent, as we know, in all imperialisms, and prevented it from becoming a political actuality. Where such a consensus no longer exists or has become weak and is no longer sure of itself, as in the period starting with the partitions of Poland and ending with the Napoleonic Wars, the balance of power is incapable of fulfilling it functions for international stability and national independence.
\end{quote}

In the absence of such common interest, however, a balance would produce war. This happened most often when states that sought to maintain the status quo faced states bent on imperialistic expansion (230),

\begin{quote}
The opposition, under the conditions of the balance of power, between one status quo nation or an alliance of them and one imperialistic power or a group of them is very likely to lead to war. In most instances, from Charles V to Hitler and Hirohito, they actually did lead to war. The status quo nations, which by definition are dedicated to peaceful pursuit and want only to hold what they have, will hardly be able to keep pace with the dynamic and rapid increase in power characteristic of a nation bent upon imperialistic expansion… In such a situation, war, with its
\end{quote}

\textsuperscript{35} He goes on to point out (1985, 11) that state interests can vary quite substantially, “The goals that might be pursued by nations in their foreign policy can run the whole gamut of objectives any nation has ever pursued of might possibly pursue.” There is thus a notable difference between the Classical Realist thought of Hans Morgenthau and the Neo-Realist thought of Kenneth Waltz (1979).
incalculable possibilities, seems to be the only alternative to an inglorious absorption into the power orbit of the imperialistic nation.

It is not only clear that Morgenthau is conceiving of the balance of power in dyadic terms (see fn. 14), but more importantly he is arguing that the expectation of conflict is effected by the distribution of power conditional on whether states have similar interests. For Morgenthau, the concepts of power and interest are intertwined. Balances of power will only be peaceful when the states in question share an interest in maintaining the status quo, and will be conflictual when one state (or coalition) is seeking to maintain the status quo and that other state (or coalition) is seeking to overthrow it. Unlike how the subsequent literature has portrayed the argument, Morgenthau did not argue that balances unconditionally lead to peace. In fact, a central element of classical balance of power theory is that war must be a legitimate tool of statecraft (Jervis 1985). This implies that wars are possible, perhaps even likely, when power is balanced.

In fact, the Classical Realist scholars who can be grouped with Morgenthau into one theoretical camp (and are often cited with Morgenthau as supporting the balance leads to peace argument) have all highlighted the importance of interests in shaping the conflict expectations that derive from various dyadic distributions of power. In his classic study of the Concert of Europe, Kissinger holds the cause of peace was not the fact that in the wake of the Napoleonic wars most European Great Powers were of equal military capability, it was the similarity of interests between them. Stability of the system, according to Kissinger, comes not from the mere quest for peace, but from a

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36 In fact they were not. In the wake of the Napoleonic Wars Great Britain was by far the most powerful state in Europe.
system that is generally accepted as legitimate. Legitimacy, he argues (1964, 1), “means no more than an international agreement about the nature of workable arrangements and about the permissible aims and methods of foreign policy. It implies the acceptance of the framework of the international order by all major powers, at least to the extent that no state is so dissatisfied that, like Germany after the Treaty of Versailles, it expresses its dissatisfaction in a revolutionary foreign policy.” Legitimacy, then, is the type of common interest to which Morgenthau (above) referred - a common interest in maintaining the status quo and preserving peaceful relations amongst the states in the system. In Kissinger’s framework when a revolutionary power exists, the question will not be one of compromise by diplomacy, but one of the nature of the system itself. It was Europe’s (and Metternich’s) great fortune that no such revolutionary powers existed in Europe after the defeat of Napoleonic France. Stability was possible because it was (1964, 319), “the common conviction of all statesmen” (Kissinger’s italics).³⁷

Contrasting between two types of states based on their interests and then deriving conflict expectation from this dichotomy is, in fact, a common characteristic of the Classical Realist literature.³⁸ Indeed, such a distinction could be considered the hallmark of this literature. As Schweller (1998, 20) points out,

³⁷ Morgenthau further illustrates the importance of common interests with respect to the Holy Alliance when he argues its demise was inevitable in the 1820s because of the, “diametrical opposition between the two main members of the Alliance as to what the defense of the status quo - upon which they had all agreed as the guiding principle of justice in the abstract - meant in concrete political terms. That meaning was determined by the national interests of the individual members. If those interests happened to coincide, the Alliance could act in unison as one collective body. If those interests diverged, as they were bound to do from time to time and as they did permanently in the case of Great Britain and Russia, the Alliance ceased to operate” (1985, 487).

³⁸ In Chapter Two I will argue that such typologies, while important because they bring the interests of states to the forefront, are not particularly useful for empirical analysis (see: Schweller 1998 for the best
…[Classical] realists invariably distinguished between two types of states: Morgenthau called them imperialistic and status-quo powers; Schuman employed the terms satiated and unsatiated powers; Kissinger referred to revolutionary and status-quo states; Carr distinguished satisfied from dissatisfied Powers; Johannes Mattern, among other geopoliticians, divided the world into “have” and “have-nots,” Wolfers referred to status quo and revisionist states; and Aron saw eternal opposition between the forces of revision and conservation.

Thus, with respect to the Classical Realist scholarship we can see that the traditional casting the balance-preponderance question in terms of power alone is incorrect.

Virtually all members of this distinguished theoretical camp argued that state interests played a large role in determining dyadic conflict.

1.4.2 Interests and the Preponderance Leads to Peace Argument

As noted above, when we consider only power, the balance leads to peace and the preponderance leads to peace arguments seem to be in stark contrast. Almost every writer who has commented on the relevant literature has made this point. For instance, Siverson and Sullivan (1983, 474) argue that the two schools, “make completely opposite predictions about the effect of the equality of power in the international system.” Bueno de Mesquita (1989, 151) says, “These perspectives lead to fundamentally different hypotheses about the factors leading to war (or peace)… These propositions seem diametrically opposed and appear to be incompatible…” In a review of the extant literature on the question Geller (2000, 263) identifies the balance leads to peace and the attempt). States rarely fall neatly into one of the two categories, and ‘typologizing’ states actually leads to indeterminate conflict expectations between some ‘types’ of states. For me, interest similarity means two states have revealed similar preferences over outcomes (such as alliance partners, adversaries, or voting in international organizations) in international relations.
preponderance leads to peace arguments as “opposing theoretical positions.” However, when we consult the work of the father of the preponderance leads to peace school the stark contrast between the two schools is decreased and several strikingly similar arguments emerge.

At first blush, Organski (1958/1968) seems to be making an argument that is exactly counter to balance of power theory. He notes (1968, 272) at the outset of his discussion of balance of power theory, “[it] distorts grossly the meaning of events… it is an alien plant plucked from another discipline and forcibly transplanted in the field of international power relations. What is more, the theory is not even consistent with itself.” As he begins to articulate the power transition perspective he notes (294), “The relationship between peace and the balance of power appears to be exactly the opposite of what has been claimed. The periods of balance, real or imagined, are periods of warfare, while the periods of known preponderance are periods of peace. The claim that a balance of power is conducive to peace does not stand up. Indeed, it is not even logical…” He clearly sets himself up in opposition to the balance leads to peace school of thought. 39

39 There could legitimately be some question of whether Organski’s (1958/1968) Power Transition Theory falls into the Classical Realist camp. Organski and Kugler (1989, 172) argue this is not the case and point to three central differences between Power Transition Theory and Classical Realism: “Power transition rejected three fundamental assumptions imbedded in the [Classical] realist angle of vision about world politics. First, the international system had been conceived as a world governed by few rules, a world in a state of partial or total anarchy. Power transition sees the international order as not anarchical at all, but as hierarchically organized in a manner similar to the domestic political system… Second, the power transition conceived the rules governing the domestic and international political system as fundamentally similar… Nations, like political groups in the domestic system, were in constant competition over scarce resources in the international order… Third, power transition conceived international competition as driven by the potential net gains that could be accrued from conflict or cooperation. The objective of nations was not, as the balance-of-power theory argued (Morgenthau 1948), to maximize power; rather, the objective was to maximize net gains.” These three differences (particularly the third) are what lead Organski to set himself up in diametric opposition to the Classical Realists.
According to Organski’s Power Transition Theory any dyadic preponderances of power will be peaceful because the strong will not have to fight to get what they want because the weak, seeing no possibility of victory, will not bother to fight to get what they want. The risk of war will be greatest when there is a power transition between the two strongest powers in the international system, that is, when their military strength moves toward equality. However, not all such power transitions are violent because there is a second variable that factors into the conflict expectation.

Organski (1958/1968) argues that the international system is organized hierarchically, with the most powerful nation at the top of a pyramid of states. The international order, which was set up by the dominant nation, provides it benefits. The other Major Powers form the second tier in the hierarchical distribution of power, and many of them also benefit from the status quo international order and, as a result, support the dominant power. These states share an overriding common interest with the dominant state in maintaining the international order. Some Major Powers, however, do not receive benefits from the international order and thus would challenge it if they were powerful enough to do so. When they reach power parity with the dominant state the challenge is made and conflict breaks out. As Organski (1968, 364) puts it,

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40 It is true that, as originally formulated, Power Transition Theory was only a theory that applied to the few most powerful states in the system (Organski 1959/1968, Organski and Kugler 1980). However, power transition scholars have begun to apply the theory to other pairs of states (Lemke 2002). More importantly, the theory has been used to justify the argument that dyadic power preponderances should be peaceful in just about every empirical study (like the studies cited above) that has made that argument.

41 The rest of the states in the system fill out the hierarchy, but are generally too weak to have much of an effect.
Peace is possible only when those possessing preponderant power are in firm control and are satisfied with the status quo or with the way in which it promises to develop in a peaceful context. Peace is threatened whenever a powerful nation is dissatisfied with the status quo and is powerful enough to attempt to change things in the face of opposition from those who control the existing international order. Degree of power and degree of satisfaction, then, become important national characteristics to be considered when trying to locate the nations that are most likely to disturb world peace.

It is in this sense that a balance of power is related to war in the original work of the preponderance leads to peace school. What is important to realize is that if the potential challenger is satisfied with the status quo international order there will not be military conflict even if it reaches power parity with the dominant state. Military conflict ensues only when the challenging state has interests that are counter to the dominant state in the system.

Organski takes the turn of the twentieth century power transition between the United Kingdom and the United States as a case in point to illustrate the importance of interests. This transition was not conflictual because of the ‘friendship’ between the two Atlantic Powers. Organski (1968, 374-5) puts it, “Such friendship leads the challenger to be less offensive and less obvious as it passes the dominant nation in strength. One of the reasons America’s rise to power did not antagonize the British was that it was not accompanied by a stream of anti-British statements emanating from the United States… Underlying this attitude of friendship is an even more important factor… whether the challenger accepts the existing international order and merely wishes to take over its leadership, or whether the challenger aspires to create a new international order of its
own.” Thus, for Organski (much like Morgenthau) dyadic balances of power will not be conflictual when the two states share many common interests.

Like the Classical Realists who can be grouped with Morgenthau, the Power Transition Theorists who can be grouped with Organski have argued that distinguishing between states in terms of their interests is essential to understanding dyadic conflict expectations. For instance, in the most recent treatment of Power Transition Theory Lemke (2002, 100) argues that Power Transition Theory identifies, “status quo dissatisfaction as an important variable increasing the probability of war within international hierarchies.” And that, “An empirical indicator of status quo evaluations is a necessity for any empirical evaluation of… power transition theory.” Yet, the rich literature that has followed Organski’s original formulation of the theory has only recently explicitly incorporated this all-important second variable, a fact which Lemke (2002, 100) argues is, “a little more than surprising.” For instance, the first serious empirical treatment of power transition theory (Organski and Kugler 1980) makes little mention of status quo orientation. This work concerns itself with positioning the balance and preponderance schools in direct opposition and with more accurately measuring the power variable.42 Several additional empirical tests of power transition theory also omit status quo evaluations from the analysis (Houweling and Siccama 1988, Kim 1989, Gochman 1990, Geller 1993). Later tests, however, have included a measure of interest similarity between states in their models (Kim 1991, 1992, 1996, Kim and Morrow 1992, Lemke 1996, Kugler and Werner 1996, Werner and Lemke 1996, Lemke 2002). These

42 See Chapter Two for a discussion.
scholars have been faithful in testing Organski’s original theory and the key point here is that even for the preponderance leads to peace school, which is encompassed by Power Transition Theory, it is not power alone that determines conflict expectations, but power acting with interest similarity. 43

1.4.3 The Similarities, Differences, and Shortcomings of the Balance Leads to Peace and Preponderance Leads to Peace Arguments

With the two theories thus laid out we can turn to a comparison of their similarities, differences, and shortcomings. It will become clear that they are not in direct opposition as many have claimed. It will also become clear that the two theories are not laid out in a way that allows dyadic distributions of power and dyadic interest similarity

43 As one would expect from Organski’s theory this work has sometimes found that balances of military capability between states that have dissimilar interests are more conflict prone than preponderances (Kim 1991, Morrow and Kim 1992, Lemke and Werner 1996, Kugler and Werner 1996, Lemke 1996, 2002), but sometimes not (Kim 1992, 1996). Without exception, however, the results from these studies are quite questionable because of a number of empirical and statistical issues. In terms of empirics, three issues are problematic. First, the studies have tended to utilize differing measures of interest similarity. For instance, while the studies by Woosang Kim all employ alliance portfolios to measure status quo orientation, the studies by Douglas Lemke all employ extraordinary military buildups as a measure of dissatisfaction. Second, the studies have tended to compute similarity between each state and the system leader rather than between each pair of states. This is problematic, like the Classical Realist typology of states, because if two states are both dissatisfied with the international order it does not imply they agree with each other on how to change it (more will be made of this point in Chapter Two). Third, all of the studies that have used alliance portfolios relied upon Tauw, which is a measure of association that Signorino and Ritter (1999) demonstrate is inappropriate to measure similarity. Statistically, the problem is much more acute. While all of these studies correctly posit the proper relationship between power and interests is interactive none fully interpret the interaction term leaving us to wonder if their reported results are accurate. As we will examine more in depth in the quantitative chapters of this dissertation Friederich (1982) and Jaccard et al. (2000) show that in order to properly assess conditionality through an interaction term one must vary both components of the term over their ranges because the direction and statistical significance of each component term may change as the other varies. With the explicit focus of the empirical literature seeking to test Power Transition Theory, one would think correctly interpreting the interaction term would be a priority, but I know of no study within the Power Transition School that does so.
to have important independent effects.\textsuperscript{44} In terms of their similarities we can first state that power is clearly a central concept in both theories. This is an important similarity, but it is also where the only difference between the two theories lies. While for both scholars dyadic balances of power can lead to conflict, Morgenthau has a slightly larger set of conflictual situations than Organski, because he argues that dyadic preponderances of power can also lead to conflict. This is where standard comparisons of the two theories typically end as scholars have only highlighted the differences between them by focusing on only the power component.\textsuperscript{45}

However, it is also clear that interests are a central component to both theories as well - a key similarity. For Morgenthau (1985, 239) and the rest of the Classical Realists, the important distinction was between status quo states who, “are dedicated to peaceful pursuit and want only to hold what they have,” and imperialistic states who aim to maximize their power through a policy of armed conquest. Those who have claimed that Morgenthau, and the Classical Realists in general, hold that a balance of power always leads to peace are incorrect because they do not note the variation in state interests in Classical Realist Theory. For Organski (1968, 365) and his followers the distinction is between satisfied states who, “…receive substantial benefits from the international order of which they are members,” and dissatisfied states who aim to change the international order to (366), “establish a new place for themselves in international society, a place to

\textsuperscript{44} This will be the last point considered in this section and will lay the groundwork for the dyadic theory of conflict that is specified in the next section.

\textsuperscript{45} In fact, the focus on the power component is also not complete as almost all fail to point out that Morgenthau argued balances of power could be conflictual.
which they feel their increasing power entitles them.” Both scholars argue that there should not be conflict between states when their interests are similar – regardless of the dyadic distribution of power.

Both Morgenthau and Organski argue that power and interests are central to determining the expected level of conflict. However, it is still unclear the extent to which these theories, which many have held are diametrically opposed, are really alike. Such a comparison can be made if we transfer their conflict expectations down to the level of the interstate dyad. Such a move brings great analytical purchase to the question because we can display the conflict expectations of the two theoretical camps in two 2 x 2 tables and explicitly compare them. This will help to both highlight the similarities and differences in the two theories, and will enable us to pinpoint their shortcomings.46 This is done if Figure 1.1.

As we can see, because there are two variables that are thought to be related to severe interstate conflict, there are four dyadic conditions which can exist: a preponderant power distribution with dissimilar interests (4), a balanced power distribution with dissimilar interests (3), a preponderant power distribution with similar interests (2), and a balanced power distribution with similar interests (1). There is only one situation in which the two authors differ, that of preponderant situations with dissimilar interests. In

46 It is doubtful that Morgenthau saw his argument as one that applied at the level of the interstate dyad, but as I have pointed out above he often phrases it in dyadic terms. It is more clear that Organski thought his argument applied at the analytical level of the dyad, a fact supported by the fact that a number of studies that have sought to test Power Transition Theory have done so at that level. The choice to portray these two arguments at the dyadic level is made here for analytical clarity, but as I argued in the introduction, and as will become clear in the chapters that conduct empirical analysis, the dyadic level offers several attractive features that would be lost is we were to focus at other levels of analysis.
other words, there is a great deal of similarity between the two arguments. The single
most important similarity, for our purposes, is that the fathers of both the balance leads to
peace and the preponderance leads to peace schools argue that power and interests act
together to determine dyadic conflict levels.

Yet, a number of questions remain unanswered. Neither of the authors conceived
of the question as one that generates four dyadic conditions, as I do, and this leads them
both to be less than explicit about differences between conditions which are labeled
“conflict” and differences between the conditions which are labeled “no conflict.” If the
two independent variables, power and interest similarity, both truly influence dyadic
conflict, then conflict expectations should vary condition to condition. However, for
Morgenthau it appears as if conditions (4) and (3) are identical and as if conditions (2)
and (1) are identical. Since there is no variation within columns, this implies that for
Morgenthau it is only interest similarity that determines conflict expectations – the
distribution of power has no effect.47 Organski’s problems are more acute, while it is
clear that it is not the case that one variable is doing all of the work, there is no variation

47 I should note that this discussion is of only one of the many works in realist theory. Although, as I point
out many of the Classical Realists made arguments that are very similar to Morgenthau’s. Augmenting
Morgenthau’s take on the 2 x 2 table with some of this other work would yield further differentiation
between cells. For instance, as defensive realists have pointed out (Jervis 1978, Christensen and Snyder
1990, Glaser 1997), even states with similar interests may find themselves in conflict from time to time
because they are hooked on the horns of a security dilemma. This is most likely if offensive weapons
dominate over defensive weapons, and the two types of weapons are indistinguishable from each other.
Other realists have argued that the distribution of power in the international system, usually in terms of
polarity, dramatically affects the likelihood of conflict (e.g. Waltz 1979). Obviously, adding variables such
as the offense-defense balance and the polarity of the international system would complicate the discussion.
This is undesirable because it is my contention that a proper understanding of the way power and interests
work, independently and interactively, at the dyadic level gives us a powerful and parsimonious
explanation for severe military conflict. I will, however, consider some of the alternative realist arguments
in the concluding chapter.
within the preponderant row or similar interests column, and it appears as if conditions (4), (2), and (1) are exactly the same. If power and interest similarity each have identifiable effects, this should not be the case – there should be variation in conflict expectations across the four conditions. We can, however, use insights from both of the theories to generate a theoretical explanation for severe conflict that does vary across the four conditions.

1.5 A Dyadic Theory of Conflict

If dyadic distributions of power and dyadic levels of interest similarity are both important determinants of dyadic conflict, we should be able to specify a theory, using only these two independent variables, which predicts varying levels of conflict over the four possible conditions created by variation in these two variables. As we have seen, the balance leads to peace and the preponderance leads to peace schools, while agreeing these two independent variables are important, fail in this task. In the former, as specified by Morgenthau (1948/1985) it seems that interest similarity is doing all of the work. In the latter, as specified by Organski (1958/1968) while interest similarity and dyadic distributions of military power do both contribute to the conflict expectations, there is no variation across three of the four conditions. It is possible, however, to use aspects of these two theories and view both variables as placing distinct and important constraints on severe conflict. When we do this we get conflict expectations that vary over the four conditions.
1.5.1 Dyadic Power Distributions and Constraints

In this section I put aside the all-important interest based variable and consider only the effects of dyadic distributions of power on severe international conflict. In doing so, I will confront the essential disagreement between the balance leads to peace and the preponderance leads to peace schools. Both sides of the balance-preponderance debate rightly consider the power of any state a constraint on what any other state can do to it. However, as pointed out above, they differ in the conflict expectations that emerge from considering power as a constraint.

For the Classical Realists associated with the balance leads to peace argument, equality of power constrains a state in a conflict with another because it is unsure it will prevail. A similar situation does not occur in a preponderant dyadic power distribution because the strong, who are much less likely to be constrained by the power of other states, are expected to impose their will on the weak, often by using military force. The weak are expected to resist as best they can, even if it means engaging in a fight which they will almost certainly lose. For the Power Transition Theorists associated with the preponderance leads to peace school the argument is quite different. An equality of power means that either side sees a chance of winning, implying that dyadic balances of power do not impose a significant constraint on potential protagonists. Under this condition both sides see a chance of winning. Inequality of power, on the other hand, constrains the weaker state because it knows it will not prevail. This implies that there will not be military conflict, despite the fact that the strong are not similarity constrained, because the strong will not have to fight to get what they desire.
While the balance leads to peace argument has been much maligned, it is the preponderance leads to peace argument that turns on three crucial, and not necessarily true, assumptions. First, the preponderance leads to peace school assumes that balanced states are risk acceptant by arguing that an equality of military power implies both sides see a chance of winning and thus view military conflict as a viable option. But, by definition, if a balance implies that there is some chance of winning it also implies that there is some chance of losing. If states are actually risk averse they are likely to focus on the latter point and choose not to fight. Thus it is not necessarily true that states in a balance will automatically fight. As a matter of fact, a balance of power between states often does keep them from fighting because they fear they will lose.

The next two questionable assumptions made by Power Transition Theory have to do with the preponderant situation itself. More specifically, the assumptions are about the likely actions of the two states. First, that the strong will be able to dictate terms to the weak, and the weak will accept without a fight, is an assumption that does not comport with significant chunks of international history. While it is probably correct to assume that the weak are unlikely to pick a fight with the strong (although see Fischerkeller 1998), when the strong pick the fight the weak tend to fight back. Some of

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48 I do not explicitly measure the factors that make states risk acceptant or risk averse in this dissertation, but only assume some states may fall into either category. Although I do mention the concepts below in discussing the effects of interest similarity on conflict expectations. For an explicit treatment of risk orientation’s effect on militarized conflict see Bueno de Mesquita (1981, 1985), and Bueno de Mesquita and Lalman (1992).

49 The balance leads to peace logic assumes that states are risk averse.

50 Consider, for instance, why the Cold War between the United States and Soviet Union never became hot despite ample opportunity do to so.
the bloodiest wars in the twentieth century occurred in just this manner. Second, as we pointed out in footnote 39, is that Power Transition Theorists assume, counter the bulk of international relations theory, that the international system is hierarchic, not anarchic (e.g. Waltz 1979), in order. The effect of this assumption is nontrivial. When assuming the international system is anarchic it is much easier to accept the claim that states will maximize their power in order to maximize their security (Mearsheimer 2001). Such a will to power makes it probable that all preponderant states will press their advantages over weaker adversaries. If we expect the weak to fight back, conflict is likely to ensue.

When considering only the power variable, it is probably better to consider whether, or not, both states might be constrained by the power distribution. When there is a balance of power within the dyad this is the case, when there is a preponderance of power within the dyad this is not the case. Some scholars have realized this fact. As Claude (1962, 56) notes,

> Clearly, a potential aggressor is likely to be deterred more effectively by confrontation with preponderant, rather than merely equal power. The difficulty of incorporating this insight into a systematic arrangement lies in the fact that somebody’s superiority necessarily entails somebody else’s inferiority; if preponderance is required for security, then one man’s security is another man’s insecurity. Most statesmen, viewing the system from within as representatives of participating units, favor preponderance. The scholar who attempts to stand outside the system and concern himself with the effectiveness of the system, rather than with the interests of particular units, may approve equilibrium on the ground that its deterrent effect, however inferior, applies equally to all states and groupings of states. The proposition that the balance of power system promotes peace by upholding equilibrium rests on this ground.

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51 See, for example, the American (and French) experience in Vietnam, the Soviet experience in Afghanistan, and the British experience with the Boers.

52 My italics.
To the extent the dyadic distribution of power effects conflict expectations, we would expect that balances are more pacific than preponderances simply because under a balance both sides are constrained. This leads to our first central hypothesis:

**H1:** Conditions where there is a dyadic balance of power are less conflictual than conditions where there is a dyadic preponderance of power.

This hypothesis flies in the face of Power Transition Theory and the empirical tests of that theory that have proclaimed dyadic preponderances of power are peaceful, however because only one side is constrained by the dyadic distribution of power when there is a preponderance it is a sensible theoretical argument that deserves to be tested. The fact the contrary hypothesis from Power Transition Theory relies on three questionable assumptions gives us further confidence that Hypothesis One will be substantiated.

1.5.2. Dyadic Levels of Interest Similarity and Constraints

The stylized discussion in the previous section ignored the question of interests because it was first necessary to posit an independent effect of power on conflict. Yet, it is clear from the bulk of the discussion in this chapter that both sides of the balance-preponderance question have posited an important independent effect for interest similarity on conflict as well. Interest similarity acts in three ways to decrease dyadic conflict expectations.
First, interest similarity is important in, and of, itself because two states with similar interests will, quite reasonably, have little to fight over and are thus less likely to be engaged in any type of conflict at all. A dyad with dissimilar interests, on the other hand, is likely to have a large number of outstanding disagreements that can lead to militarized conflict. Second, while it is possible for states with similar interests to experience some amount of conflict,\(^53\) any disputes they have are likely to be over relatively minor issues because they agree on most of the major issues in the international system. On the other hand, if a pair of states has dissimilar interests it implies that they do not agree on major issues in the international system, and the disputes between them will likely be over issues that have intrinsic potential for escalation such as who should control large swaths of territory or the legitimacy of certain regimes.

Third, beyond confining actual disputes to relatively minor issues with little escalatory potential, a high degree of interest similarity does act as an important constraint on conflict escalation thereby decreasing our conflict expectations for such dyads. High levels of Dyadic interest similarity put a brake on the severity of any conflicts that do occur and have a potential to escalate. When a dispute emerges between states with similar interests, those interests are put in jeopardy by the dispute. This gives the disputants incentive to find a peaceful solution to the problem. On the other hand,

\(^{53}\) Although Gartzke (1998) demonstrates that similar interests reduce the likelihood of dispute onset conflicts may still arise, but these conflicts will likely be over relatively minor issues that have little intrinsic potential for escalation. For instance, between 1974 and 1992 the United States and Canada had five Militarized Interstate Disputes, but these disputes were over fishing rights and never escalated beyond the level of displays of force.
interest dissimilarity not only leads to disputes that may be intrinsically more severe, but also leads to concerns of rapid escalation of almost every incident even if there is little intrinsic escalation potential.54

Although generally less well specified than the arguments above, both the balance leads to peace and the preponderance leads to peace schools agree with this basic assessment. As Figure 1.1 demonstrates both Morgenthau and Organski expect there to be no conflict between states when those states share similar interests. This leads to our second central hypothesis:

H2: Conditions where there is a high level of dyadic interest similarity are less conflictual than conditions where there is a high level of dyadic interest dissimilarity.

1.5.3. The Interaction between Power and Interests

There is strong theoretical and statistical reason to believe that there is a significant interaction between the dyadic distribution of power and the level of dyadic interest similarity in determining conflict expectations. I address the theoretical points first. As we will see, the support for this notion actually extends well beyond Classical

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54 Another way to think about this point is in terms of Expected Utility Theory (EUT) (Bueno de Mesquita 1981). EUT posits that the risk propensity of states has a large effect on whether they will go to war, and generally argues that risk acceptant states are more likely to go to war than risk averse states. However, when viewed through the lens of interest similarity this argument takes on a slightly different light. Even two risk acceptant states may decide against war if they have a high degree of interest similarity because it is more than the risk of losing the war that is at stake. Also at stake are the shared values inherent in interest similarity that would be at risk, and probably forever destroyed, if a conflict were to break out.
Realism and Power Transition Theory. I then consider the simple statistical justification for the inclusion of the interaction term.

Both Classical Realism and Power Transition Theory argue for the inclusion of an interaction term between the dyadic distribution of power and the level of dyadic interest similarity when modeling conflict expectations. As we pointed out above, the concepts of power and interest are the central tenets of Classical Realist thought. Despite the fact that many have construed the balance of power argument to mean that dyadic balances are always pacific, it is clear that this is not the case. Balances only produce peace when interests are similar. This implies that the Classical Realists, although never explicitly using the term, thought there was an interaction between the two key independent variables because their relationship to conflict is clearly conditional. The same holds true for the preponderance leads to peace argument as articulated by Power Transition Theory. Organski (1958/1968), arguing counter to the Classical Realist claim that balances produce peace, interestingly makes the same point as Morgenthau - balances of power will be peaceful when the states in balance have common interests. This is another clear affirmation of the conditional relationship between these two key independent variables. In fact, Power Transition theorists have long been cognizant of the need to model this interaction in explanations of conflict, and have recently begun to do so, albeit in somewhat limited samples and with mixed results.

The importance of the interaction between power and interests is also evident from the work of the formal theorists who have examined severe conflict. The Expected Utility Theory of War is the most widely cited and important formal theory of severe
conflict (Bueno de Mesquita 1981, 1985; Bueno de Mesquita and Lalman 1992). There it is argued that state A will not fight with state B if state A’s expected utility for that conflict is less than zero. State A, on the other hand, may choose to fight with State B if its expected utility for that conflict is greater than zero. State B, then, will reciprocate the hostility or concede based on its expected utility calculation. Expected utility for the conflict, in turn, is a multiplicative function of A’s probability of winning the conflict (which increases as its military capability relative to B increases) and A’s utility for the conflict (which increases as A’s interests diverge from B).

Recent International Relations theory has continued to focus on the conditional relationship between power and interest. Scholars as diverse as Alexander Wendt (1999) and Randall Schweller (1996, 1998) have made the point that the relationship between these two variables is conditional. Wendt argues that the likelihood of severe conflict between states is not a constant, but varies by the degree of common interest and type of common identity between states. Relations between states which have few common interests, but a common ‘self-help’ identity, will be characterized by severe conflict; whereas relations between states that have common interests and a common ‘other-help’ identity will be much more benign. Schweller (1996, 1998), harkening back to the Classical Realist scholars, also argues that state interests play an important role in determining the meaning of power relations. He divides the world into different types of states by their military capability and their interests. The placement of states along a continuum from status quo to revisionist determines not only who allies with whom
(alliances form between states with similar interests), but also where conflict will occur. War is most likely between powerful status quo and revisionist states.

What this diverse set of theoretical arguments tells us is that we should be explicitly testing for a conditional relationship between the dyadic balance of military capabilities and the level of dyadic interest similarity in our models of severe conflict because the effect of the dyadic distribution of power on conflict varies as the level of dyadic interest similarity varies. This leads to our third central hypothesis:

**H3:** There should be a significant interaction effect between the dyadic distribution of power and the dyadic level of interest similarity in quantitative models of international conflict.

There is, however, another reason to believe that there is a significant interaction between the dyadic distribution of power and the dyadic level of interest similarity in models of severe interstate conflict. If we have a 2 x 2 table with any two independent variables (in this case interest similarity and the distribution of power) on the axes, and varying expectations for the dependent variable (in this case conflict expectations) in the boxes, we are implying that there is an interaction effect between the two independent variables. This is the case because we do not believe the effect of either independent variable upon the dependent variable is constant across levels of the other independent variable. The effect of both independent variables is conditional on the value of the other independent variable. This is the very definition of an interaction term (Friederich 1982, Jaccard et al. 2000). While there is not complete variation on the dependent variable
across the boxes in Figure 1.1 for either Morgenthau or Organski, the theory being developed here will capture variation across the four boxes, and will thus imply a significant interaction term.

1.5.4 Why Interest Similarity is More Important than Power

When we model international conflict as a function of the dyadic distribution of power and the level of dyadic interest similarity properly interacted we will be able to answer a number of questions. First we will be able to test the balance-preponderance question on the terms it was originally phrased. It is clear that both sides of that debate argued that the effect of distributions of power on conflict was conditional on interest similarity, but seldom has the question been modeled this way. Second, we will be able to demonstrate the fairly uncontroversial point that states with similar interests experience less severe, less frequent, and less escalatory conflict. Third, we will be able to show, as many leading international relations theorists have argued, that the effect of power on conflict is, indeed, conditional. Finally, we will be able to weigh whether distributions of power or levels of interest similarity have a larger effect on international conflict. Despite the fact that power has been called the most important variable in international relations by many, we expect interest similarity to have the larger effect, and this is for three primary reasons.

First, while there is some theoretical debate about whether dyadic balances or preponderances of power place greater constraints on the conflictual behavior of states, and my position in the debate may seem controversial to some, there is no doubt about
the relationship between levels of dyadic interest similarity and conflict. The lack of theoretical ambiguity on this point gives us more confidence that it will hold well under empirical scrutiny. This point is bolstered by a second, and vitally important point. There are several interrelated points that are intrinsic to the concept of interest similarity that lead us to believe it will have a large effect on the dependent variables we will be analyzing in subsequent chapters. States with a high level of interest similarity are likely to agree on most of the major issues in the international arena, and are thus unlikely to come into conflict over them. It is issues such as who should control large swaths of territory and what types of regimes are legitimate that cause the most severe, most frequent, and most escalatory conflict in the international system. This is a good reason to believe that interest similarity should be strongly negatively related to these dependent variables, whereas interest dissimilarity should have a strong positive effect.

The final theoretical reason we expect interest similarity to have a greater effect on conflict than does the dyadic distribution of power has to do with a point that is implicit in the classical literature on the subject, but made more explicit in the recent theoretical literature. The dyadic level of interest similarity defines the meaning of the dyadic distribution of power. It is not the other way around. This can be seen in the classical scholarship as both Morgenthau and Organski argue that balances of power may be conflictual, or not, because of variations in interests, but do not argue that instances of interest similarity may be conflictual, or not, because of variations in the dyadic distribution of power. This point is even greater in the Classical Realist scholarship
because Morgenthau does not argue cases of interest dissimilarity may be conflictual, or not, because of variations in power – cases of interest dissimilarity are always conflictual. Thus, in the classical literature, it is very much the case that interests define power, and not the other way around. In the more recent theoretical literature this point is made explicit as Wendt (1999), and especially Schweller (1996, 1998), argue that when interests are similar the power of the other is unthreatening and even seen as an opportunity to gain, whereas when interests are dissimilar the power of the other is virtually always seen as a threat. Thus we arrive at our fourth, and final, central hypothesis:

**H4:** Interest similarity has a greater effect on conflict severity than does the dyadic distribution of power.

### 1.6 Conclusion: A Dyadic Theory of Conflict

I pull these four central hypotheses together in Figure 1.2. Since we expect (H1) dyadic balances of power to be more pacific than dyadic preponderance of power we expect condition (4) to be more conflictual than condition (3), and condition (2) to be more conflictual than condition (1). Since we expect (H2) dyads with similar interests to be more pacific than dyads with dissimilar interests we expect condition (4) to be more conflictual than condition (2), and condition (3) to be more conflictual than condition (1).

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55 By classical literature in this case I mean both the Classical Realist literature and the Power Transition literature.

56 As Figure 1.1 shows, this point does not extend to Organski, because he does argue that conflict varies under the condition of interest dissimilarity because of variations in the dyadic distribution of power.
Finally, since we expect interests to have a greater effect on dyadic conflict than power (H4) we expect the greatest difference between these four cells to be located between condition (3) and condition (2), and the horizontal differences in the table to be greater than the vertical differences. In other words, condition (3) should be much more conflictual than condition (2). This yields the following set of conflict expectations (4) should be the most conflictual condition, with (3) being somewhat less conflictual, (2) being much less conflictual, and (1) should be the least conflictual.

This is a substantial improvement over the 2 x 2 tables posited by Morgenthau and Organski because there is variation between all four of the boxes, and it is clear that both the dyadic distribution of power and the dyadic level of interest similarity are having independent and interactive effects on interstate conflict. In fact, if the relationship between these two variables is conditional, as the two scholars seem to imply, there must be variation across the four boxes.

In this chapter I have made three primary arguments. First, I have argued that there is a great deal of theoretical and empirical ambiguity when we consider the question of whether dyadic balances or preponderances of power are more pacific when we only consider the power variable. Second, I have argued that this ambiguity is, to a great degree cleared when we consider the original works in each of these two schools. Both argued that interests had an important conditioning effect on power, and when we incorporate interests into the argument the gap between the two schools is not nearly as
wide as has been presumed. Third, I argue that we can improve upon the classical models by reconsidering the relationships between interests, power, and conflict at the dyadic level.

The four central hypotheses derived to form the dyadic theory of conflict show that both variables have important joint and independent effects on conflict expectations. This point is not clear in the classical scholarship. We will test the four central hypotheses in Chapters 3, 4, and 5, but first I turn to the question of how best to conceptualize and operationalize the two key independent variables.
**Figure 1.1**: Comparing the Conflict Expectations of Morgenthau (1948/1985) and Organski (1958/1968)

<table>
<thead>
<tr>
<th>Dyadic Balance of Power</th>
<th>Morgenthau’s Conflict Expectations</th>
<th>Organski’s Conflict Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balanced</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(4) Conflict</td>
<td>(4) No Conflict</td>
</tr>
<tr>
<td></td>
<td>(3) Conflict</td>
<td>(3) No Conflict</td>
</tr>
<tr>
<td>Dissimilar</td>
<td>(2) No Conflict</td>
<td>(2) No Conflict</td>
</tr>
<tr>
<td>Similar</td>
<td>(1) No Conflict</td>
<td>(1) No Conflict</td>
</tr>
</tbody>
</table>

Dyadic Interest Similarity

---

**Morgenthau’s Conflict Expectations**

- **Preponderant**
  - Dissimilar: (4) Conflict, (2) No Conflict
  - Similar: (3) Conflict, (1) No Conflict

**Organski’s Conflict Expectations**

- **Preponderant**
  - Dissimilar: (4) No Conflict, (2) No Conflict
  - Similar: (3) Conflict, (1) No Conflict
<table>
<thead>
<tr>
<th>Preponderant</th>
<th>(4)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Conflict</td>
<td>No Constraints</td>
<td>Less Conflict</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Balanced</th>
<th>(3)</th>
<th>(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Conflict</td>
<td>Constraints: Balanced Power</td>
<td>Least Conflict</td>
</tr>
<tr>
<td>Constraints: Balanced Power</td>
<td>Similar Interests</td>
<td></td>
</tr>
</tbody>
</table>

Dissimilar | Similar

**Dyadic Balance of Power**

**Dyadic Interest Similarity**

Conflict Expectations: $(4) > (3) >> (2) > (1)$

**Figure 1.2:** A Dyadic Theory of Conflict
CHAPTER 2

OPERATIONALIZING DYADIC POWER AND INTEREST SIMILARITY

2.1 Introduction

Before putting the dyadic theory of conflict discussed in the previous chapter to the test, we need to conceptualize and operationalize the two key independent variables: relative power and interest similarity. This chapter will do that. In the first part of the chapter I discuss some key concepts that relate to national power, with a particular focus on the theory laid out in the previous chapter. Power is a complex and multidimensional concept. We will consider the concept fully, but a vitally important task is to limit indicator choice to only those components of the concept that speak to interstate conflict – the phenomena we seek to explain. While I settle upon the often-used Correlates of War Projects Composite Index of National Capability, I spend a good deal of time explaining and justifying the choice. I then discuss how it will be operationalized in the empirical chapters that follow.

The second half of the chapter focuses on the concept of interest similarity. I begin by discussing the nature interest similarity and note that many who have employed the
concept have not done so in a way that is faithful to the conceptualization. I then turn to an operationalization of the three measures of interest similarity that will be employed in the chapters that follow. Like indicator selection for the power measure, the indicators for the interest similarity measure must speak directly to the dyadic theory of conflict and the dependent variables it seeks to explain. Thus, we seek indicators that relate to expressed preferences on questions of international security. The conclusion to this chapter will set up how these measures will be used in the empirical chapters that follow.

2.2 Measuring National Power

The question of how to measure national power has been one of the most often addressed topics in the international relations literature (Stoll and Ward 1989). The topic has been addressed so often, in fact, that the task of neatly summarizing the literature and choosing relevant indicators is daunting. The approach I will take here is to marry the indicators with the theory we seek to test. That is, we need measures of national power that speak directly to the ability of states to engage in military conflict. This type of power has been an explicit focus of realist scholars. Realists have generally concerned themselves with the question of interstate conflict, so their conceptualization will neatly fit our need to find a measure that is of use in testing the dyadic theory of conflict. There is a comforting amount of correlation between the indicators these leading scholars have identified as important to national power. This section relies on the classic work in this tradition to arrive at a list of the most appropriate indicators and notes how the lists of
other scholars in this tradition compare, and then examines how those who have concerned themselves with measuring this type of power have operationalized the concept.

Realists have been concerned with measuring national power at least since the sixteenth century when Machiavelli (1515/1981) wrote on measuring the power of principalities. Machiavelli concerned himself primarily with the number of men under arms and the defensive fortifications of the city, and these are two of the central themes that have appeared in twentieth century works that seek to conceptualize what makes a nation powerful. Preeminent among these works is Morgenthau’s *Politics Among Nations*. Long considered the definitive modern statement of political realism, Morgenthau (1948/1985) devotes three full chapters to the question of national power, and covers all of the indicators that other scholars discuss.

Morgenthau organizes his discussion of the elements of national power, of which there are eight, in terms of which are relatively stable and which are subject to change. The first of these elements is geography. He notes (1985, 127), “The most stable factor upon which the power of a nation depends is obviously geography.” Under the heading of geography Morgenthau argues that: (1) nations with topographical obstacles between them and others, such as oceans or mountain ranges, are more powerful than those that are not as well protected; and (2) nations with expansive territories are more powerful than those that are geographically small. He neatly summarizes these two points with a consideration of the Soviet Union (1985, 128), noting that the lack of significant topographical obstacles between the Soviet Union (Russia) and Europe has encouraged
numerous invasion attempts, but that the vast expanse of the Soviet mainland is an important source of strength. A state with a combination of these elements of geographic strength, like the United States, scores particularly well on this variable.

The second element of national power, according to Morgenthau, is natural resources. Here he makes a distinction between two types of such resources – food and raw materials. With respect to the former Morgenthau points out that a nation that is self-sufficient has a great advantage over one that must import foodstuffs since, during times of conflict in particular, the lifeline of food imports may be cut off. With respect to raw materials Morgenthau points out that the relative importance of various resources changes over time, but for the modern era, he pinpoints coal, oil, and iron as being particularly important because they directly relate to the ability to conduct mechanized warfare. The third element of national power, industrial capacity, is related to these raw materials. Industrial capacity is required to turn the raw materials into useable military assets. Here Morgenthau (1985, 137) draws a comparison between the United States and Soviet Union, on the one hand, and India on the other. All three have abundant stocks of coal and iron but, “India cannot be classified today as a first-rate power even faintly comparable to the United States and the Soviet Union. The reason for this… is the lack of an industrial establishment commensurate with the abundance of raw material.”

The fourth element of national power, military preparedness, is clearly the element to which Morgenthau accords the most weight. He notes (1985, 139), “What gives the factors of geography, natural resources, and industrial capacity their actual importance of the power of a nation is military preparedness. The dependence of national
power upon military preparedness is too obvious to need much elaboration.” He, nevertheless, elaborates four primary components of military preparedness: technology, leadership, quantity of armed forces, and quality of armed forces. Of these four, Morgenthau counts the last two (in particular the quantity of armed forces) as most important noting (1985, 142), “A nation may have a good grasp of technological innovations in warfare. Its leaders may excel in the strategy and tactics appropriate to the new techniques of war. Yet such a nation may be militarily and, in consequence, also politically weak if it does not possess a military establishment that in its over-all strength… [can accomplish] the tasks it may be called on to perform.”

The fifth element of national power, according to Morgenthau, is population. Here he is concerned with not just overall numbers, but also trends. Morgenthau correctly notes (1985, 143) that there is not a perfect correlation between the number of citizens and the overall power of a state, but that, “Without a large population it is impossible to establish and keep going the industrial plant necessary for the successful conduct of modern war; to put into the field the large number of combat groups to fight… and, finally, to fill the cadres of the troops… which must supply [them].” For Morgenthau, it appears, some minimum number in terms of total population is necessary to classify a state as a power of the first rank.57 In terms of trends, Morgenthau argues that nations with a quickly growing population will be more powerful in the future than

57 He never specifies that number, but does compare the population of the United States (234 million at that time) favorably with the populations of Canada (24.5 million) and Australia (15 million).
those who are experiencing a decline, but seems to devalue the notion of trends, at least slightly, when he cautions (1985, 146), “that the projection of population trends is hazardous.”

The final three elements of national power are far less tangible than those discussed above. The first two are particularly ephemeral, and may well prove impossible to measure. The sixth element is national character and morale which (1985, 146-7), “stand out both for their elusiveness from the point of view of rational prognosis and for their permanent and often decisive influence upon the weight a nation is able to put into the scales of international politics.” Morgenthau gives few concrete clues as to how and why these concepts are important to national power, but does favorably compare the Germans and Russians to the Americans and British. The seventh element of national power is the quality of government. Here Morgenthau (1985, 158) clearly gives the advantage to representative governments noting they, “ha[ve] the best chance to marshal the national energies in support of… policies. The adage that free men fight better than slaves can be amplified into the proposition that nations well governed are likely to have higher national morale than those that are poorly governed.” Yet, perhaps highlighting the difficulty of measuring the effect of quality of government on national power, Morgenthau (1985, 157) equivocates by pointing out that certain totalitarian states (like Nazi Germany) have been able to, “fill the gap between the government and the people… through the use of democratic symbols, totalitarian control of public opinion, and policies actually or seemingly benefiting the people.” In sum, while a good case can be made that
things like national character and morale, or quality of government, factor into national power, it is not clear how they factor in.\textsuperscript{58}

The final element of national power, which Morgenthau argues can be the most decisive in any particular struggle, is the quality of diplomacy. Good diplomats conduct a diplomacy that (1985, 159), “is prepared to make the most of whatever other elements of power are at [their] disposal.” With respect to this element, Morgenthau seems to reward those diplomats who were bold and aggressive in terms of their foreign policy, giving high grades to Castlereagh, Richelieu, Cavour, and Bismarck, and lower grades to Neville Chamberlain. While it is easy to see how this element can be very important to national power, it too can be criticized as little more than a post hoc indicator that is highly dependent upon the other elements of national power. It is clear that Morgenthau gives high grades to those diplomats who were successful and lower grades to those who failed, just as it is clear that those who were successful commanded the foreign policies of states that were on the rise in terms of the first five elements of power.

Before considering how Morgenthau, and others, have sought to organize and evaluate these elements of power, it is necessary to briefly consider the work of other scholars who have taken the question of measuring national power seriously so we can assure ourselves that nothing is left behind. As I noted at the beginning of this section, there is a comforting correlation between various scholars’ accounting of the elements of national power. For instance, in his definitive statement of neorealist theory Kenneth Waltz (1979, 131) notes that the power of nations, “depends on how they score on all of

\textsuperscript{58} We will see below, however, some have proposed ways to measure these concepts.
the following items: size of population and territory, resource endowment, economic
capability, military strength, political stability and competence.” While Waltz is far less
detailed about the elements of national power than Morgenthau, it is clear from this list
that virtually all of the elements on the Morgenthau list fit somewhere into the seven
elements identified by Waltz, if we assume “political stability and competence” imply
high national morale, a quality government, and diplomatic skill.

In their classical textbook on international relations Haas and Whiting (1956, 81-
133) identify eight elements of power: geography, natural resources, industrial capacity,
human resources (labor, capital, and technology), military strength, population, national
unity, and national morale. A close comparison of between this list and the elements of
national power advanced by Morgenthau again highlights an impressive amount of
correlation. In particular, no element of the Haas and Whiting list is excluded from the
Morgenthau list.59

Those who have argued against some of the central theoretical points made by
Morgenthau have also agreed with the basic elements of national power. One of the
central points of Organski (1958), contra Morgenthau, is that it is preponderances of
power rather than balances that are more pacific. Nevertheless, the six elements of
national power identified by Organski: geography, natural resources, population size,

59 One might note that the human resources of capital, technology, and labor do not seem to be explicit on
the Morgenthau list, but they really appear under the heading of industrial capacity. Haas and Whiting
(1956, 101) are explicit about what they mean by human resources, “There human resources, capital,
technology, and labor, must combine with natural resources before industry for peace and war can develop.
The human resources provide the link between statistics on natural resources and statistics on industrial
production.”
economic development, political development, and national morale, all fit neatly into the
Morgenthau conception. Curiously, Organski omits quantity and quality of the military
from his list, but it is clear that he has this element in mind as well. Noting that national
power is a multidimensional concept, Organski (1958, 125-6) says, “It must be
understood at the start that no single factor is responsible for power… To be considered a
determinant of power, a social or a natural phenomenon must increase the ability of a
nation to influence the behavior of other nations. Specifically, it must increase the ability
of a nation to persuade, to reward, to punish, or to apply force to other nations.”60 It is
difficult to argue one nation could punish or apply force to other nations without at least a
credible military threat. Moreover, Organski seeps military force into his arguments
about the other factors of national power. For instance, with respect to “political
development” he notes (1958, 178), “It is probably in the use of force that political
modernization helps a nation the most, for the ability to collect young men from all over
a nation and organize them into units that will fight effectively at the risk of their own
lives is a crucial test of that nation’s ability to mobilize its resources.”

Thus, we can see that these major theoretical works, within the Realist tradition at
least, all agree on the basic elements of national power. There are many more treatments
of the elements of national power in the extant literature than those few that are listed
here, but overwhelmingly they tend to agree with the basic list described by Morgenthau.
This general agreement ranges from more modern international relations textbooks like

60 It is ironic, given the fact that Organski recognizes national power as a multidimensional concept, the he
and his collaborators have often sought to test Power Transition Theory with power operationalized as only
GNP.
Russett and Starr (1981: 138-59), and Goldstein (1999: 55-62); to more modern explicitly theoretical conceptions of national power (Sullivan 1990, Rothgeb 1993); to modern texts of international relations theory (Schweller 1998, Mearsheimer 2001). Yet, without a detailed investigation of these works, we have enough to begin the process of indicator construction; we will use the eight elements of national power highlighted by Morgenthau.

The process of indicator construction will be guided by three questions. How should these elements of national power relate to one another? Should they all even be used in the process of indicator construction? Are there indicators in the literature that have been proposed the fit our needs? In terms of the first question, many have proposed that the elements of national power relate to each other along two dimensions. Some of the elements may be said to reflect actual power, that is the ability to influence outcomes in the international system in the near term, others may be said to be a reflection of potential power, that is the ability to influence outcomes in the international system at some point in the future. For instance, some of the elements are clearly related to potential power, an abundance of natural resources requires an industrial plant and effective management to be turned into actual power; whereas other elements, like the quantity and quality of military forces, are clearly related to actual power. Most of the other elements, like population size, industrial or economic capacity, and geographic position, are arrayed somewhere in between natural resources and military strength on the potential power – actual power continuum. A second clear dimension also presents itself. Some of the elements of national power, like population, are clearly tangible – that is,
they can be counted; whereas other elements, like quality of government, national morale, and the quality of diplomacy, are clearly intangible. With respect to these elements, the best we can do is offer an educated guess.

Figure 2.1 arrays the eight elements of national power along these two continua. The x-axis reflects the continuum from potential to actual power. Clearly, natural resources reflect potential power more than any of the other elements, so they are located the furthest to the left. Clearly, military strength is the best indicator of actual power, so it is located furthest to the right. The other six elements are all located somewhere between potential and actual power. A large population needs to be effectively used if it is to be converted fully to actual power, yet a large population, by itself can yield a decent amount of actual power. Similarly, industrial or economic capacity reflects an element of potential power and an element of actual power. Geography is most likely potential power, and thus could be located further to the left, since for it to be effective it requires another state to attack, but if every state knows a particular state has geographic power it is likely this will affect outcomes even if an attack does not take place. Finally, the three subjective elements of national power are located somewhere in between potential and actual power as well because while none of them can be directly linked to influence over outcomes in the international system (actual power) all are probably related to the potential to influence outcomes (potential power), particularly as militarized conflict becomes more likely.

The y-axis rates these eight elements of national power in terms of their tangibility. Tangible elements of national power can be readily and reliably counted.
Population is foremost among these; it only requires accurate census data. Slightly less tangible are natural resources, industrial or economic capacity, and military strength. Reliable indicators of these elements are certainly available (such as proven oil reserves, industrial production or GNP, and military personal and expenditures), but a slightly more subjective element enters into the equation since we have to: weight which natural resources are most important; pick valid indicators of industrial or economic production; and assume that more men under arms, or a higher amount of military expenditure, implies an effective fighting force. Geography is certainly tangible as well, but less so than the others just mentioned because we have to make subjective judgments about how large is large enough and how far away from threats is far enough away (not to mention define the threats) in order to effectively measure this variable.

Finally, the three subjective variables are the least tangible of all. The most tangible of those is quality of government since a theoretical argument could be made that certain types of political institutions, which could be reliably measured, are more effective than others. Nevertheless, this argument would have to be made and there would be a large subjective element to it since, as we saw above, the relationship between type of political institution and national power is not perfect. National morale and unity are even less tangible. Certainly, indicators of national cohesiveness (linguistic, ethnic, and linguistic) are available, but the link between this cohesiveness and some kind of national morale would have to be made explicit, and there would be a large subjective element in doing so. Homogenous populations do not always support their governments, and heterogeneous populations sometimes do. An argument would have to be made as to
why this was the case. The quality of diplomacy is the least tangible of all of the elements since it can only be measured with any sort of reliably post hoc, and these historical evaluations will necessarily be colored by which diplomats were successful and which were not.

With the elements of national power arrayed in Figure 2.1 we can now marry them to the theory we seek to test. In order to test the dyadic theory of conflict, we need indicators of actual power because we are interested in those elements of power that affect the propensity of states to become involved in militarized disputes now – not at some indeterminate point in the future. Additionally, since we are interested in concretely operationalizing the elements of national power that we select, we prefer tangible over intangible rudiments of the concept. In fact, the measure we use here cannot include any intangible elements because they would be exceedingly difficult to measure. This means, all else being equal, we would prefer indicators that reflect the elements in the upper right-hand portion of the figure. However, since national power is an inherently multidimensional concept, we would also prefer to select indicators that reflected this multidimensionality by drawing on multiple elements. This suggests three clear criteria our index needs to meet: 1) it must reflect actual power; 2) it must reflect the tangible, rather than the intangible, elements of national power; 3) it should tap

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61 One possible argument could have something to do with how closely the government policy relates to what the people believe is the national interest. A large subjective element, however, is required to assess which policies citizens think are closely related to the national interest.
multiple elements of national power because the concept is inherently multidimensional. A number of possibilities already in the extant literature present themselves, I will consider four.

2.3 Indices of National Power

The four indices I have selected vary widely in their complexity, in terms of the number of variables they incorporate and the way in which the variables are aggregated. Perhaps the first to construct an explicit index of national power was F. Clifford German (1960). This is, by far, the most complex index of national capability in the literature on the subject. It combines no fewer than 29 different indicators that encompass almost all of the taxonomy of national power elements from Figure 2.1. Figure 2.2 indicates which elements of national power are encompassed in the German index. Among the indicators selected by German are: nuclear capability, territory, population density, national workforce, and natural resources. A full accounting of the German index is beyond the scope of consideration here, but a number of coding and aggregation decisions make the use of this index problematic for our purposes here.

First, German includes subjective assessments of a number of factors, which would be difficult to replicate if we sought to use his index. With respect to national morale he notes (1960, 139), “Certain countries, through corruption, apathy, or poverty, do not mobilize their human resources effectively, while it seems certain, for example, that the momentum of Russian and Chinese industrial advance gains much from the

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62 Appendix A contains a full description of the German Index.
single-mindedness of their peoples’ desire for progress, and a similar effect is produced
in most capitalist countries by the operation of economic incentive.” To account for this
morale, German adds up to 50% of the national workforce to the actual total, but does not
indicate any coding rules as to how much of this proportion should be added for each
nation. Second, perhaps being a product of his times, German doubles the score for the
natural resource endowment of any state that has a command economy arguing (1960,
140), “naturally, it is almost impossible to ascertain with any degree of accuracy the
enormous strategic gain of the communist countries, or of any efficient and determined
dictatorship, in dispensing with supply and demand and the free-market economy,
liberating for them an immense amount of capital, skill, labor power, and steel to produce
capital goods such as trucks, tractors, and machine tools.” History has obviously proven
this coding decision wrong. Third, this coding decision is reflective of a number of
others regarding the aggregation of the indicators that are suspect at best. The
combination of these three points means the German index does not meet all three of our
criteria for use. A decent case can be made that the index includes enough measures that
represent actual power to be used, and it is obvious that the index is reflects a sufficient
amount of multidimensionality, but many of the indicators included attempt to measure
the intangible elements of national power and thus can not be replicated.

A similar type of index, depicted in Figure 2.3, is presented by Ray Cline (1975,
1980, 1984). The Cline index contains such measures as population, territory, natural
resources, industrial capacity, and military power, but is also plagued by the inclusion of

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a heavy subjective element that is designed to get at the less tangible elements of national power. For instance, Cline adds a bonus for effort to the military component of the index for those nations that devote an exceptionally high percentage of their GNP to defense expenditures (e.g. 1980, 134-5). More troubling is the bonus for national strategy and national will that is multiplied by the sum of the more tangible elements of national power. For Cline (1980, 143):

These are the two most crucial factors in my formula for measuring power. At the national level strategy (S) is the part of the political decision-making process that conceptualizes and establishes goals and objectives designed to protect and enhance national interests in the international environment. National will (W) is the degree of resolve that can be mobilized among the citizens of a nation in support of governmental decisions about defense and foreign policy. National will is the foundation upon which national strategy is formulated and carried through to success.

Both of these variables are given a score ranging between zero and 1. They are then summed, and multiplied by the more tangible factors. The result of this is that any nation that does not score well on the strategy and will components has its national power greatly devalued, and any nation that does fare well can have its national power as much as doubled. Tellingly, Cline (1980, 171) notes, “Judgments about this final factor in the formula we have been using are bound to be mainly qualitative, rather than precise and quantitative; it would be unproductive to describe and defend in detail the coefficients assigned.” Thus, while the Cline measure satisfied both the requirement that it reflect

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63 A full accounting of the calculation of the Cline Index is presented in Appendix A. With regard to this index, however, Merritt and Zinnes (1989, 18) note, “Although judgmental procedures are justifiable for measuring some of the variables, it is noteworthy that Cline adopts such procedures to assess most of the variables. This raises questions about the overall reliability of the resulting indices.”
actual power and that it adequately mirror the multidimensional aspects of national power; its heavy reliance on subjective elements makes it difficult to replicate.

The temptation to include a large number of indicators, even indicators of a subjective variety, in an index of national power is understandable. National power is a complex and multidimensional concept. Other scholars, however, have taken the opposite approach to the topic by opting to use only one indicator as a proxy for the entire concept of national power. For instance, Organski (1958) and Organski and Kugler (1980) argue that the concept of national power is adequately captured by gross national product. The idea was originally developed by Organski (1958, 208). After listing the various elements of national power that were mentioned above, he states that the three most important components are population, economic development, and political development but that the development of measure by which to assess the effectiveness of political institutions is, “one of the major tasks that remains for political scientists to accomplish in the years ahead.” Multiplying together the two remaining elements, population and gross national product per capita, gives us GNP – Organski’s (1958) suggestion for an index of national power.

Figure 2.4 depicts where an index of national power that uses solely GNP falls on our taxonomy of the elements of national power. GNP receives high marks for measuring tangible elements of national power, such as economic development and population, but it lags behind on our other two requirements. First, GNP alone is more a measure of potential national power than it is a measure of actual power. More importantly, there is nothing inherent in this potential power that indicates it will be
transformed into actual power. The productivity that generates a high GNP could just as easily be put into consumer goods as it is into the types of industrial production that make armed forces run. Moreover, citizens who are comfortable with their standard of living may, in fact, be less willing to fight. As Merritt and Zinnes (1989, 14) conclude, “A high national income (or national income per capita) can imply a country’s long-term ability to influence others, but not if it means that the population is less willing and even less able than others to engage in activities such as wars that might jeopardize its high standard of living.” Second, while it can be argued that GNP, since it picks up the spectrum of economic activity, does capture many dimensions of national power – this is an empirical question to which serious outliers offer a challenge. Several states, modern Germany and Japan most notably, have large GNPs and devote almost none of the production to military development. Several other states, like Iraq and North Korea, have relatively small GNPs but devote a significant portion of their production to military development. We would certainly want a measure that picked up this dimension of national power.

Organski and Kugler (1980, 72) offer a slightly different measure of national power that is meant to pick up the missing element of political development by which they mean, “the capacity of the political system to carry out the tasks imposed upon it by its own political elite, by other important national actors, or by the pressures of the international system.” In essence, they multiply GNP by and index of tax effort that is meant to tap the degree to which any particular government is able to extract resources from a society. The higher the governmental extraction rate, the more politically

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developed that state. How the Organski and Kugler model fits into our taxonomy of the elements of national power is depicted in Figure 2.5.

How does this new measure fare in terms of our three criteria? The measure still does an impressive job of measuring tangible elements of national power. It even takes an element that was considered fairly intangible, political development, and operationalizes it in a convincing way. In addition, the measure now accounts for more of the dimensions of national power than it previously did. The main problem lies in the area of potential versus actual power. Accounting for resource extraction in the model of national power is a laudable achievement, and particularly necessary since the original measure proposed by Organski (1958) dealt more with potential than actual power. This makes the measure more in line with our needs since it is now more of an actual power measurement. However, one has to wonder about states that extract a large amount of resources from their citizens and spend those resources on social welfare programs or on lining the pockets of corrupt dictators and their cronies. In other words, there is no guarantee that a government that extracts a large amount from its population will spend that many obtaining military power. Thus, while better in terms of the potential vs. actual power scale the measure proposed by Organski and Kugler (1980) is not as good as one that accounted for actual power even more explicitly.

The most often used measure of national capability was developed by the Correlates of War Project (COW). Their Composite Index of National Capability (CINC) taps the three elements of national power: population, industrial, and military

\[\text{\textsuperscript{64} They also control for the amount of foreign aid a state receives, details are provided in Appendix A.}\]
(Singer, Bremer, and Stuckey 1972). Figure 2.6 shows that these three elements are the most tangible and most actualized of any of the elements of national power, so it is the measure that will be used in the empirical analysis that follows. Each of the three elements is operationalized with two variables. The population or demographic element is measured by total population and urban population, the industrial element is operationalized by energy consumption and iron (before 1895) or steel (since 1895) production, and the military component is measured with the combination of military personal and military expenditure. Each state in the system receives a score for each of the six indicators based on its share of the system total on that indicator. The average of the six percentages represents the national capability of each state.

The COW CINC scores well on all three of our criteria. First, its indicators tap the elements of national power that are most clearly related to actual power. This is particularly so because the COW CINC includes a measure of military force that is lacking from the Organski and Organski and Kugler measures. Second, all of the measures are tangible. This reduces the need to add subjective judgments into the operationalization of the indicator. Moreover, the method of combining is straightforward, which further reduces the subjectivity of the index. This differentiates the COW CINC from the indexes constructed by German and Cline. Third, the index taps three of the elements of national power, which is sufficient to reflect the multidimensionality of the concept. The COW index offers one other advantage that the others do not – it is, by far, the most widely used measure of national power in
quantitative studies of international relations. This will have the added bonus of making the work in the following chapters comparable to the published work in the field.

2.4 Operationalizing Relative Power

Now that we have settled on a measure of national power we need a way to make the aggregation a dyadic measure in order to fit into the dyadic theory of conflict laid out in the previous chapter. In doing so, we shall correctly operationalize the measure because power, as many have noted, is an inherently relational concept. While the types of capabilities in the COW CINC are attributes of a particular unit, in this case states, they only take meaning with respect to other states.

As long as modern political scientists have written about the concept of power, they have realized that it is inherently a relational concept.65 The notion that power is a relative concept is widely supported in the international relations literature. According to Morgenthau (1985, 174), “When we refer to the power of a nation by saying that this nation is very powerful and that nation is weak, we always imply a comparison. In other words, the concept of power is a relative one.” Morgenthau goes on to note that the failure to appreciate the relative properties of power has been a common error among statesmen, highlighting the argument with the case of the French government’s assessments of its own power in the years leading up to World War Two.66

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65 See, for instance, Laswell and Kaplan (1950), Dahl (1957), and Harsanyi (1962).

66 Morgenthau (1985, 175) states, “At the root of that misjudgment there was the misconception that the military power of France was not relative to the military power of other nations, but something absolute. French military strength, taken by itself, was at least as great in 1939 as it was in 1919; France was therefore believed to be as strong a nation in 1939 as it had been in 1919.”
Singer (1963, 420) has also made a strong argument for the relational aspect of power as he notes, “there seems to be a solid consensus that power is a useful concept only in its relative sense; such objective measures as military manpower, technological level, and gross national product are viewed as helpful, but incomplete indices. The concept does not come to life except as its is observed in action, and that action can be found only when national power is brought into play by nations engaged in the process of influencing one another.”

I operationalize dyadic power in a way that takes this relational aspect of the concept into account. I sum the capability scores for each dyad and then divide the capability score of the more powerful state by the total capability in the dyad. The dyadic capability ratio is, therefore, a variable that varies between .5 (indicating an exact balance of power in the dyad) and 1 (indicating a total preponderance of power in the dyad). In the quantitative models in chapters 4 and 5 I follow convention by taking the natural log of this variable.67

2.5 Measuring National Interest

While the question of conceptualizing and operationalizing national power has been one of the major focuses of international relations scholars, no doubt because power is such an important political concept, there has not been as great a focus on how best to measure national interests and turn them into a relational indicator. This is surprising

67 Scholars tend to take the natural log of the capability ratio because the raw measure is positively skewed. Russett and Oneal (2001, 103) point out that such a transformation is also beneficial because, “having more and more power brings only declining marginal gains.”
because interests have long been thought to be as important as power, and as we argued in the previous chapter, there is good reason to think that there is an important interaction between these two variables. As with our discussion of power, we will attempt to marry our conceptualization and operationalization of national interests with the theory we are seeking to test. That is, we need to measure interests, or preferences, over security related issues as these will relate most explicitly to the questions of international conflict we are interested in answering. But, contra to the measurement of national power, we will see that none of the examples in the extant literature offer a solution to our quest.

Early conceptualizations of state security interests were almost the exclusive providence of Realist scholars. Without exception these scholars dichotomized between two types of states in the international system (Schweller 1998, 20). They expected the most severe interstate conflict to occur between the two groups. Morgenthau called them imperialistic and status quo powers. According to Morgenthau (1985, 52-85), status quo powers seek to maintain the current distribution of power in the international system whereas imperialistic powers are interested in increasing their share of the distribution. Conflict cannot help but occur between these two camps. Raymond Aron (1966, 71-93) argued that the forces of revision (losers of the last war) would battle the forces of conservatism (winners of the last war) as the revisionists tried to alter the terms of the treaty that ended the last war. Arnold Wolfers argued the clash would be between status quo and revisionist states. He pointed out (1962, 126) that for revisionist states to, “give up their goal of superior power in favor of balanced power means renunciation of their
ultimate national goal: a substantial change in the existing order.” Since they were not likely to do this, conflict between the two camps was almost assured.

Modern international relations theorists, from diverse theoretical traditions, have continued to make such distinctions with respect to interests between ‘types’ of states. Arguing from within the realist perspective Randall Schweller (1998) loosens the typical dichotomy between types of states and posits that there are several types of states based on the degree to which they desire to change or preserve the status quo and their ability (defined in terms of their power) to do so. He divides the pre-World War Two world into a veritable zoo of states with powerful Lions, like the United Kingdom, leading the status quo states in a conflict with the powerful Wolves, like Germany, which led a coalition of revisionist states. In a recent restatement of liberalism, sounding remarkably like a classical realist, Andrew Moravcsik (1997, 521) offers a similar dichotomy when he argues, “The decisive precondition for costly attempts at coercion… [is] a configuration of preferences conflictual enough to motivate willingness to accept high cost and risk. In other words, intense conflict requires that an aggressor or revisionist state advance demands to which other states are unwilling to submit.” From the constructivist perspective Alexander Wendt (1999, 246-312) argues that the logic of anarchy in the international system is defined by the type of states that populate the system. Hobbesian anarchies are populated by states who view each other as enemies, Lockean anarchies are populated by states who view each other as rivals, and Kantian anarchies are populated by states who view each other as friends. While the logic of this argument is slightly

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I use the terms interests and preferences interchangeably.
different than the realist and liberal arguments, it is clear that Wendt is still classifying states according to some typology and deriving some conflict expectations from the classification.

From our prospective there are several problems, particularly with respect to the dichotomy between types of states, with classifying states according to some typology. First, there have been very few purely status quo or revisionist states in the international system. While Nazi Germany stands out as a strictly revisionist state, most states pursue a mix of revisionist and status quo policies with respect to particular issues and/or other states. This makes such a typology difficult at best.\(^{69}\) Second, current standards for assessing revisionist or status quo orientation offer little help with the problem. As mentioned above, specifically with respect to Aron, it is typical to define status quo states as the winners of the last war and revisionists as the losers (see Schweller 1998, 24). However, little thought is given to the amount of time that has elapsed since the last war, or if this condition holds generally. We have to ask, how long does the revisionist urge last? And cannot the winners of the last war pursue further revision in the system in an attempt to consolidate their gains or make themselves more secure? These two points may be illustrated with respect to the United States in the post cold war era. Not only was the US on the winning side of the last major systemic ‘hot’ war (World War Two), but it also was on the winning side of the Cold War with the Soviet Union. On top of this, the US is experiencing a period of unrivaled hegemony that few Powers have

\(^{69}\) Aron (1966, 84) realizes this point when he states, “Conservatism is rarely complete, satisfaction is rarely total.”
experienced in the previous two millennia. By the typical criterion, then, the United States would have to be considered a Status Quo state. Yet in the past decade it has sought major revisions in the former Yugoslavia and in the Middle East. Indeed, as of 2003, considerable debate exists regarding the extent of the United States revisionism.

Even if we could reliably tell revisionist states from status quo states a further problem exists. A typology of status quo and revisionist states leads to determinate expectations of conflict between the two camps and expectations of relative peace between status quo states, but the dichotomy is indeterminate when it comes to conflict expectations for a pair of revisionist states. Two revisionist states may seek a common goal and agree on the means to pursue that goal, thereby avoiding conflict with each other. On the other hand, those states may both want to make changes in the system, but they can differ with respect to both means and ends. This suggests that revisionist states, even though they agree that some aspect of the international system must be changed, may come into conflict with each other.

Although creating a typology of states in order to derive their interests has proved unhelpful for our purposes, it has been helpful in the sense that it has helped us clarify what exactly it is we need. It would be better to conceptualize the interests of states in a dyadic manner. This way (with valid indictors of national interest) not only could we accurately characterize the interests of states, but purportedly status quo states could seek revisions with respect to some members of the international system and we could assess whether purportedly revisionist states were likely to come into conflict with each other.
With respect to the dyadic theory of conflict laid out in the previous chapter, this is the correct way to conceptualize the interests of states – we need a dyadic measure. All that is left is to come up with valid measures of national security interests that can be used in a dyadic operationalization of the concept.

2.6 Indices of Interest Similarity

In thinking of the various ways in which states express or reveal their national security interests there are two axes on which to judge these revelations. First, states can reveal their preferences through either costly or cheap signals, where signals are simply what states do and say. In general, costly revelations of preferences are better for our purposes here because they convey more information (Fearon 1994a). However, truly costly revelations of preferences are very rare events. When events are rare it makes them exceedingly difficult to quantify in any meaningful way precisely because they are rare, and thus we must supplement our measures of costly signals with less costly signals that occur more often. Doing so, however, makes it possible to generate a valid index of national preference revelation that can, in turn, be used to test the dyadic theory of conflict. In this section I consider these two axes in a little more depth as I describe the three measures that will become part of our index of dyadic interest similarity.

What states do and say contains information about their interests or preferences. However, what they do and what they say contain different amounts of information about their preferences. Game theorists have long recognized this difference. As Thomas Schelling (1960, 117) noted, “This is one of the reasons why talk is not a substitute for
moves. Moves can in some way alter the game, by incurring manifest costs, risks, or a reduced range of subsequent choice; they have an information content, or evidence content, of a different character from speech. Talk can be cheap when moves are not…” Jervis (1970) termed these opposites ‘cheap talk’ and ‘costly signals.’ Since these early works a veritable cottage industry has built up describing international conflict as a bargaining problem and discussing the relative costliness of various signals. A key insight of this vast literature is that we can rate various measures of what states do in terms of the costliness of the signal. We can use these arguments to select variables that tap the concept of state interests.

What states, or more appropriately diplomats and leaders, say is of little use to us because these words are often considered the cheapest of all possible talk. As Fearon (1994a, 578) points out, “One might expect that given the incentives to avoid war, state leaders who disagree on some issue could simply tell each other what they would be willing to accept rather than fight, and then choose a mutually acceptable bargain. The problem, however, is that states can also have strong incentives to misrepresent their willingness to fight in order to gain a better deal. Given these incentives, quiet diplomatic exchanges may be rendered uninformative about state’s preferences.” Moreover, Fearon (1994a, 1994b, 1997) has shown that in international politics messages must be costly to be informative. We would be better served looking for indicators of something states actually did (‘moves’ and not ‘talk’ in Schelling’s words), because this connotes some type of cost - the more costly the action the better the indicator.

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70 See Reiter (2003) for a review.
Confining ourselves to what states do, and seeking signals that are truly costly, we are confronted with the other axis in our framework. The most costly signals that states send are also the most rare, and this makes the construction of any type of index exceedingly difficult.

*Militarized Conflict and War*. Signals are costly in many ways and one of the most tangible is the intrinsic cost of the action. The most costly signal a state can send about its preferences is to engage in war with another state. All wars are destructive and entail tangible costs for the participants (Fearon 1995, 383). These costs are compounded because when a war begins neither side can be completely sure of the outcome (Blainey 1988), wars (like World War One) often last much longer and are far more destructive than their participants think they will be at the outset. Thus, when a state decides to engage in a war, it is signaling its preferences in the clearest of all possible ways.

However, wars are exceedingly rare events. Between 1886 and 1992 (the temporal domain of the quantitative analysis in the chapters that follow) there were only 53 wars between at least two members of the international system (Sarkees 2000).\(^{71}\) If we consider war as a dyadic event,\(^{72}\) the numbers are not any better. Between 1886 and 1992 there are 475,820 annual dyadic observations, and only 991 of them (or .2%) experienced war.

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\(^{71}\) War is a sustained military engagement between at least two members of the international system where there are at least 1,000 battle related deaths.

\(^{72}\) In a war at least two states are fighting, so at least two states are expressing their preferences. The number of annual dyads involved in a war increases as the number of states involved in the war and the war’s length increases.
Because of the rare nature of war I broaden the definition of armed conflict to include all militarized interstate disputes. Militarized Interstate Disputes (MIDs) involved the explicit threat, display, or use of armed force by one interstate system member against another (Jones, Bremer, and Signer 1996), and pick up more interstate conflict than a measure that relies on wars alone. Despite this fact still only 3,613 (or .76%) of the 475,820 dyads between 1886 and 1992 express their preferences in this manner. We are left with the conclusion that while a measure of armed conflict is preferable because of all the signals a state could send about its security preferences fighting is the most costly, the rarity of such events means our index must be augmented with other means by which states signal their security preferences.

**Interstate Alliances.** A somewhat less costly and somewhat more common means by which states signal their security preferences is through the signing of alliance treaties. The ultimate goal of any alliance is to improve the security of the signatories through the capability aggregation that comes with external balancing. The costs of signing an alliance are well documented. Altfeld (1984) argues that the most tangible cost of an alliance is in terms of autonomy. Any state that forms an alliance is circumscribing its autonomy because it is now bound to the foreign policy of another state. Not only does this mean the state may not be able to pursue certain foreign policies it may otherwise have pursued, but it also implies that it may have to fight for things that it may not have otherwise. The latter cost is what Snyder (1984, 1996) calls entrapment. All of these costs are somewhat less than those entailed in armed conflict, but they are still tangible (Morrow 1999).
Interstate alliances have long been used to gauge national preferences (e.g. Bueno de Mesquita 1975, Altfeld and Bueno de Mesquita 1979), and Bueno de Mesquita (1981, 111-2) extols their virtues, “alliances are explicit statements about the contingent behavior of one nation toward another in the event of a war… Furthermore, with the application of suitable distinctions between types of alliances, formal military agreements are both available and fairly comparable for virtually all pairs of nations [over a long] time span.” Beginning with Bueno de Mesquita’s pioneering work, many quantitative studies have used alliance portfolios as an operational indicator of national interests (e.g. Stoll 1984, Bueno de Mesquita and Lalman 1988, and Kim 1989, 1991). Yet two potential problems present themselves. First, there is the question of whether states honor their alliance commitments, because if they do not, a case could be made that these commitments are little more than cheap talk. For instance, Sabrosky (1980) found that states do not often honor their alliance commitments. Bueno de Mesquita (1981, 113) counters this finding and concludes that states do often honor their alliance commitments. More recent research, which calls Sabrosky (1980) into question, has also confirmed that states honor their alliance commitments (Leeds et al. 2000). This suggests that the question of honoring alliance commitments is not particularly troubling for our measure.

The second problem has to do with the rarity of the event. Alliances are more common the armed conflicts, particularly because they tend to be more persistent, but they are still not a particularly common occurrence in the international system. Between 1886 and 1992, 32,957 of the 475,820 annual pairs of states had an alliance – a little over 6.9%. As Signorino and Ritter (1999, 123) point out, “we might think of three different
types of states that fall into this [no alliance] category: those that have no alliance with each other because they are hostile to each other, those that have no alliance because they are irrelevant to each other’s security, and those that have no alliance because of an implicit alignment that renders a formal treaty unnecessary.” The second concern, that no alliance reflects irrelevancy, can be dealt with by weighting the observations (see below), but the other two, hostility and implicit friendship, are more problematic. Indeed if we were to rely solely on alliance commitments they may be prohibitively problematic. But adding additional measures to our index of interest similarity should help alleviate the problem. As a matter of fact, this is the suggestion that Signorino and Ritter (1999, 125) make. Adding the armed conflict based measure should take care of the problem related to hostility that is not picked up by the alliance based measure alone, what we need to do is find a measure that captures the fairly common expression of national security preferences in order to deal with the implicit friendship problem.

Many such measures, including diplomatic missions, IGO involvement, and trade, have been suggested, but none of these measures fit our precise need. Diplomatic missions are rather common and very little cost is contained in the signal of sending one. Hence, that variable likely does not contain a sufficient amount of information over security preferences for our measure. Similarly, IGO involvement is relatively widespread and membership often does not imply anything about a state’s foreign policy preferences. What would be needed is some kind of typology of IGOs that rated them in terms of the costs associated with membership. Such a typology does not yet exist, although formulating one would be a productive exercise which would make an IGO
based measure more attractive. Finally, trade might be considered a fairly common expression of national preferences, but a few factors make it less than appealing. First, because two states engage in trade does not imply that they agree on anything in the foreign policy realm. Moreover, it is debatable if trade is something states do, more likely trade is something firms do (although it is constrained from time to time by the intervention of the state). Finally, even if we assumed a greater amount of trade did imply more similar preferences and that trade was something that states, rather than firms, did, the concept would still be problematic because it is unclear if trading is a particularly costly revelation of these preferences. Not trading when there is an economic incentive to do so would be more costly, but unfortunately that would be impossible to measure.

**United Nations Voting.** Rather than rely on any of these measures, I have chosen to augment the index that already contains armed conflict and alliance based revelation of preferences with a measure based on United Nations voting. UN voting is a nice addition to the index because tens of issues are voted on per year, which ensures that all states will reveal their preferences fairly frequently – exactly what we need to round out our index. Another benefit of this measure has to do with the broad range of issues voted on in the UN. By assessing all roll call votes we will be able to tap national expressions of preference over this broad range. However, two problems present themselves. First, it is clear that voting in the United Nations is significantly less costly than either engaging in armed combat or signing an alliance treaty. Gartzke (1998, 15), the major proponent of this measure recognizes this concern,
Technically, the… index measures the similarity of nations’ voting records in the United Nations General Assembly. Since the cost a nation incurs for revealing preferences in the General Assembly are modest relative to the costs of engaging in disputes, I argue that the… index is roughly indicative of the underlying preference ordering states have over the policy spectrum. While it is not always clear that each state’s vote in the General Assembly precisely reflect the state’s world view, states probably feel freer to express sincere preferences in the General Assembly than in most other international venues.

Additionally, since the UN General Assembly contains all states there is a large audience for every vote that is cast. This suggests that there are some audience costs associated with voting in the General Assembly because of reputational concerns. Thus, while UN General Assembly voting ranks lower on our index of cost, it does not rank prohibitively low.

The second problem has to do with the obvious data limitations on this variable. There has only been a General Assembly since 1945, and the temporal domain of this study ranges back to 1886. In the quantitative chapters that follow I control for the addition of the UN voting measure to the interest similarity index after 1945. Unfortunately, until better indicators of national security preference revelation have been developed, this is the best we can do. As Signorino and Ritter (1999, 125) put it, “even though UN voting only started in 1945, we can probably get better estimates of states’ interests from 1945 to the present by supplementing… with UN data. Supplementing… with other sources of data should help to distinguish states that are implicitly aligned with each other from decided enemies and should, more generally, provide a richer array of information with which to determine the policy positions of states.” The combined index we use here, while certainly not perfect, exceeds the disciplinary state of the art.
The three indicators of national security interest revelation are arrayed in Figure 2.7 according to their cost and the frequency of occurrence. First, we can see that all three measures are more than mere words, and thus not so cheap as to convey an insufficient amount of information about national preferences. Second, we can see that the cost of the signal varies inversely with the frequency of occurrence. Ideally, we would want to find a measure of a costly signal that was quite common, but no such measure exists. The very nature of a costly signal implies that it will be a rare event. Combining the three measures into an index of dyadic interest similarly, however, will allow us to address the shortcomings of each particular measure with the strengths of another. It is to the construction of that index that we now turn.

2.7 Operationalizing Dyadic Interest Similarity

In order to operationalize the measures of interests to test the dyadic theory of conflict we need to make the measure dyadic. As we argued above, this is most likely the correct way to think about national interests, because of the problems associated with fitting states into a typology. Ideally, what we would need to do would be to compare whether any two states fought with, allied with, or voted with the same set of states in the international system. Signorino and Ritter (1999) have devised a measure, S, which fits our needs well. S compares the similarity of two column vectors. In our case the two column vectors represent the states in the particular dyad we are focusing on. The rows
in the vectors represent all other states in the system in that year. Each vector is referred to as a portfolio for the state at the head of the column.

Thus, for the armed conflict portfolios the column vectors for States A and B would contain dummy values for all other states in the system in that year where a one indicated that state engaged in a militarized interstate dispute with the State (A or B) at the head of each column. The MID data was taken from the Correlated of War Project (Jones, Bremer, and Singer 1996) and the S measure was generated, according to the formulas provided by Signorino and Ritter (1999) with a computer program that allows the measure to be calculated for a large number of states over a long time period (Sweeney and Keshk 2004). For the alliance portfolios the column vectors contain values ranging from 0 to 3. Zero represents no alliance, 1 indicates that the row state had an entente with the state at the head of the column, 2 indicates that the row state had a neutrality or nonaggression pact with the state at the head of the column, and 3 indicates that the row state had a defense pact with the state at the head of the column. I follow convention and assume that these three types of alliances represent increasing levels of commitment between states. The alliance data is taken from the Correlates of War Project. Finally, for the UN General Assembly voting data the columns are, again, the two states we are interested in comparing but the rows now represent each particular vote that was conducted in a given year. States either vote to affirm the measure (2), abstain (1), or vote against the measure (0) (Gartzke 1998). We assume that abstention, since it

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73 Appendix A contains an illustrative example of how S is calculated with respect to alliance portfolios.
generally reflects a particular state’s stance on an issue, represents a middle ground between affirmation and rejection. The data on S for UN General Assembly voting is available from Gartzke, Jo, and Tucker (1998).

As I mentioned above, the question of irrelevancy, the second point raised by Signorino and Ritter (1999) with respect to the alliance portfolio measure, looms large for both the MID and alliance portfolio data. Not wanting to delimit a range of states that were relevant to each state, both for fear of appearing arbitrary and for computational reasons, the rows represent every other member of the international system in that year. In order to lessen the effect of irrelevancy both the MID and alliance portfolios represent weighted measures. This means that the relative capability score of that state weights each row. As Signorino and Ritter (1999) show, weighting like this decreases the effects of irrelevancy because the states that are most likely to be irrelevant are also the least militarily powerful. Hence, any difference between two portfolios with respect to these states will be weighted much less that difference between two portfolios with respect to the more powerful states in the system.74

In the empirical chapters that follow Interest Similarity is the average of the S scores for weighted MID portfolios, weighted alliance portfolios, and unweighed UN General Assembly voting portfolios unless otherwise noted. Combing these three measures gives us a dyadic index that contains both costly signals and frequent

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74 The examples in Appendix A include both weighted and unweighted cases. Note also that it is not possible to weight UN votes.
preference revelation. Moreover, all three of the variables relate explicitly to questions of national security, and thus will be ideal for empirically testing the dyadic theory of conflict laid out in the last chapter.

2.8 Conclusion

This chapter has examined, in detail, how to conceptualize and operationalize the two key independent variables in the dyadic theory of conflict. In the case of relative power the task was to determine which elements of national power spoke most directly to the theory and then to choose among the various capability index alternatives based on which elements it operationalized. After selecting the Correlates of War Composite Index of National Capability, because it represented tangible measurements of actual power, we detailed a method of operationalization that made the concept appropriately dyadic. We then turned our focus to the concept of interest similarity, and began by noting the tendency in the literature has been to fit states into one of several typologies. I argued this was not particularly useful, both because few states have ever represented the ideal types associated with those typologies and because typologizing can lead to indeterminate conflict expectations. Instead, I argued that we should look to construct a dyadic index that was made up of the costly signals states give as to what their true preferences are. We selected three variables, armed conflict, alliances, and United Nations General Assembly voting, that are closely related to the type of national security interests that we need to tap.
In the Chapter Three we examine the face validity of the two measures proposed here. We will examine the time series for the two key independent variables for some of notable dyads in order to both ascertain whether the measures match well with our intuition and to establish whether the measures have sufficient variation for statistical estimation. After this investigation, Chapter Three will turn to descriptive and illustrative tests of the dyadic theory of conflict. This will not only demonstrate the usefulness of the measures purposed above, but will also generate some preliminary tests of the hypotheses derived in Chapter One.
Population
(overall size, growth)

Natural Resources
(food, coal, oil)

Economic/Industrial Capacity
(GNP, Iron/Steel Production)

Military Strength
(quantity and quality)

Geography
(size, topography, distance to threats)

Quality of Government
(competence, political development)

National Morale and Unity

Quality of Diplomacy

Figure 2.1: A Taxonomy of National Power Components
Military Strength (quantity and quality)

Geography (size, topography, distance to threats)

Natural Resources (food, coal, oil)

Economic/Industrial Capacity (GNP, Iron/Steel Production)

Population (overall size, growth)

Quality of Government (competence, political development)

National Morale and Unity

Quality of Diplomacy

Figure 2.2: F. Clifford German’s Index of National Capability
Figure 2.3: Ray Cline’s Index of National Capability
Military Strength (quantity and quality)

Geography (size, topography, distance to threats)

Natural Resources (food, coal, oil)

Economic/Industrial Capacity (GNP, Iron/Steel Production)

Population (overall size, growth)

Quality of Government (competence, political development)

National Morale and Unity

Quality of Diplomacy

Figure 2.4: Organski’s Index of National Capability
Military Strength (quantity and quality)

Geography (size, topography, distance to threats)

Natural Resources (food, coal, oil)

Economic/Industrial Capacity (GNP, Iron/Steel Production)

Population (overall size, growth)

Quality of Government (competence, political development)

National Morale and Unity

Quality of Diplomacy

Figure 2.5: Organski and Kugler’s Index of National Capability
Figure 2.6: Correlates of War Project Composite Index of National Capability
Figure 2.7: Measures of National Security Interest Revelation
CHAPTER 3

ILLUSTRATING THE DYADIC THEORY OF CONFLICT

3.1 Introduction

This chapter will serve as a bridge between the conceptual and theoretical arguments of the previous two chapters and the statistical estimation of the following two chapters. I have two primary goals: to establish the validity of the measures of our two key independent variables, and to conduct a descriptive plausibility probe of the four hypotheses derived from the dyadic theory of conflict. Accordingly, this chapter will be broken into two sections.

In the first section, I seek to establish the validity of the measures of relative military capability and dyadic interest similarity that were operationalized in Chapter Two. While elements of these measures are commonly used in quantitative studies of interstate conflict, this crucial step is often omitted. This investigation will be focused on how our two key independent variables track over time for a few noteworthy interstate dyads. We will thus be able to tell if the measures comport with our sense of events in these dyads (that is, have a certain amount of ‘face validity’). With respect to the operationalization of relative military capability, we should see dyadic capability ratio scores varying as states mobilize forces for war, increase spending on defense, and
experience periods of industrial or demographic growth because these are the factors identified in Chapter Two as those which most acutely affect actual national power. With respect to dyadic interest similarity, we should see variation toward similarity if a pair of states moves closer together in terms of revealed preferences in the realm of national security. Variation should not be limited to these factors, however, as we expect our operationalization of interest similarity to be able to pick up any general warming or cooling of relations.

Having established the validity of the key independent variables, the second section of this chapter turns to an illustrative test of the dyadic theory of conflict. This is particularly important because of the current dominant position of the ‘preponderance leads to peace’ school. Using a series of simple measures of interstate conflict, the two key independent variables, and some descriptive and non-parametric statistics, I am able to demonstrate not only that there is a significant amount of conflict within preponderant dyads (Hypothesis 1), but also that there is much less conflict in dyads with similar interests than there is in dyads with dissimilar interests (Hypothesis 2). Moreover, I am able to demonstrate that there is support in the data for the notion that an important interaction effect between these two variables exists (Hypothesis 3), and that interest similarity has a larger effect on dyadic conflict than relative military capability (Hypothesis 4). This section will establish the plausibility of these four hypotheses before we move, in Chapters Four and Five, to more sophisticated statistical tests where a number of confounding explanations are added.
3.2 Assessing the Validity of Relative Military Capability and Dyadic Interest Similarity

We cannot firmly establish the validity of our operationalizations of relative military capability and dyadic interest similarity because national power and national interests are abstract concepts and there is no ‘true’ measure with which we can compare our operationalizations. However, it is possible to show that the operational measures we selected in the previous chapter have a certain amount of face validity. That is, they are “measuring what we think they are measuring” (King, Keohane, and Verba 1994, 25). Demonstrating this should increase our confidence in these measures as we move on to tests of the dyadic theory of conflict. Perhaps the best manner by which to demonstrate the face validity of our measures is to select a few ‘high profile’ dyads, for which we have an intuitive sense of how these measures should vary, and ascertain whether our measures vary over time in the way our intuition leads us to believe they should. In particular, it is important to select dyads in which we expect both variables to vary considerably over the temporal domain of the study. I have selected four dyads for this demonstration: The United States – Russia/Soviet Union (1886-1992), France – Germany/West Germany (1886-1992), Israel – Egypt (1948-1992), and Israel – Syria (1948-1992). The most time will be spent on the first dyad because of its overwhelming diplomatic and political significance. The shorter treatments of the other dyads will demonstrate that our operational measures correspond well with events in other Great Power dyads (France-Germany) as well as non-Great Power dyads (Israel-Egypt, and Israel-Syria).
3.2.1 The United States – Russia/Soviet Union (1886-1992)

The United States and Russia were Great Powers of the first order for the entire period from 1886 to 1992, and their Cold War rivalry dominated the later half of the twentieth century. For these reasons alone, this is an important and sensible dyad to investigate in this section. However, when we think of the diplomatic and military history of these two states we realize that there should be significant variations over time in both their relative military capability and their level of interest similarity. In terms of the former, the two states undertook several noteworthy periods of military and industrial expansion and contraction. Such shifts directly influence actual national power, which should be picked up by our relative power measure. There should be significant variation in terms of the latter measure as well because this dyad experienced periods of relatively friendly relations (late 19th century) and important cooperation (World Wars I and II) and periods of intense enmity (the Cold War). We investigate the time series of the two operationalizations in turn.

3.2.1.1 The United States-Russia/Soviet Union: Capability Ratio

Figure 3.1 displays the time series of the balance of relative military capability between The United States and Russia between 1886 and 1992. Overall, the measure fits rather nicely with our intuition as the peaks and valleys correspond to important events

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75 The importance of this dyad was foreshadowed famously in 1835 by Alexis de Tocqueville (1835[1954], 452), “There are at the present time two great nations in the world, which started from different points, but seem to tend towards the same end. I allude to the Russians and the Americans . . . All other nations seem to have nearly reached their natural limits, and they have only to maintain their power; but these are still in the act of growth... Their starting point is different and their courses are not the same; yet each of them seems to be marked out by the will of Heaven to sway the destinies of half the globe.”
(such as mobilizations for war) and innovations (such as industrialization) that should affect the military power of each country. As described in Chapter Two, relative military power (the capability ratio) varies between .5 and 1 for any particular dyad where .5 indicates an exact balance between the two states and 1 indicates that one of the states possesses all of the combined military power of the dyad. In all years in this figure (except 1974-88) the United States is more powerful than Russia. Thus, increases in the capability ratio score indicate the United States is getting stronger relative to Russia, and decreases represent an increase in Russian relative capabilities.

The time series begins with a relatively stable period in which the capability ratio score for the US-Russian dyad is between .6 and .65, indicating that the United States is slightly more powerful than Russia. The first significant move in the capability ratio score for this dyad occurs in 1898, when the United States increased its standing military force from 44,000 to 236,000 while fighting the Spanish-American War. Mobilizations such as this one should affect the capability ratio because military personal is a vital component of actual national power. Moreover, the small move in the capability ratio score in 1898 makes sense because the American mobilization, while large in terms of the previous number of American military personal, was not an overly dramatic mobilization relative to Russian military strength. A slightly larger, and again expected, shift in the capability ratio score occurs in 1904-5 when the Russians mobilized an additional 1.2 million troops to fight the Japanese. The result is to move the dyadic capability ratio score toward balance. After its defeat in the Russo-Japanese War, Russia
demobilized over a million troops and returned the capability balance back to its pre-war level. The capability ratio score for this dyad hovers in the same range until the start of World War One.

The onset of the war corresponds with a brief decline in the capability ratio score (1916) which corresponds nicely to the fact that Russia mobilized faster for the war than did the United States. By 1917, however, the capability ratio score begins a sharp ascent so that by 1918 American power is roughly eight times that of the Soviet Union. This is explicable by a combination of events. First, the United States fully mobilized for the War only in 1918 – increasing its military personal from a peacetime level of slightly less than 200,000 to almost 2.9 million, with a corresponding increase in military spending. At the same time, the Bolshevik Revolution gutted the military forces of the Soviet Union.77 This combination of events drove the capability ratio score for this dyad to its highest level of the time series. Similarly, the rapid decline in the capability ratio score just after World War One is associated with the combination of American demobilization and Soviet economic recovery.78 In particular, the New Economic Policy, which introduced a series of market reforms to Soviet agriculture and industry returned

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76 All references to the data are to Jones, Bremer, and Singer (1972). The data used here was generated with EUGene Version 2.3 (Bennett and Stam 2000).

77 The size of the Russian/Soviet military fell from a high of 10.9 million in 1916 to around 1 million in 1918. Military spending fell from a little over four billion dollars in 1916 to less than three hundred million in 1918. The nationalization of industry also wrecked Soviet industrial capability as evidenced by a drop in steel production from over four million tons in 1916 to about 400,000 tons in 1918. There was a corresponding drop in energy consumption as well.

78 It is interesting to note that the decline in the capability ratio score after 1919 would be almost a linear progression toward equality were it not for the brief mobilization of Soviet armed forces during the Russian Civil War and 1920 Russo-Polish War.
Soviet production to prewar levels by 1928, and the first and second 5 year plans (1928-1937) placed the focus on industrial development with the effect of more than quadrupling steel production during that time period (Riasanovsky 1984, 479-503). By 1938 the two states where almost exactly equal in their military power.

This equality quickly came to an end as World War Two broke out and the United States again became stronger relative to the Soviet Union. This bump in the capability ratio score also makes sense. While both states mobilized to nearly full military capacity the United States had more men under arms in 1943-4 and 1946 and was outspending the Soviet Union 10 to 1. Moreover, while American industrial capacity geared up and was left relatively unscathed by the war, Soviet capacity stagnated under the weight of the German invasion. The long period of American relative decline after World War Two, with the exception of bumps associated with the American mobilization for wars in Korea and Vietnam, also fits well with expectations as several authors during the 1970s and 1980s who lamented the dilapidating state of American power (Rosecrance 1976, Oye et al. 1979, Gilpin 1981, Keohane 1980, 1984; Calleo 1987, Kennedy 1987, Huntington 1988/9). In fact, by 1974 the Soviet Union was more powerful according to our operationalization of relative military power, and was growing relative to the United States until the Reagan defense buildup began to have an effect in 1983. After that point, Soviet power declines relative to the United States. The US retakes the lead in 1988, and after the collapse of the Soviet Union in 1991, begins a period of unparalleled military power which has also been the subject of a good deal of scholarly work (e.g. Krauthammer 1990/1, Layne 1993, Mastanduno 1999).
Overall, the relative military capability measure performs very well for this dyad over the period from 1886 to 1992. It corresponds to periods during which we would expect the relative military power of one of the states to increase (such as mobilizations and industrial expansion) or decrease (such as demobilization and industrial contraction). Moreover, the broad track of the capability ratio score also makes sense. We note that with the exception of two unusual periods, the dyad is relatively balanced (capability ratio score under .75), and this is particularly the case during the period of bipolarity associated with the Cold War.

3.2.1.2 The United States – Russia/Soviet Union: Interest Similarity

Figure 3.2 depicts the time series of the level of interest similarity between the United States and Russia/Soviet Union between 1886 and 1992. A score of 1 on this variable indicates perfect interest similarity and a score of –1 indicates perfect interest dissimilarity. Much like the capability ratio measure, the operationalization of this independent variable for this dyad largely corresponds to intuition. For instance, note that the highest levels of the variable are generally before the Bolshevik revolution and that the lowest values correspond with the Cold War. A more detailed investigation yields even greater support for the face validity of this variable, as even the smallest variations in the security preferences of these two states are reflected in the measure.

79 It would be virtually impossible for a dyad to have an interest similarity score of –1. For that to be the case, states would need to have completely dissimilar scores on each of the three indicators. This would require (e.g. for MID portfolios), one of the two states fighting with every other state in the system in that year and that they are not fighting together against any opponent. The minimum for the interest similarity variable over the entire span of the data set is -.56.
The beginning of the time series shows the two Great Powers with a moderately high level of interest similarity that is reflective of the generally good, or at least not bad, relations between the US and Tsarist Russia. Relations between the two states began to deteriorate in the later part of the nineteenth century, with a first valley at the time of the Spanish-American War. While there was no serious animosity between the two states at this time, the measure declines because the United States was involved in a conflict with a state (Spain) that was at peace with Russia.80 The decrease should be taken to reflect a general unease among the Great Powers (including Russia) over American aggression toward Spain and imperialistic behavior in general.81 A more serious decline occurs during the Russo-Japanese War, where the Japanese enjoyed the tacit support of many Great Powers including the United Kingdom and the United States.82 Moreover, the peace conference, which ended the war on fairly good terms for the Japanese, was

80 Recall the operationalization of the interest similarity variable is based upon portfolios of cooperation (alliances) and conflict (MIDs). Any deviation from similar vectors, such as State A fighting State C while State B stands on the sidelines will necessarily decrease the interest similarity score for the AB dyad.

81 In fact, the Ambassadors of the United Kingdom, France, Italy, Germany, Austria-Hungary, and Russia all appealed to President McKinley for a peaceful resolution to the Spanish conflict on April 7, 1898. The United States declared war on April 22 (Field, 1998).

82 For instance, Ibe (1992, 81) notes that one of the main factors that enabled Japan to be victorious in the conflict with Russia was that, “the two vital sea-lanes leading from Japan to the Pacific and Europe were amply protected, one by the British Navy under the Anglo-Japanese Alliance, and the other by the naval forces of the United States.” The reason for this was, of course, quite simple. All Great Powers, and especially the United States, wanted to maintain an “open door” to China and viewed Russian expansion into Manchuria as a grave threat to that goal. They did not see Japanese expansion as threatening to free access to China until March of 1906 when both the US and British Ambassadors warned Japan to keep China open (Ibe 1992, 85).
arranged by Theodore Roosevelt (after a secret appeal from the Japanese) and held in Portsmouth, New Hampshire (Riasanovsky 1984, 403; Ibe 1992, 77-86).  

The dyadic level of interest similarity recovered to its pre-war level by 1909, but then began a precipitous fall bottoming out during the Russian civil war. The early part of this decline (1909-13) is the result of increasingly dissimilar dispute portfolios because both states were involved in several militarized border disputes with their neighbors. While these disputes had little to do with relations between the United States and Russia, the early downturn corresponds nicely with a period of increased tension in US-Russian relations as a trade agreement, which had been in effect since 1832, was abrogated in 1912 by the United States largely over Russian mistreatment of Jewish American citizens who traveled to Russia (Davis and Trani 2002, 4-7). The interest similarity score continues to decline after the outbreak of World War One as Russia joined the allied side but the United States remained neutral. An increase in the score is not seen after the United States joined the War on the side of the Allies, in April 1917, because the Bolsheviks issued a declaration of peace on November 8, 1917 (one day after taking power) and signed a separate peace with Germany at Brest-Litovsk in March of 1918.

Events simply turned too quickly to be accurately reflected in the measure.  

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83 In fact, Roosevelt won the 1906 Nobel Peace Prize for his efforts.  

84 Consultation with the data reveals the United States had disputes with Mexico in 1911, 1912, and 1913; with Guatemala in 1911; and with Nicaragua in 1909 and 1910. Russia had disputes with China in 1910, 1911, 1912, and 1913; and with Iran in 1909, 1910, 1911, and 1912.  

85 While American ‘neutrality’ clearly had an anti-German bias (e.g. Coogan 1981, 193) the vast majority of American assistance to the allies went to Britain and not France or Russia (Burk 1985).  

86 This represents one shortcoming of the measure as it is currently operationalized. Because interest similarity is measured annually sometimes events that begin and end in a short time period are not reflected
marked the beginning of the descent into the lowest pre-Cold War valley in Figure 3.2. The desires to reopen an eastern front, protect allied war supplies that were already in Russia, and overthrow the repugnant Bolshevik regime, combined to push the allies to aid any possible challenger to the new Soviet government and further decreased the interest similarity score. These desires most obviously manifested themselves during the Russian Civil War (1919-20). While the major impetus for the anti-Soviet movement came from other states, the United States did send troops into Russia during the civil war and did provide a tremendous amount of material assistance for the White army. Figure 3.2 correctly marks this low point in U.S.-Soviet relations. 

U.S. – Soviet relations improved somewhat through the 1920s and early 1930s as Harding, Coolidge, and Hoover succeeded Wilson, and this turn of events is reflected in the measure of interest similarity displayed in Figure 3.2. While the United States did not officially recognize the Soviet Union until 1933, American foreign policy under the Republican Presidents did allow a fair amount of economic cooperation between the

in the measure. For instance, the March 1917 revolution was hailed by members of the Wilson Administration as a democratic step in the right direction, and the provisional government was quickly recognized (Davis and Trani 2002, 31). The revolution was a timely event given that Wilson justified American entry into the war on the grounds that it would make the world safe for democracy. The justification would have been more difficult to uphold had Russia, for a brief time one of the allies, not been democratic (Boyle 1993).

87 The allies viewed the Bolshevik regime as repugnant for a variety of reasons, not the least of which was its abrogation of Russian war debts.

88 The United States participated in the allied blockade of Russia and supplied upwards of 10,000 men and 600,000 rifles to the White Army in 1919 (Riasanovsky 1984, 483; Mawdsley 1987, 144).

89 Davis and Trani (2002) aptly name this period the ‘first cold war.’
would be superpowers. For instance, American entrepreneurs such as Armand Hammer and Averell Harriman reached agreements with the Soviet government on a number of business enterprises, General Electric built the Dneiprostoy Dam, and Ford Motor Company helped redesign the Soviet automobile industry. Trade figures underscore this increasing economic interaction as the Soviet Union imported more from the United States ($25 million) than from any other country in 1925. The stock market crash, which sent American business looking for customers, and the Soviet New Economic Policy (1928-33), which provided customers, combined to increase the amount of economic interaction. By 1930 3% of U.S. exports went to the Soviet Union ($114 million) and there were over 1,000 American engineers working on various industrial projects within the Soviet Union (Boyle 1993, 20-8). The increasing economic interaction was a major factor in the U.S. decision to officially recognize the Soviet government.

One would think that relations between the two states would improve after recognition in 1933, but this was not the case. The downturn in the interest similarity measure in the late 1930s corresponds to a number of troubling diplomatic events as the familiarity of recognition only bred contempt. The Soviets were concerned that the Western Democracies, in particular the relatively isolationist United States, would stand by while the rising fascist powers encroached upon the Soviet Union. American officials twice rejected Soviet proposals (1934 and 1937) to erect a common foreign policy against Germany and Japan, and the policy of appeasement was viewed by Stalin as a misguided

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90 The Soviets also had incentive to desire improved economic relations with the west. As Kennan (1960, 178-93) notes, the destruction of World War One and the Russian Civil War forced Soviet leaders, particularly Lenin, to reconsider their revolutionary strategy. They needed capital, technology, and trade with the West in order to bolster the Soviet economy and maintain their grip on national power.
attempt to direct Nazi aggression eastward.\footnote{Thus Stalin famously opined, at the 18th Party Conference (1939), that instead the West would soon be involved in another imperialist war and that this time the Soviet Union would not pull the Western, “chestnuts out of the fire” (LaFeber 1997, 5-6).} The United States had an even longer list of problems and suspicions. As Boyle (1993, 36) argues, “US-Soviet relations in the years after 1933… sharply deteriorated, with a long list of grievances on the part of the United States against the Soviet Union – debt resettlement, Comintern propaganda, trade, the purges, Soviet duplicity in foreign policy, the Nazi-Soviet pact, the take-over of the Baltic states, [and] the Winter War against Finland.”\footnote{The era of diplomatic recognition inspired American hopes that the Soviet Union would finally pay the debts Russia incurred during World War One and that promised expanded trade would bring some relief to the depressed American economy. The debts were never paid and trade never expanded.} These final three events are picked up by the interest similarity score and reflect the nadir of U.S.-Soviet relations in 1939-40, which were now worse than at any time since the Russian Civil War.

Hitler’s invasion of the Soviet Union in June of 1941, and subsequent U.S. involvement in the war, provided only slight relief to the level of amity between the two states. This is accurately reflected in Figure 3.2. The wartime alliance was plagued by disagreements over strategy (e.g. the second front) and postwar aims that have been well documented (Gaddis 1982, Perlmutter 1993, LaFeber 1997) to the point that some have concluded that allied unity was a façade (Killen 1989, 39).\footnote{Nogee and Donaldson (1981, 56) agree with this assessment as they state, “…the wartime alliance was in fact only a marriage of convenience, marred on both sides by continuing suspicion, misperception, and even deception. There had never been a shared vision of the postwar order among the Big Three, and many of the issues that reflected the deeper divisions in world views had simply been resolved de facto or postponed for later consideration.”} Of course, relations soured dramatically immediately after the war. Diplomatic clashes occurred over Eastern
Europe, Iran, and Turkey; and Stalin re-iterated the communist view of the inevitability of war among the capitalist states. In 1946 Churchill famously proclaimed the onset of the Cold War by declaring, “from Stettin in the Baltic to Trieste in the Adriatic, an iron curtain has descended across the continent” (LaFeber 1997, 39). Our measure reflects this bleak state of affairs with the lowest score yet recorded in this dyad in 1946.

In the years between 1946 and 1955 the intensity of the Cold War between the Superpowers fluctuated as dramatic events, such as the Berlin blockade and outbreak of the Korean War heralded new lows in the conflict. The trend during this period, however, is one of a slight improvement in U.S.-Soviet relations, most evident between 1953 and 1955. The death of Stalin (March 1953) marked the beginning of a softening of Soviet policy that had somewhat pleasant, albeit temporary, ramifications for U.S.-Soviet relations. A multi-headed Soviet leadership emerged with new ideas on how best to handle the struggle with the United States. Realizing that a war between the now nuclear armed capitalist and communist camps might result in world destruction rather than the ultimate victory of communism, the new leaders argued for ‘peaceful coexistence’ with the United States. The Chairman of the Council of Ministers, Georgi Malenkov, perhaps best exemplified this sentiment in an April 1953 speech to the Supreme Soviet, We firmly stand by the belief that there are no disputed or outstanding issues today which cannot be settled peacefully by mutual agreement between the parties concerned. This also relates to disputed issues between the United States of America and the Soviet Union. We stand, as we have stood in the past, for the peaceful coexistence of the two systems. We hold that there are no objective reasons for clashes between the United States of America and the Soviet Union.94 (Rush 1970, 160)

94 The speech by Malenkov happened to coincide with the noteworthy speech given by President Eisenhower (April 16, 1953) extolling the virtues of a reduction in armaments, which was, “very warmly received in the West and published in full in Pravda” (Boyle 1993, 123).
This change in attitude led to a warming of relations that culminated in the 1955 Geneva Summit meeting. While the meeting produced very few substantive agreements, the ‘Spirit of Geneva,’ “marked an improvement in atmospherics as compared with previous East-West encounters” (Nooge and Donaldson 1981, 97), and reflected a high point in U.S.-Soviet relations that would not be reached again until the period of détente in the 1970s. This peak in cooperation is reflected in Figure 3.2.

The ‘Spirit of Geneva’ could not, however, stem the tide of conflict between the Soviet Union and the United States. As mentioned above, there were no serious agreements reached, and the period from 1956 through 1962 brought more tumult to the Cold War as is evidenced by the drop in the dyadic interest similarity score in Figure 3.2. The downturn in 1956 was marked by several noteworthy events such as the crushing of the nascent Hungarian revolution, the US military alert over possible Soviet involvement in the Suez crisis, and Khrushchev telling Western diplomats in Moscow, “We will bury you.” The depth of the Cold War followed. American U2 pilot Francis Gary Powers was shot down in 1960 leading to the cancellation of a scheduled summit meeting in Paris. Repeated clashes over the fate of Germany, and in particular Berlin, culminated with the

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95 Some minor agreements on cultural and educational exchange where reached, but the major proposals of both the Soviet Union (disbanding NATO and the Warsaw Pact and a removal of all ‘foreign’ troops from Europe) and the United States (‘Open Skies,’ which would have allowed each side aerial surveillance rights over the military installations of the other) met with failure. It should be noted that the United States unilaterally pursued its proposal. This led to the shooting down of U2 pilot Francis Gary Powers in May of 1960. This incident typified a period of renewed tension following the Geneva Summit (see below).

96 Khrushchev remarked in his memoirs that the Geneva Summit, “was probably doomed before it began” (Khrushchev 1970, 399).
building of the Berlin Wall (1961) which symbolized the essence of the conflict to many observers, and 1962 brought the Cuban missile crisis which actualized the danger of the conflict to everyone.

After the Cuban missile crisis, and perhaps because of it, relations between the Superpowers improved somewhat. Khrushchev’s post-crisis offers for some sort of nuclear inspection agreement “opened the way to” the 1963 Nuclear Test Ban Treaty (LaFeber 1997, 225), which was the first arms control agreement between the United States and Soviet Union. Around the same time a direct ‘hot line’ was installed between the White House and the Kremlin to facilitate contact during times of crisis. This period marks the beginning of a general increase in the interest similarity measure in Figure 3.2 that culminates with the period of ‘détente’ between 1971 and 1977. It is during this period of time that the measure is at its highest levels since the Geneva Summit and in 1976 its highest level of the entire Cold War. During this period the United States and Soviet Union reached agreement on no fewer than 12 treaties dealing with a variety of

97 The period of explicit U.S.-Soviet détente was preceded by a period of European détente that caused the rise in the U.S.-Soviet interest similarity score in the later half of the 1960s. As Raymond Garthoff (1985, 8-9) writes, “The idea of East-West détente emerged in the mid 1960s. It was advanced in 1966 and 1967 by the Warsaw Pact countries, in 1966 General Charles de Gaulle, and in 1967 by the North Atlantic Treaty Organization (NATO). This rapprochement was interrupted briefly by the Soviet occupation of Czechoslovakia in 1968, but the year 1969 marked a significant new beginning. The Soviet Union wished to renew Western European consideration of détente following Czechoslovakia, and in March 1969 the Warsaw Pact again proposed a conference on European security and cooperation. The NATO alliance meeting at Reykjavik, Iceland, in June responded positively... Following the election of Willy Brandt as chancellor of the Federal Republic of Germany in October 1969, West Germany undertook an Ostpolitik aimed at détente and moved rapidly to sign a non-aggression Pact with the USSR in Moscow in 1970. West Germany also entered into negotiations that led to treaties with Poland, Czechoslovakia, and the German Democratic Republic in the early 1970s.” These conciliatory policies on the part of West Germany had a significant effect on the level of cooperation between the United States and Soviet Union. Garthoff (1985, 9) continues, “Following in train with the bilateral West German Ostpolitik, the United States, Britain, and France in 1971 negotiated with the USSR a Quadripartite Berlin Agreement designed to defuse the perennial flashpoint of Berlin. By 1972 détente was well under way in Europe...”

98 The interest similarity score for 1955 was .105, while for 1976 it was .107.
subjects from preclusive treaties, to risk management treaties, to arms limitation agreements. The latter category included the 1972 ABM (Anti-Ballistic Missile) and SALT (Strategic Arms Limitation) Treaties which either banned or circumscribed the possession of certain weapons systems (Farley 1988).

There were many causes of U.S.-Soviet détente, but the constant force behind the movement, on the U.S. side at least, was the partnership of Richard Nixon and Henry Kissinger. Nixon (1969) came to the White House heralding, “Those who would be our adversaries, we invite to a peaceful competition--not in conquering territory or extending dominion, but in enriching the life of man… With those who are willing to join, let us cooperate to reduce the burden of arms, to strengthen the structure of peace…” With his reputation as a staunch anti-communist, and Henry Kissinger as National Security Advisor, he could attempt to pursue his vision. The election of Jimmy Carter in 1976 marked a sea change in America’s foreign policy toward the Soviet Union (Garthoff 1985, 563-90), particularly with Zbigniew Brzezinski taking over as National Security Advisor. As LaFeber (1997, 284) points out Brzezinski, “…had condemned the détente policies of Kissinger, a person with whom he had competed professionally since the early

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99 Preclusive agreements banned either development or deployment of weapons system. For instance the 1971 Seabeds Arms Control Treaty banned the deployment of nuclear weapons on the ocean floor.

100 As the name would imply, risk management treaties sought to moderate the risk of nuclear war. They included the 1971 ‘Accidental Nuclear War Agreement,’” which provided for permanent contact between US and Soviet military officers.

101 Interestingly, Garthoff’s (1985, 53) argument about the main cause substantiates one of the major hypotheses that will be investigated beginning in the second half of this chapter, “Détente in the 1970s was predicated on parity. The emergence, or at least the symbolic and prospective emergence, of strategic nuclear parity between the Unites States and the Soviet Union, and a presumptive rough overall military
1950s. Brzezinski both urged the ‘independence’ of such [Soviet] bloc states as Rumania and criticized the SALT deals…” A large drop in the interest similarity measure in Figure 3.2 corresponds with the new leadership in U.S. foreign policy.

Several foreign policy stances of the Carter Administration evidence this shift in policy. First, in 1977 the United States began to link foreign aid to human rights records, a move which was viewed by the Soviets as an implicit threat to their vital national interests in Eastern Europe. Second, Brzezinski traveled to China in May 1978 in order to open formal diplomatic relations with the Chinese by January 1979, and he “hoped to play this ‘China card’ to trump the Soviet policies in Africa and the Middle East, and on arms control” (LaFeber 1997, 289). The move infuriated the Soviets (Garthoff 1985, 710-3). Third, later that same month, Carter effectively sounded the death knell for the era of détente when he traveled to the NATO Summit and launched a new major long term defense build-up for the alliance. The Soviets felt this was a move away from the SALT agreements, and signaled the official end of détente (Garthoff 1985, 598). Things shortly went from bad to worse in U.S.-Soviet relations when the Soviet Union invaded Afghanistan on December 27, 1979. This move led to an embargo on U.S. wheat and technology exports to the Soviet Union and the U.S. boycott of the 1980

parity between the two alliances, contributed to a foundation on which the two superpowers believed they could achieve arms limitations and broader political cooperation in defined areas of mutual interest.”

102 As Garthoff (1985, 573) points out, “…from the Soviet standpoint the United States had made a major and dangerous shift in its policy by giving great prominence and drive to a matter that, in their eyes, was an attack on their vital interests. The Carter Administration, if not consciously seeking to undermine the Soviet Union and Eastern Europe, nonetheless created the impression in the minds of the Soviet leaders that the United States would be satisfied only with a fundamental change in their system. They were also inclined to suspect nefarious motives, especially on the part of Brzezinski, rather than to credit naïveté on the part of Carter.”
Summer Olympic Games in Moscow. More importantly, it led Carter to declare what would become known as the Carter Doctrine which states that the United States would intervene, unilaterally if necessary, if Soviet aggression threatened Western interests in the Persian Gulf region (LaFeber 1997, 298).

Relations between the Superpowers stagnated as Ronald Reagan assumed control of the White House in 1980. The Soviets blamed the failure of détente on the Carter Administration and urged a return to cooperative relations, but the new Republican Administration demurred. They codified their foreign policy position in December 1982 in National Security Decision Directive (NSDD) 75 which stated three long term objectives,

(1) to contain Soviet expansion and to moderate Soviet international behavior; (2) to encourage, by the limited means at the disposal of the United States, change in the Soviet system toward greater liberalism over time; and (3) to negotiate agreements that were in the interests of the United States (Garthoff 1985, 1012).

Shortly thereafter Reagan (March 1983) proclaimed the Soviet Union the evil empire saying the Soviet leaders were the “focus of evil in the modern world” and that “the Soviet Union underlies all the unrest that is going on in the world today” (cited in Garthoff 1985, 1010). Reagan accompanied this policy with a massive arms buildup that

103 Soviet foreign policy at the beginning of the 1980s was in dire straits and could have used reconciliation with Washington. The Soviets were beset by much tougher than expected resistance in Afghanistan, failing relations with China, and an economy that was in decline and (as it would prove later in the decade) unable to sustain the lavish military budget. The Twenty-Sixth Party Congress in February and March of 1981 called for renewed cooperation between the Superpowers (Garthoff 1985, 1014), and later that year Brezhnev sent a nine page letter to Reagan asking for renewed talks on arms reductions (LaFeber 1997, 301).
drove the Cold War to depths that rivaled those of the late 1950s and early 1960s. This shift is demonstrated quite clearly in Figure 3.2.

Only a radical change could stem the new tide of conflict between the United States and Soviet Union, and such a change occurred in 1985 when Mikhail Gorbachev became the Party Leader and nominal head of the Soviet Government. Realizing that the Soviet Union was falling behind the West in economic and technological development Gorbachev proposed, at the Twenty Seventh Party Congress in 1986, the twin policies of perestroika (a restructuring of the economy) and glasnost (political openness) which brought about yet another sea change in U.S.-Soviet relations. The remarkable changes that occurred in the few years that followed have been well documented (e.g. Oberdorfer 1992), but agreements that were unthinkable just a few years before (and for the entire Cold War) were reached with shocking speed. The turn of events is accurately depicted in Figure 3.2 as the interest similarity score increases almost as fast as it decreased in 1945-6.\(^{104}\)

\(^{104}\) It is also interesting to note the two spikes in the increase (1987 and 1991) correspond with the timing of, arguably the two most important agreements between the Superpowers during this period. The Intermediate Nuclear Force (INF) Treaty was signed on December 7, 1987 and was significant in that it was the first time that an entire class of nuclear weapons (all ground launched ballistic and cruise missiles with ranges between 500 and 5,500 kilometers) had been eliminated. The START (Strategic Arms Reduction Talks) Treaty, which was signed July 31, 1991, marked the first time the two Superpowers had agreed to reduce their stockpiles of strategic nuclear weapons (Smoke 1993).
3.2.1.3 United States – Russia/Soviet Union: Conclusion

This section has demonstrated that the operational measures of our two key independent variables validly reflect the underlying concepts of relative military power and dyadic interest similarity for the United States - Russia/Soviet Union dyad. The former measure rises and falls in response to military and industrial changes in either state that should affect the actual balance of military power between them. In particular, the measure is responsive to both noteworthy military buildups and dramatic changes in industrial productivity and output. If it is possible, the correspondence of the measure of dyadic interest similarity mirrors our intuition of important expressions of national security interests even better. Not only does the measure clearly indicate the low points in U.S.-Soviet cooperation (the Russian Civil War, the early Cold War, the late 1950s and early 1960s, and the Carter/Reagan period of confrontation), but it seems responsive to even slight shifts in revealed preferences (like the ‘Spirit of Geneva’ and détente) that, at first blush, would not seem likely to be picked up by our operational indicator. This should give us great confidence in the validity of our measures. The next two sections will, more briefly, investigate these measures in other dyads (Great Power, and non-Great Power) to establish the measures apply to more than just the U.S.-Soviet case.

3.2.2 France-Germany/West Germany (1886-1992)

Of all other Great Power dyads, perhaps the one that is most interesting to investigate is France – Germany/West Germany. Between 1886 and 1992 the two states experienced several notable shifts in the balance of military capabilities between them.
These shifts should be reflected in our measure. Moreover, the dyad experienced drastically different periods in terms of interest similarity. The period before 1946 was dominated by enmity, whereas the period after 1946 was dominated by amity. Our measure should pick this difference in periods up, and should also respond to more subtle changes that occurred, particularly within the acrimonious period before 1946.

### 3.2.2.1 France – Germany/West Germany: Capability Ratio

Figure 3.3 shows the variation in capability ratio for the France-German dyad in the period from 1886 to 1992. Since Germany is, at all times, more powerful than France, increases in the capability ratio score reflect increasing German relative military capability and decreases reflect increasing French relative military capability. Upon broad inspection, we see that this dyadic capability score also has good face validity, with Germany growing stronger relative to France in the pre-World War One and World War Two eras, France growing relatively more powerful in the Versailles Era, and the two states in a relatively stable and balanced situation in the NATO era. A closer inspection bares these points out.

The depiction of the Pre-World War One era in Figure 3.3 shows a gradual increase in German military capability relative to the French. Indeed, this trend had been continuing since the German victory in the 1871 Franco-Prussian War. Thanks to the tireless work of Otto Von Bismarck, Germany was finally consolidated and quickly became the most powerful state on the European mainland. While some states, most notably France, could hope to mimic German military preparedness and efficiency, not
even France could, “match Germany in population or in industrial strength” (Barlett 1984, 6). Between 1886 and 1900 Germany’s iron (before 1895) and steel (after 1895) production more than doubled, as did its urban population. There were also 10 million more Germans in 1902 compared to 1886. Meanwhile, French population and industrial output stagnated such that the France of 1900 was not all too different from the France of 1886. The ascension of the militaristic Kaiser Wilhelm in 1891, and his 1896 proclamation that Germany would pursue *Weltpolitik* heralded the translation of these demographic and industrial resources to military might\(^\text{105}\) (Bartlett 1984, Berghahn 1987, 29-37). By 1901 Germany not only led France on the industrial and demographic indicators, but for the first time had more men under arms, and spent more on them, than France. This German arms buildup is accurately reflected in Figure 3.3.

Given the relative strength of Germany on the eve of the First World War it is not surprising that the Germans, essentially by themselves, managed to battle France, the United Kingdom, and the Russians/United States to what was basically a draw through four long years of battle. It is also no surprise that the French, the state most threatened by Germany’s military power, sought to enforce a Carthaginian peace on the Germans after the war ended. The Treaty of Versailles struck at all three foundations of Germany’s Power. On the military side, it was decided that while a general disarmament among the Great Powers was desirable (The 4\(^{th}\) of Wilson’s Fourteen Points), Germany

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\(^{105}\) For instance, in order to compete with the British for colonies Germany, under Admiral Tirpitz, began to build a navy.
should be forced to do so unilaterally. Several harsh measures were written into the
treaty to ensure Germany’s disarmament. McKenzie (1971, 62) notes

The air force was wholly banned (article 198), conscription was to be abolished (article 173), and the army general staff was to be disbanded immediately (article 160). The army, limited to a force of a hundred thousand men was to be recruited on a voluntary basis with a minimum period of service of twelve years, a stipulation designed to prevent the accumulation of a large reserve of trained soldiers (article 174). The army’s duties were to be limited to ‘the maintenance of order within the territory and to the control of the frontiers’ (article 160) and, accordingly, all heavy artillery and heavy tanks were forbidden. The fleet was reduced to a tenth of its pre-war strength and limited to ships under ten thousand tons. Submarines and Dreadnought-class battleships were specifically forbidden (articles 190-1). The remainder of the German fleet… was to be surrendered to the Allies (article 185).

Industry and population were also lost as large tracts of territory were ceded to France, Belgium, Poland, Denmark, and Lithuania, to name a few or made independent. In all, “Germany lost well over 10 percent of her land and her inhabitants in Europe… With Lorraine, Germany lost three quarters of her iron ore; in the Saar and the parts of Silesia which later went to Poland was a quarter of Germany’s coal. A considerable part of the industrial machinery of Germany was in these lost areas. The territorial clauses struck at the very heart of German industrial hegemony” (Sontag 1933, 275). None of this even mentions the harsh reparations Germany was forced to pay which saddled its economy and have been the subject of much discussion (e.g. Keynes [1920] 1988). The dismantling of the German war machine is reflected in a downward trend, during what I have labeled the “Versailles Era,” in Figure 3.3.
However, at no time during this era was Germany less powerful than France, and the French were acutely aware of this fact.\textsuperscript{106} Security from the German threat was the primary French foreign policy goal during the interwar period, and this goal was pursued in full knowledge of the inherent German advantages. It was for this reason that France signed defense pacts with Poland (1921), Czechoslovakia (1924), Romania (1926), and Yugoslavia (1927), and for this reason that the French constructed an elaborate defensive network along their Western frontier. The Maginot Line, conceived during the period from 1922 to 1929 and built between 1930 and 1937, was, as Alexander (1998, 169) has noted, “[to make up for] a short-weight between the military manpower available in France and the military manpower which French intelligence predicted could be mobilized by Germany.”

French fears were realized in 1933 when Adolf Hitler was appointed Reich Chancellor. Hitler rose to power on the promise of restoring Germany’s rightful place atop the Great Power hierarchy. To do this he intended to expand the territorial borders of Germany and he, “ultimately regarded rearmament as the most important precondition of his expansionist program” (Hildenbrand 1973, 27). Shortly after taking power, Hitler pulled Germany out of the League of Nations and the League’s Disarmament talks. He

\textsuperscript{106} This might seem paradoxical given the harsh terms of the Versailles Treaty and the economic problems that befell the Weimar Republic, but it underscores the extent to which Germany was industrially and demographically superior to the French. Even after all of the territory was transferred from Germany there were still on the order of ten million more Germans than French, and even though Germany lost as much as 10\% of its industrial base at no time during the interwar period did it produce less steel or consume less energy than France. Bartlett (1984, 107) concluded that the Treaty was, “damaging to Germany in the short run but ineffectual in the longer term.”
then undertook a two year period of, essentially covert, rearmament before announcing he was rearming and re-imposing conscription in 1935. The large scale rearmament served the duel purpose of virtually eliminating German unemployment, which fell from 6.14 million in 1933 to 2.5 million in 1936 and to 300,000 by 1939, and preparing the military might for Hitler’s program of expansion. Hitler made this point explicit to his ministers as early as February 8, 1933 (Berghahn 1987, 138, 146). Hitler’s program, until 1942 at least, was phenomenally successful. Soon after he took power, German military strength relative to the French began to increase. Building on an already superior demographic and industrial base (which was expanded as Germany acquired more and more territory) military mobilization increased also. On the eve of the invasion of Poland, Hitler’s Germany had five times the military manpower of France and was spending 10 dollars on the military for every dollar the French spent. This military buildup is vividly reflected in Figure 3.3, where the French-German dyad goes from almost total parity (1933) to almost complete preponderance (1941) in under a decade. With this massive military expansion it is little wonder why France, who felt the full force of the German onslaught, fell so quickly. Germany fell in 1945, was occupied and split in half shortly after the war. There is a break in Figure 3.3 between 1945 and

107 For instance, Berghahn (1987, 147) explains, “Thus it happened that the Auto-Union motor manufacturers produced lorries which were in fact military vehicles. Krupp’s ‘agricultural tractor program’ was the initial code name for the production of tanks, banned under the Versailles Treaty, but started in July 1933. The explosives manufacturer Pulverfabrik Rheinsdorf increased its workforce from 2,000 to 5,200 in the first half of 1933. Meanwhile the Navy began to order 70 million marks’ worth of new ships. By 1934, 840 of the 1,968 airplanes produced were for military purposes, also prohibited by the Versailles Peace Settlement.”

108 The brief blip downward in 1940 represents France’s too little, too late effort to mobilize an army in the face of the German onslaught.
1957; the latter date reflects when the Correlates of War Project recognized West Germany as an independent member of the international system. From that point forward the measure of relative military capability also performs as expected. Throughout the period West Germany remained more populous and industrially productive than France, however, France had more men under arms (although the gap was significantly narrowed in the 1970s) and spent more on its military in most years during the NATO era.

Overall, the measure of relative military capability performs extremely well for the France – German/West German dyad for the period under investigation. Not only does it correctly portray Germany as the stronger of the two states during the entire period, it accurately reflects the two large German military build ups (before World War One and World War Two), and accurately reflects the relatively stable military balance between the two states during the NATO era.

3.2.2.2 France – Germany/West Germany: Interest Similarity

Figure 3.4 depicts the interest similarity score for the France-Germany/West Germany dyad from 1886 to 1992. Relations between France and Germany were never particularly good from 1871, when the Germans defeated France in the Franco-Prussian War, to 1940, when the French signed an armistice with the Nazi government. However, there is still quite a bit of variation in the interest similarity score in this period, and the variation does correspond to meaningful events in this dyad – so, this discussion should further increase our confidence in the dyadic interest similarity measure.
The first dip in the interest similarity score occurs during the war scare of 1887, the closest the two states had been to war since 1871. France’s defeat in the Franco-Prussian War left a deep scar, most meaningfully evidenced in the loss of Alsace and Lorraine. Periodically, French politicians attempted to gain political favor by arguing for revanche, a recapturing of the lost provinces. One such politician was Georges Boulanger, a General who rose to the level of Minister of War in 1886. He used his new position to continue to agitate for revanche. The rise of such a leader to a position of strength in the French government worried Bismarck, who rapidly pushed a new army bill through the Reichstag. The situation went from bad to worse when a French Police Commissioner, by the name of Schnaebele, was forcibly seized by German border guards and imprisoned. Gooch (1923, 29) points out that, “the atmosphere was electric, and war was anticipated by cool observers in other lands.” Boulanger agitated for war; however, the government of which he was part soon fell, and he was moved to a post commanding an Army Corps in the Provinces. The new government, headed by Rouvier, began talks with the Germans to de-escalate the situation, and relations subsequently improved. This dramatic event, and its rather quick end, is accurately reflected in Figure 3.4.

109 It seems Schnaebele was invited by a German counterpart to Alsace in order to discuss administrative business. The border guards were not informed of the meeting, and arrested the French Commissioner on the charge of attempted espionage. The mess was cleared up in ten days and the Commissioner was released, although his part in the fiasco cost him his post (Gooch 1923, 30).

110 Boulanger continued to agitate for revanche, attempting to play himself into a more powerful position in the government. His political aspirations created many enemies within the French government, and he was later brought up on charges of dereliction of duty for leaving his command to visit Paris without proper leave. He was exiled to Brussels, where he committed suicide in 1889.
Relations between the erstwhile protagonists would improve further with the dismissal of Bismarck in 1890, a move also reflected in Figure 3.4. Bismarck’s diplomatic policies, the subject of much scholarly examination, above all sought to free Germany from the constraints imposed upon it by its geographic position at the heart of the European mainland. Oftentimes, as in 1871, this brought the Germans into direct conflict with the French. Bismarck’s dismissal, as Gooch (1923, 32) points out, “was hailed with delight in France, and a slight détente began…” Indeed, the new foreign policy team in Germany, headed by the Kaiser himself, “hastened to announce that the old policies of loyalty to the defensive aims of the Triple Alliance and friendly relations with other European powers were to be continued. The only change was one of tone. Instead of the complications – ‘chicanery’ was the word hinted at – of Bismarckian diplomacy, German policy was now to be simple, open, straightforward” (Sontag 1933, 50-1). The new German diplomacy included several attempts at cultural exchange with the French, which reached their zenith in 1891 when it was announced the Kaiser’s own mother, Empress Frederick, would visit Paris to meet several artists who were to appear in an exhibit in Berlin. When word of her impending visit reached France, nationalists mobilized for a protest. Offended by the indecency of the protesters, the Empress cut her visit short and returned to Berlin in disgust. The German Army issued preliminary orders to mobilize for war and, “the visit which was designed to foster détente inflicted fresh wounds and revealed once again that the volcanic fires were ready to burst forth at any moment” (Gooch 1923, 34).
The fleeting détente was also curtailed by events of larger geo-political significance, which are reflected in the downturn in the Franco-German interest similarity score. The new German foreign policy had a greater pacific effect on Germany’s relations with England than with France, and in 1890 the two sides signed a treaty to swap territorial possessions with Germany receiving Helgoland for concessions in Africa. Shortly thereafter there was even talk of the English joining the Triple Alliance. The timing was unfortunate, as the Russo-German Reinsurance Treaty expired that same year. While the Germans did attempt to negotiate a renewed Russian Treaty, their warming relations with England caused them to waiver. German Foreign Minister Friedrich Holstein thought the two goals were incompatible, and that if Russia leaked word of the Reinsurance Treaty all efforts toward Britain would be lost. The resultant delay caused the Tsar to think, “that the Kaiser planned a new anti-Russian orientation of German policy” (Sontag 1933, 51). The Russians became more receptive to the persistent French overtures for a defensive treaty and several agreements were signed, culminating in the Franco-Russian alliance of 1894.\textsuperscript{111} This diplomatic activity clearly signaled a worsening of Franco-German relations, which would persist until the turn of the century.

During the first few years of the 20\textsuperscript{th} century Franco-German relations improved somewhat. The French nationalists were a discredited minority in the government, and France agreed to cooperate with Germany on the Berlin-Baghdad railway – provided that

\textsuperscript{111} While the Franco-Russian Pact is often referred to as an entente, in fact it was a mutual defense pact aimed at the Triple Alliance. Its terms, which were not officially revealed until after the Bolshevik Revolution provided that, “If France is attacked by Germany, or by Italy supported by Germany, Russia shall employ all her available forces to attack Germany. If Russia is attacked by Germany, or by Austria supported by Germany, France shall employ all her available forces to fight Germany” (Sontag 1933, 54).
the Russians were brought into the project as well (Gooch 1923, 39). Even the entente cordiale of 1904 between France and England was, initially, favorably received by the German leadership. Chancellor Bulow wrote of the entente, “It seems to be an attempt to remove a number of differences by peaceful methods. We have nothing, from the standpoint of German interests, to object to in that” (Gooch 1923, 41). This decrease in tensions is reflected by the high point in Figure 3.4 around the time of the Russo-Japanese War.

German objections to the entente, of course, would soon increase as the long, slow march to World War One would be punctuated by recurrent crises between France and Germany. These crises were brought about, in no small part, by increased French bravado stemming from the closer ties with England. As we pointed out in the previous section, at no time during the pre-war period was France militarily stronger than Germany. In fact, Germany had been growing stronger relative to France since 1891. This trend was reflected in a somewhat self-conscious French foreign policy toward Germany. However, as Sontag (1933, 99) points out, “British sea power would more than redress the military balance between France and Germany. Now Germany could safely be defied, be forced to acquiesce in whatever France decided to do.” The disagreements between France and Germany were many, but most acutely visible in Morocco where French attempts to assert hegemony, which began almost immediately after the entente was signed, clashed with German economic interests.

In 1905, the Kaiser landed in Tangier and proclaimed Germany’s support for Moroccan independence under the 1880 Treaty of Madrid. French meddling in the
internal affairs of the Fez, and the fact that Germany called her bluff, resulted in an international conference at Algeciras in 1906 where the French gained a mandate but were forced to recognize German economic interests (Sontag 1933, 104; Gooch 1923, 42-7). A similar crisis between France and Germany over Morocco erupted in 1911, when the Germans again decided to press their economic interests. This time they secured French colonial concessions in the Congo in recognition of a French protectorate over Morocco (Bartlett 1984, 66), but the row further polarized a Europe in which France and Germany were clearly in opposite camps. As Gooch (1923, 47) notes, all the first crisis over Morocco did, “was to tighten the bonds between Great Britain and France, to break down the barriers that separated Great Britain and Russia, and prepare the way for the creation of the Triple Entente.” The second crisis, along with the Balkan Wars of 1912-3, where France firmly stated its intention to come to Russia’s aid should it find itself in conflict with Austria and/or Germany, solidified the commitment of the Entente members to defend each other against German aggression.

It is a short trip from here to World War One, which is aptly depicted in Figure 3.4, but what is more interesting is the rise in Franco-German interest similarity after the war. With the end of military hostilities, needless to say, there is a dramatic increase in the interest similarity score in Figure 3.4. This is not necessarily a surprise as both sides were left exhausted, and there was little left to fight over. However, after the Treaty of Versailles was signed the score drops again, which is reflective of the fact that France’s main post-Treaty interest was in enforcing the harsh terms imposed at Versailles and Germany’s main post-Treaty interest was in shirking the Treaty’s terms. The clash of
these interests was vividly depicted in the French occupation of German territories beginning in 1921, but most notably the Ruhr in January of 1923. World War One decimated the French economy, and repayment of debts accumulated to the United States was a vexing economic issue. The French were counting on German reparations to solve these problems, and the reparations were slow in coming. Moreover, “French experts feared that while the economy of their own country was faltering that of Germany was gaining rapidly in strength” (Bartlett 1984, 141). This only added to the suspicion that German cries of poverty were unjustified.

In order to compel Germany to live up to the Versailles Treaty the Rhine ports of Düsseldorf, Duisburg, and Ruhrort were occupied by the allies in 1921. When this policy failed the new French government under Raymond Poincare, who had previously served as chairman of the Reparations Committee, threatened to occupy the Ruhr Valley – the main resource for raw materials and a key industrial center. The Germans dragged their feet and French troops entered the Ruhr in January of 1923. The Germans instituted a policy of passive resistance which insured not only that the French would get much less out of their occupation than they had planned, but also economic ruin at home. While the policy of passive resistance was terminated by the Stresemann government in late 1923, the French troops stayed until 1925 when the Dawes plan provided a new benchmark for reparations payments by which the Germans pledged to abide (McKenzie 1971, 160-3).

With the question of reparations settled for the moment, there was room to improve Franco-German relations, and this improvement is also reflected in Figure 3.4. The most notable aspect of the Franco-German rapprochement was the Locarno Treaty,
which was signed by all of the major, and several minor, powers in Western Europe in
October of 1925. In the four main articles of the Treaty all signatories pledged to: (1)
respect the territorial status quo, (2) refrain from armed attack on one another, (3) settle
disputes through diplomacy, (4) utilize the League of Nations for dispute resolution
(McKenzie 1971, 178). While it has been suggested that Streseemann’s main motivation
for the treaty was to head off a defensive alliance between France and Britain and
improve the standing of his government in domestic politics (Bartlett 1984, 143), there is
no question that the pact marked a significant improvement in the tenor of Franco-
German relations. Germany joined the League of Nations in 1926, and shortly thereafter
Stresemann and French Premier Aristide Briand met in Thoiry and signed agreements
which further enhanced Franco-German political and economic cooperation (McKenzie
1971, 188-9).112 Finally, Stresemann, Briand, and British Prime Minister Austin
Chamberlain met periodically until 1929 at the so-called ‘Geneva tea-parties’ to discuss
their differences. This steady improvement in Franco-German relations is clearly
demonstrated in Figure 3.4.

The Great Depression, which began in 1929, has little direct effect on our
operational indicator because the major governments still tried to resolve their disputes
peacefully and, quite frankly, were somewhat more concerned with domestic politics.
The indirect effect, of course, was large. Riding a nationalist wave in depression era
Germany, Adolf Hitler came to power in 1933 and the effect on Franco-German relations

112 In fact, Stresemann and Briand shared the 1926 Nobel Peace Prize for their efforts at Locarno and
Thoiry.
was immediate and is strikingly portrayed in Figure 3.4. Hitler’s plans for rearmament and European hegemony clearly placed him at odds with a French regime that had, for fifteen years, been trying to prevent Germany from reaching either of those goals. And, while Hitler did entertain some notion of allying with the British (Hildebrand 1973, 38-50) he had no such intentions for the French. When Hitler announced a return to conscription and overt German armament in 1935 he received condemnation from Britain, France, and Italy at the Stresa Conference, but the threat to France was more overt. With the Nazi re-militarization of the Rhineland, the de-militarized buffer zone between Germany and the rest of Western Europe, in March of 1936 this became painfully obvious. With each Nazi conquest, the scope of France’s defensive system of alliances was decreased. By 1939, two French allies, Czechoslovakia and Poland, had been conquered, and another, Romania, had been firmly placed within the German economic sphere. Furthermore, the Molotov-Ribbentrop Pact had neutralized France’s traditional anti-German ally, and Austria had become part of the Nazi Empire. Figure 3.4 makes the extent to which Nazi revisionism clashed with French interests clear. Only the relatively rapid fall of France prevents the interest similarity score for World War Two from falling to the level it achieved during World War One.¹¹³

Our confidence in the measure should be further strengthened by the rest of the time series presented in Figure 3.4. Not only is it able to pick up the friendlier relations between Vichy France and Germany after the German occupation, it also reflects the

¹¹³ This is because interest similarity is calculated with portfolios which include all states in the international system, and many of them were not yet involved in the war when France fell.
relatively worsening relations as the résistance movement gained momentum. Moreover, we see that the French and West Germans managed to sustain a high level of cooperation throughout the European Union and NATO era. This should not be surprising, since it is clear that French and German interests during this period, championing European integration and deterring the Soviet Threat, were quite similar (Friend 1991).

3.2.3 Israel – Egypt/Syria (1948-1992)

The previous two sections have demonstrated that the key measures have good face validity with respect to two important Great Power dyads, however we seek to generalize the dyadic theory of conflict to all interstate dyads so a non-Great Power example would be useful. Israel and two of its Arab neighbors, Egypt and Syria, are a good choice for such a demonstration not only because these are particularly important dyads but also because there should be significant and identifiable variations in the two measures over time.

3.2.3.1 Israel – Egypt/Syria: Capability Ratio

Figure 3.5 displays the capability ratio variable for both the Israeli-Egyptian and Israeli-Syria dyads from 1948 to 1992. The measure performs well for both dyads. The time series for the Israeli-Egyptian dyad correctly shows that Egypt was a good deal more powerful on the measure over time, and displays that the Egyptian advantage was greatest before the 1967 War. The main reason for Egyptian strength relative to Israel on this measure is its vastly superior population size, which was more or less effectively
translated into a larger armed force. Throughout the time series Egyptian population is roughly 10 times greater than Israeli population, and it experiences a rather steady growth over time. Meanwhile the Israeli population has gone through several periods of stagnation as it has waxed and waned as a popular emigration destination over time. In the 1960s, for instance, (Gawrych 2000, 4) notes, “Israel was losing some of its magnetism as a land of opportunity for world Jewry. The number of immigrants to Israel fell from 66,465 in 1963 to 18,510 in 1966; many intellectuals and scientists were exiting the country for work abroad.”

The Egyptian population advantage was effectively translated to a larger armed force between the 1952 revolution and the devastating 1967 war.114 Promising social reform, Nasser also reformed the military from a personal instrument of the King to a social force that assumed responsibilities for more than just national defense. The military became, “an instrument for controlling the non military institutions of society and for modernizing Egypt… [it] became involved in such projects as running agricultural farms, manning customs, and helping manage Cairo’s traffic system” (Gawrych 2000, 12). All of this resulted in a large increase in force size from 81,000 in

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114 This is reflected in the capability ratio measure from 1952 to 1967 where Egypt consistently scores higher than Israel. The slight increase between 1958 and 1961 is the result of the ill-fated United Arab Republic where Syria merged as a subordinate partner of Egypt in an autonomous Arab State (Rabil 2003, 29).
1952, roughly the same as Israel, to 280,000 in 1966, roughly 4 times Israeli military personal. That 1967 marks the high point of Egyptian military power relative to Israel is correctly displayed in Figure 3.5.

The 1967 War marks a sea change in the balance of military capability between Egypt and Israel, but the change was not as large as some might believe. That fact is correctly mirrored in the capability ratio scores, where Egypt declines relative to Israel after 1967 and never again reaches its pre-war level of dominance, but does not decline precipitously. The Israeli romp in the Six Days War significantly downgraded the Egyptian military. Not only did it lose over 10,000 soldiers, but it also left a large amount of military material in the Sinai Desert (perhaps 80% of its total equipment). Egypt also lost the East Bank of the Suez Canal meaning it could not derive revenue from transit fees for use of the waterway, and Israel maintained complete air superiority over Egyptian territory (Gawrych 2000, 71-2). After the defeat, Egypt was never again as strong relative to Israel. However, the drop off was not as precipitous as it might have been. Nasser, who stepped down for one day, quickly moved to restructure the military

115 The pre-1967 period also marked Egyptian growth on several of the other indicators of national power. The increase in military personal led to a corresponding increase in military expenditures and Nasser championed industrial development, which also enhanced Egyptian military capability. As Gawrych (2003, 2) notes, “In 1967, Egypt was without doubt the most powerful Arab state. With a population of over 30 million, [Egypt] stood as the political and cultural center of the Arab world and the possessor of the region’s largest army and population.”

116 It is reasonable to ask, given Egypt’s superior military capability, why Israel has been so successful on the battlefield against Egyptian forces. One key facet of military power that is not measured by the operationalization employed here is military intelligence, which the Israeli’s have repeatedly used to their great advantage in their various conflicts. For instance in the 1967 War, “senior Israeli commanders… possessed invaluable information on Arab War plans, capabilities, vulnerabilities, troop dispositions, and redeployments. Well-placed spies, technological resources, and poor Arab security had been the keys to the Israeli intelligence coup” (Gawrych 2000, 139). Failure to include such information is a shortcoming of our measure, but since our dependent variables are the occurrence of conflict, and not the military outcome, this shortcoming is far from fatal.
in order to facilitate command and control. The Soviets stepped in to replace much of the military equipment lost in the War and function in an advisory capacity.\textsuperscript{117}

The net effect of the 1967 War and its aftermath on Egyptian absolute power was negligible; much of the force lost in the battle was replaced with the help of Soviet aid. The relative capability ratio score falls because, buoyed by its battlefield success, Israel armed and underwent a period of significant economic growth. On the military side, Israel placed an emphasis on the combination of air and armored power. The number of combat aircraft was increased from 275 in 1967 to 432 in 1972, and included a full compliment of advanced American technology. In addition, new armored brigades were created, and the number of standing armed forces nearly doubled between 1967 (71,000) and 1973 (120,000). The emphasis on technology is evident from the data on Israeli military expenditures which increased more than six-fold in the period. The period of military expansion combined with a period of economic expansion to increase Israeli power relative to its Arab adversaries substantially by the outbreak of the Yom Kippur War in 1973 (Gawrych 2000, 99, 139-42). The remainder of the time series in the Israeli-Egyptian dyad is relatively uneventful, but correctly shows that the Egyptians never regained their pre-1967 advantage. The slight run-up of Egyptian power relative to Israel

\textsuperscript{117} The Soviets sent over fifty tons of weapons, including tens of planes and over 100 tanks to Egypt in the weeks following the defeat. These supplies were augmented with hundreds of military advisors. The Soviet arms pipeline stayed open for the next three years, a period known as the Three Years War in which Egypt and Israel repeatedly clashed over the Sinai. The Soviet Union had over 7,000 advisors in Egypt by 1970 (Gawrych 2000, 74-6).
in the 1980s is the result of continued industrial development in Egypt that saw steel
production, for instance, quintuple between 1985 and 1991.\textsuperscript{118}

The Israeli-Syrian time series in Figure 3.5 also has good face validity, and
correctly shows that overall Syria and Israel are much more balanced in terms of military
capability than Egypt and Israel. The few noticeable shifts in the balance correspond
well to important events that would affect the war fighting ability of either state. The
first shift occurs at the beginning of the time series where a shaky Syrian government,
which experienced three coups in 1949, slowly consolidated control over the country.
The last of the three dictators, Colonel Adib Shishakli, consciously sought to increase the
strength of the military and pursued aid from both France and the United States (Rabil
2003, 13). The policies resulted in a quadrupling of military personal and a tripling of
military expenditures between 1948 and 1954, which brought the dyad into almost
perfect balance by the end of the period.\textsuperscript{119}

The second significant change in the balance occurs between 1967 and 1973
when, as was discussed above, the Israelis undertook a period of military mobilization.
Unlike Egypt, Syria was able to restore the military balance to its pre-1967 levels by
virtue of its involvement in the Lebanese Civil War. The chief development here was a
marked increase in Syrian armed forces from 130,000 in 1974 to 230,000 in 1975. After
this increase in forces, the two sides remained in rough parity until 1980 when Syria,

\textsuperscript{118} The sharp drop in Egyptian relative power in 1992 is the result of missing data. This observation would
be dropped from the subsequent statistical analysis.

\textsuperscript{119} Israel begins the period as the stronger state, so a decrease in the capability ratio score implies relative
Syrian strengthening.
anxious to replace security lost by Egypt’s defection at Camp David, and the Soviet Union, anxious to regain a foothold in the Middle East after losing it with Egypt’s defection, signed a twenty year Treaty of Friendship and Cooperation. While the Soviet Union supported Hafiz al-Asad’s publicly stated policy of maintaining military parity with Israel, Soviet aid actually helped to build the Syrian army so that it was relatively stronger than Israel. By 1985 Syria had 403,000 men under arms (more than three times the number of standing Israeli forces) and was spending almost as much on its military as the Israelis were spending.\textsuperscript{120} The economic decline of the Soviet Union in the late 1980s dried up military aide, and Syria began to decline relative to Israel so that by the end of the time series the two states are once again near a perfect balance.

3.2.3.2 Israel – Egypt/Syria: Interest Similarity

Figure 3.6 displays the time series for the Interest Similarity variable in the two Middle East Dyads and it performs remarkably well. A detailed description of events here is probably not necessary, but a few points are of note. First, notice that Israeli relations with its two Arab neighbors were never very good before 1977, and take sharp downturns during particularly tense periods. The issues of contention, of course, are well known – neither Arab state officially recognized Israel during the pre-Camp David period and they both spent much of the time trying to take territory originally allotted to Israel or re-take territory lost in one of the wars. Meanwhile the Israelis spent the period attempting to maintain their security (sometimes by aggressive action) and sequestering

\textsuperscript{120} After 1980 the Syrians are the stronger side. Thus an increase in the capability ratio score implies Syrian strengthening.
the large Arab minority within their borders. As the figure correctly displays, relations often went from bad to worse. This was particularly the case during three noteworthy incidents. In 1956 an increasing number of border clashes between Israel and Egypt, and the nationalization of the Suez Canal along with Soviet aid to Egypt, led Israel to invade the Sinai Peninsula.\textsuperscript{121} Israeli troops stayed until UN peacekeepers arrived. Thereafter relations stagnated until the 1967 the Six Days War broke out. After an escalating series of border clashes the Israelis again invaded the Sinai and Gaza, and also took the West Bank of the Jordan River from Jordan and the Golan Heights from Syria. Relations again stagnated until the emergence of new hostilities in 1973 when Syria and Egypt aimed to recoup their losses from the 1967 War. In the 1973 Yom Kippur (or October) War, Syria and Egypt launched a coordinated surprise attack and temporarily retook areas lost in the 1967 War. The Israeli counterattack recaptured much of earlier losses, and peace was eventually brokered by the United States and Soviet Union. Figure 3.6 correctly shows that these three periods represent the low points in Israel’s relations with it Arab neighbors.

A second point that is worth noting about the pre-1977 period is that the interest similarity measure for the Israeli-Egyptian dyad moves in virtual lockstep with the interest similarity measure for the Israeli-Syrian dyad. This is something that we would expect because Syria and Egypt formed a united front against Israel for most of this time,\textsuperscript{121} The Suez crisis is a complex event, but these three factors combined to summarize the crisis for our purposes. On the one hand, the increased border clashes between Israel and the Arabs were derivative of largely domestic political events within those states, however, and increase in Soviet arms supply to Egypt threatened to tilt the balance. Israel desired to set up a buffer in the Sinai while it still could. On the other hand, when Egypt nationalized the Suez Canal it banned Israeli shipping, which threatened to cripple Israeli commerce.
in fact the two states essentially merged for the period between 1958 and 1961. The only slight divergence between the two time series in the pre-Camp David period occurred during the 1970 Jordanian Civil War in which Syria backed the Palestinian rebels and the United States and Israel backed the King. Syria had long been positioning itself as the champion of the Palestinian struggle, an issue with which Egypt had little concern, thus backing the rebels was a logical move. Once it became clear that the rebels would lose in Jordan, Syria withdrew the bulk of its military support under the direction of Defense Minister and Air Force Commander Hafiz al-Asad. The withdrawal of military support generated disdain among civilian leaders, and Asad used this to stage a coup and become the dictator. Ironically, Nasser had died just one month earlier, and the new Syrian dictator immediately looked to improve relations with Nasser’s successor Anwar Sadat (Rabil 2003, 20-3). Figure 3.6 correctly details this strengthening of ties between Syria and Egypt as, once again, their respective relations with Israel move in lockstep until 1977.

The third, and most striking, feature of Figure 3.6 is the sharp divergence of Egyptian and Syrian relations with Israel after 1977. After years of basically unsuccessful and costly military struggle, Egyptian President Sadat decided it was time to pursue a more peaceful policy toward Israel and traveled to Jerusalem to speak to the Israeli Knesset.123 In that speech he touched off the peace process that would culminate

122 The Palestinians would again become an issue in the Arab condemnation of Egypt following the Camp David Accords (see below).

123 As Dessouki (1988, 96) notes, “One of Sadat’s favorite themes was that war had exhausted Egyptian resources and made Egypt – once among the richest – the poorest Arab country… Gradually the Egyptian
in the 1978 Camp David Accords and 1979 Peace Treaty by saying, “…today I tell you, and I declare it to the whole world, that we accept to live with you in permanent peace based on justice. We do not want to encircle you or be encircled ourselves by destructive missiles ready for launching, nor by the shells of grudges and hatreds” (Camp David Accords and Related Documents 1998, 39). Thereafter Israeli-Egyptian relations improved somewhat. The two states were essentially at peace, however tangible cooperation was difficult to sustain even with American support (Dowek 2001). The move toward peaceful relations between Egypt and Israel, and the uneasy state of cooperation thereafter, is adequately reflected in Figure 3.6.

Meanwhile, Israeli-Syrian relations deteriorated after Sadat visited Jerusalem. This deterioration was mainly over the struggle in Lebanon that persists to this day. Syria entered the Lebanese Civil War in 1976 on the side of the Palestinians, but quickly supported a ceasefire when it looked as if the Palestinian side was going to defeat the Christians. Typifying Syria’s early policy in Lebanon, which was to gain a strategic foothold against Israel, President Asad realized that if the Palestinians won, “Israel would not stand idly by and witness the creation of a radical country, swarming with Palestinian militants, along its border” (Rabil 2003, 51). In 1977 the Christians, who were under new leadership, built up their forces and won Israeli support, and the Syrians again joined the Palestinian side. The conflict in Lebanon raged on through the 1980s and waxed and waned since then, but the Syrians and Israelis have constantly supported factions in order

President embraced a notion of national interest whose primary concerns were domestic and economic… Ending war with Israel, was, therefore perceived as a necessary condition for [domestic] reform.”
to prevent each other from gaining control. In particular, Syria has supported organizations such as Hezbollah and the Party of God to wage proxy wars against Israeli interests.

The break between Egypt and the other Arab states, although not pictured, can also be seen in Figure 3.6. The Camp David Accords were met by almost universal Arab rejection, as was the 1979 Peace Treaty. The break was severe. As the Arab Foreign Ministers stated on March 31, 1979,

[Egypt] has thus deviated from the Arab ranks and has chosen, in collusion with the US, to stand by the side of the Zionist enemy in one trench: has behaved unilaterally in the Arab-Zionist struggle affairs; has violated the Arab nations’ rights, has exposed the nations’ destiny, its struggle and aims to dangers and challenges; has relinquished its Pan-Arab duty of liberating the occupied Arab territories, particularly Jerusalem, and of restoring the Palestinian Arab people’s inalienable national rights, including their right to reparation, self-determination, and establishment of the independent Palestinian state on their national soil.

The Arab states went on to severe diplomatic relations with Egypt. The sharp divergence in Egyptian and Syrian relations with respect to Israel reflects this point.

3.2.4 Conclusion

This section has demonstrated that our two key measures have face validity in a diverse set of important interstate dyads. In particular, the measure of relative military capability was shown to accurately reflect changes in actual military power that resulted

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124 The reaction of Arab states to Sadat’s visit to Jerusalem differed somewhat. As Dessouki (1988, 103) notes, “Morocco, Sudan, Somalia, and Oman supported the move. Algeria, Libya, Syria, Iraq, South Yemen, as well as the PLO, condemned it in a meeting they held in Tripoli in December 1977. Sadat responded by severing diplomatic relations with these five Arab states. In the middle Saudi Arabia, Jordan, and the Gulf states were neutral, giving Sadat the benefit of the doubt.”
from mobilizations, increases in military expenditures, or industrial development. The measure of dyadic interest similarity was shown to vary as tensions between states waxed and waned. The combination of costly signals (conflicts and alliances) and less costly, but more common signals (UN voting) preformed remarkably well in these dyads. This should give us confidence that the measures we are going to use to test the dyadic theory of conflict accurately tap the underlying concepts of national power and interests. In the next section of this chapter I will use these two measures to illustrate support for the four central hypotheses in the dyadic theory of conflict.

3.3 Illustrating the Dyadic Theory of Conflict

Now that we have demonstrated that the two key independent variables in the dyadic theory of conflict do have a great degree of face validity, we can use those two variables to investigate whether there is support for the four central hypotheses. This section will use simple descriptive and non-parametric statistics to test the plausibility of the hypotheses in advance of the multivariate tests that occupy the next two chapters. Specifically, we will first investigate the distribution of interstate conflict across the levels of relative military capability and dyadic interest similarity. Next, we will examine the distribution of interstate conflict across the four dyadic conditions displayed in Figure 1.2. Finally, since we defined severe interstate conflict both as instances of conflict and as a state of dyadic relations in which several conflicts occur over time, we will discuss the rate at which dyads in each of the four conditions experience conflict.
Between 1886 and 1992 there are 475,820 dyad years, the unit of observation, in the data set. In order to investigate the first hypothesis, which states that dyadic balances of military power will be less conflictual than dyadic preponderances of power, Figure 3.7 breaks those dyads into 10 equal groups of 47,582 according to their scores on the capability ratio measure, and displays the number of MIDs, Severe MIDs, and Interstate Wars that occur within each decile. Support for Hypothesis One here is mixed. For instance, there does appear to be a slight downward trend in all three types of conflict as we move from the most balanced decile to the most preponderant decile, and the most balanced decile (1) is the most conflictual, while the most preponderant decile (10) is the least conflictual. These facts all work against hypothesis one. However, one is struck by the fact that the decline as we move from balance to preponderance is neither overwhelming nor uniform. If we wanted to confirm the converse of hypothesis one, that is, that preponderances are more peaceful (which is the dominant hypothesis in the literature) this figure is clearly disappointing. In fact, the basic equality of the deciles in terms of all three measures of conflict seems to suggest that by itself the dyadic balance of military capability does not have a large effect.

125 As we discussed in the previous chapters a Militarized Interstate Dispute (MID) is a militarized incident between two members of the international system that involves the threat, display, or use of military force (Jones, Bremer, and Singer 1996). A shortcoming of much of the recent quantitative literature on international conflict is that it tends to treat all of these MIDs as a homogenous group. This has the effect of treating a threat to use force the same as a violent conflict like World War Two. In order to guard against this problem the figures that follow also display the count of Severe MIDs and Interstate Wars. Severe MIDs are MIDs that involved the use of force by both states in the dyad. Interstate Wars are severe MIDs where there are at least 1,000 battle related fatalities.

126 These equivocal results will be clarified when we include the measure of interest similarity into the analysis (below).
Such a claim, of course, cannot be tested with the information in Figure 3.7. However, by comparing Figure 3.7 with Figure 3.8 we can not only test the plausibility of Hypothesis Two, which says that dyads with similar interests should have less conflict than dyads with dissimilar interests; but we can begin to address the claim made in Hypothesis Four that the dyadic level of interest similarity should have a larger effect on interstate conflict than the dyadic balance of military capabilities. Figure 3.8 is laid out exactly the same as Figure 3.7 with the exception of the scale of the Y-axis and the fact that counts of interstate conflict are now arrayed by deciles of dyadic interest similarity. This figure clearly establishes support for both hypotheses two and four. First, we can see that most MIDs (2,260 of 3613), Severe MIDs (1,077 of 1702), and Interstate Wars (657 of 770) occur in the bottom two deciles of dyadic interest similarity. That is, most interstate conflict occurs between states with dissimilar interests. This yields strong support for Hypothesis Two. Second, since the drop-off here is much greater than any drop-off in Figure 3.7 we can say that dyadic interest similarity seems to have a greater effect than the dyadic balance of military capabilities; which supports Hypothesis Four.

Figure 3.9 puts these claims into sharper focus, and establishes the plausibility of Hypothesis Three, which argues that there is a significant interaction effect between the dyadic balance of military capabilities and the dyadic level of interest similarity when explaining interstate conflict. Here the counts of MIDs, Severe MIDs, and Interstate Wars are displayed for the four dyadic conditions from Figure 1.2. Moving from left to right: dyads in condition four are preponderant with dissimilar interests, dyads in condition three are balanced with dissimilar interests, dyads in condition two are
preponderant with similar interests, and dyads in condition one are balanced with similar
tests. Figure 3.9 yields some very interesting insights. It is clear that hypothesis
two is strongly supported as less conflict occurs in the similar interest conditions (2 and
1) than in the dissimilar interest conditions (4 and 3). Moreover, the difference within the
same interest similarity conditions (balance and preponderance) is less than the difference
across the interest similarity conditions (similar and dissimilar). This yields additional
support to Hypothesis Four.

However, taken as a whole Hypotheses One, Two, and Four imply that we should see conflict across the conditions such that $4 \gg 3 \gg 2 > 1$,\textsuperscript{128} which is not what we find as the latter two conditions are reversed in Figure 3.9. Far from disproving any of these hypotheses, the ordering of the conditions in the Figure actually provides support. In addition, this ordering not only explains the equivocal findings from Figure 3.7 but also substantiates the importance of an interaction between these two terms. The crucial omission from Figure 3.7, which obscures the real effect of the dyadic balance of military
capabilities, is the measure of dyadic interest similarity. As the counts in Figure 3.9 show, dyadic preponderances of military capability are more conflictual than balances when interests are dissimilar, but dyadic balances of military capability are slightly more conflictual when interests are similar. The fact that the effect of military capability

\textsuperscript{127} In this figure preponderant dyads are those dyads with capability ratio scores above the median
capability ratio score; whereas balanced dyads are those with capability ratio scores below the median
capability ratio score. Along those lines, dyads have similar interests if the dyadic interest similarity score
is above the median on that variable, and dyads have dissimilar interests if their interest similarity score is
below the median.

\textsuperscript{128} Note that “$\gg$” should be read “much greater than.”
changes as interest similarity varies means there is a conditional relationship between these two variables and implies they should be modeled with an interaction term.

Moreover, the fact that preponderances are more conflictual when interests are dissimilar (the region where most conflict occurs) implies solid the support for Hypothesis One which was hidden when power is considered by itself in Figure 3.7.

Figures 3.10 to 3.12 extend the analysis of the conflict proneness of the four dyadic conditions by investigating how long dyads located in each of the four conditions remain at peace before there is a conflict. This is an important illustration because we defined severe interstate conflict in Chapter One as either the occurrence of an isolated conflict, such as a war, or the occurrence of repeated conflicts which make a war within that dyad seem particularly likely. In order to assess how the hypotheses stand up when tested against the timing of disputes we need to turn to event history or duration analysis.

In the lingo of duration analysis (Box-Steffensmeier and Jones, 1997), a dyad ‘survives’ as long as it does not have a conflict and ‘fails’ once it does. These figures display the Kaplan-Meier survivor function plots for each of the four dyadic conditions for MIDs (Figure 3.10), Severe MIDs (Figure 3.11), and Interstate Wars (Figure 3.12). Formally, the Kaplan-Meier (1958) Survivor Function is,

\[
\hat{S}(t) = \prod_{j=1 \text{ to } t} \left( \frac{n_j - d_j}{n_j} \right)
\]

Based on this formulation dyads can fail more than once, as a matter of fact we expect this to be the case for the more conflict-prone dyads located in conditions 4 and 3. In order to account for the nature of repeated events the data were set up such that a dyad that fails re-enters the analysis as soon as its conflict ends with time reset to zero. See Box-Steffensmeier and Zorn (2002) for an introduction to repeated events duration analysis. Much more will be said about this in Chapter Five.
where $n_j$ is the number of dyads at risk at time $t_j$ and $d_j$ is the number of failures at time $t_j$. More simply, the Kaplan-Meier Survival Function is a non-parametric estimate of the probability a dyad will survive (that is, remain at peace) past time $t$. All three figures mirror the results in Figure 3.9 rather well, and thus provide support for all four of the central hypotheses.

Figure 3.10 shows that dyads in condition 4 (preponderant with dissimilar interests) have MIDs more quickly than dyads in any other condition. Condition 3 (balanced with dissimilar interests) is the next most conflictual condition, with it being nearly indistinguishable from condition 4 by the end of the analysis time.\textsuperscript{130} Conditions 1 (balanced with similar interests) and 2 (preponderant with similar interests) are less conflict prone still, with the preponderant-similar interests condition (2) being the most peaceful. This implies, again, support for all four hypotheses: preponderant dyads are more conflictual than balanced dyads when interests are dissimilar (Hypothesis One), dyads with similar interests are unconditionally less conflict prone than dyads with dissimilar interests (Hypothesis Two), there is an important interaction effect between the two key covariates because the effect of the power variable changes as interest similarity varies (Hypothesis Three), and interests have a greater effect on conflict proneness than relative military capability because, generally, the largest gap between survival function lines is between the similar-dissimilar conditions and not within them (Hypothesis Four). Figure 3.11 displays the same pattern with respect to Severe MIDs and Figure 3.12 does the same with respect to Interstate Wars.

\textsuperscript{130} Analysis time reflects the number of years, 107, in the data set, which begins in 1886 and ends in 1992.
3.4 Conclusion

We began this chapter with a look at how the operationalizations of our two key independent variables fared in terms of face validity in a few key interstate dyads. While by no means a definitive test of the validity of these variables, the illustrations did show that the variables perform well both in key Great Power dyads and in important non-Great Power dyads. These illustrations give us confidence that the measures we have selected are measuring the concepts we need them to measure. With this fact established we began our tests of the four central hypotheses derived from the dyadic theory of conflict.

The tests largely confirm the plausibility of the central hypotheses. First, we were able to establish that dyadic preponderances of power appear more conflictual than balances when the interests of dyads are dissimilar. This supports the first hypothesis because we expect the most interstate conflict when interests are dissimilar; however the support for this hypothesis is not unconditional. Second, we were able to establish that dyads with similar interests are less conflict prone than dyads with dissimilar interests. This provides support for Hypothesis Two. Third, we were able to demonstrate that there is an important interaction between the two variables because the effects of the relative balance of military capabilities change as interest similarity varies. This provides additional support for Hypothesis Three above and beyond the theoretical and statistical arguments for an interaction term that were presented in Chapter One. Finally, it does
appear as if dyadic interest similarity has a greater effect on interstate conflict than relative military capability. This supports Hypothesis Four.

While this chapter has established the plausibility of the four central hypotheses derived from the dyadic theory of conflict, it has done so in a relatively sterile environment in which we did not control for the many other potential causes of interstate conflict. We control for these variables in the multivariate statistical tests that follow in the next two chapters. This approach has many advantages. Apart from increasing the level of confidence we have in our results, because they hold even when confounding factors are included in the analysis, we will also be able to assess how much of an impact our central variables have on conflict relative to other measures such as regime type, economic interdependence, and geographic contiguity. Moreover, we will be able to reflect the proper degree of uncertainty around our conclusions in ways that are not standard in the current quantitative international relations literature. This will further increase the confidence we have in our results, and will provide a definitive test of the dyadic theory of conflict.
Figure 3.1: United States-Russia/Soviet Union Capability Ratio 1886-1992
Figure 3.2: United States – Russia/Soviet Union Interest Similarity 1886-1992
Figure 3.3: France-Germany/West Germany Capability Ratio 1886-1992
Figure 3.4: France-Germany/West Germany Interest Similarity 1886-1992
Figure 3.5: Israeli-Egypt/Syria Capability Ratio 1948-1992
Figure 3.6: Israeli-Egypt/Syria Interest Similarity 1948-1992
Figure 3.7: International Conflict by Deciles of the Dyadic Capability Ratio
Figure 3.8: International Conflict by Deciles of Dyadic Interest Similarity
Figure 3.9: International Conflict by Dyadic Conditions from Figure 1.2
Figure 3.10: Kaplan-Meier Survival Estimates For Dyads by Dyadic Conditions from Figure 1.2 – All MIDs
Figure 3.11: Kaplan-Meier Survival Estimates for Dyads by Dyadic Conditions from Figure 1.2 – Severe MIDs
Figure 3.12: Kaplan-Meier Survival Estimates for Dyads by Dyadic Conditions from Figure 1.2 – Interstate War
CHAPTER 4

TESTING THE DYADIC THEORY OF CONFLICT: A QUANTITATIVE MODEL OF CONFLICT SEVERITY

4.1 Introduction

In the first chapter I proposed the dyadic theory of conflict, which is composed of four central hypotheses. First, that dyadic balances of power are more peaceful than dyadic preponderances of power. Second, that dyads with similar interest should be less conflictual than dyads with dissimilar interests. Third, that there is a significant interaction between the dyadic balance of power and the dyadic level of interest similarity in models of interstate conflict. Fourth, that interest similarity has a greater effect on dyadic conflict than the distribution of power. After operationalizing the two key independent variables in Chapter Two and illustrating that they have good face validity, and the four central hypotheses are plausible, in Chapter Three, this chapter begins the task of testing the dyadic theory of conflict in a large-n setting. We can
observe severe interstate conflict by the severity, timing, and escalation properties of dyadic militarized disputes. The focus here is on the first of these three – conflict severity.

It may seem odd, given the voluminous dyadic conflict literature, that I do not explicitly test a model of conflict onset. The overwhelming tendency in this literature (e.g. Oneal and Russett 1999, 2001) has been to assess conflict as a binary dependent variable. In other words, these studies speak to the likelihood of any conflict occurring. In this chapter we build upon this work by using it to focus on a richer dependent variable. There is great variation in the severity of the disputes that make up these cases of interstate conflict. They can range from verbal threats over fishing rights, some of which are even unreciprocated,131 to all out war. Ideally we would want to assess our hypotheses with a design that accounted not only for whether a pair of states experienced a militarized dispute but also for the heterogeneity of these disputes. Moreover, the classical theorists on whose work the dyadic theory of conflict is based, would clearly consider a binary dependent variable that encompassed such a diverse set of militarized incidents unrelated to war.

Some of the hypotheses generated by the boxes in figure 1.2 argued that we expected conflict to be more severe in some situations than in others.132 We simply

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131 An unreciprocated dispute occurs when State A threatens, displays, or uses, military force against State B, and State B does not respond. See Hensel and Diehl (1994) for a discussion.

132 Namely, we expected conflict severity to be greatest in condition 4 (no constraints), somewhat less in condition 3 (constrained by a balance of military capability), much less in condition two (constrained by the similarity of interests), and least in condition 1 (constrained both by a balance of military capability and by a similarity of interests).
cannot assess these hypotheses with the binary dependent variable that is employed in the vast majority of the dyadic conflict literature; an explicit measure of conflict severity is required. Below I use a measure of conflict severity, developed by Diehl and Goertz (2000), that accurately taps the two most important dimensions of conflict severity – level of hostility (i.e. threats, displays, or uses of armed force), and battle fatalities. The next section of this chapter discusses the domain of the quantitative analysis.

4.2 Domain of the Analysis

This chapter investigates interstate dyads between 1886 and 1992. The temporal domain was chosen to mirror that of some of the most important works in the existing literature on dyadic conflict (e.g. Oneal and Russett 1999, 2001), and thus should be relatively uncontroversial. In the analysis below I present two sets of spatial domains. First, I present results for all nondirected interstate dyads during the temporal period.\textsuperscript{133} The states used to generate the dyads are the system members identified by the Correlates of War Project (Small and Singer 1982), and the dyads were generated with EUGene Version 2.3 (Bennett and Stam 2000a). The appeal of including all dyads in the analysis is obvious, but some scholars have noted that in doing so we run the risk of including many dyads that have virtually no chance of ever engaging in a military conflict. Moaz and Russett (1993, 627) note the analysis of all dyads is inappropriate because, “the vast majority [of dyads] are nearly irrelevant. The countries comprising them were too far

\textsuperscript{133} Since we are not concerned with questions of conflict initiation here the nondirected dyad is the correct unit of analysis. Nondirected dyads include one observation per pair of states per year (e.g. State A, State B, 1886). Directed dyads, on the other hand, include two observations per dyad per year (e.g. State A, State B, 1886; and State B, State A, 1886). See Bennett and Stam (2000b) for a discussion.
apart and too weak militarily, with few serious interests potentially in conflict, for them plausibly to engage in any militarized diplomatic dispute.” To broker against this concern results from a second spatial domain, politically relevant dyads, are also presented. A politically relevant dyad in the analysis below is any pair of states that: (a) includes at least one Great Power (as defined by the Correlates of War Project), or; (b) is geographically contiguous, or; (c) is separated by 150 miles, or less, of open water. This definition of political relevancy is consistent with the vast majority of the quantitative conflict literature that uses the subset of politically relevant dyads. The use of politically relevant dyads does bring an important trade-off, increased realism in the sample of observations comes at the cost of eliminating a substantial number of disputatious dyads. Fully 20% of all Militarized Interstate Disputes between 1886 and 1992 occur between states that are not politically relevant by our criteria. Since there are pluses and minuses with each set of observations, and there is no strong theoretical reason to choose between them, both are included in the analysis below.

4.3 The Dependent Variable

In order to test the dyadic theory of conflict laid out in the first chapter, we need a dependent variable that accurately depicts the severity of particular conflicts between states. This implies the need to assess conflict severity. In other words, this variable should not only measure whether conflict occurred, but because conflicts are sometimes

\[\text{134 For a discussion of the trade-offs associated with choosing politically relevant dyads see Lemke and Reed (2000).}\]
relatively minor, should also account explicitly for the severity of the conflicts that do occur. This chapter uses the Correlates of War (COW) Militarized Interstate Dispute (MID) Dataset (Version 2.10) to code the dependent variable. A MID is defined as a conflict between international system members that involves the threat, display, or use, of armed force (Gochman and Maoz 1984; Jones, Bremer, and Singer 1996).\footnote{I use the version (2.10) of the MID data employed by Diehl and Goertz (2000) since I use their measure of severity (below).}

As discussed in the introduction, the severity of the dispute is the primary focus of this chapter because we must account for the heterogeneity of military conflicts. I operationalize dispute severity as the Baseline Rivalry Level (BRL) as coded by Diehl and Goertz (2000). The MID data comes with a rough measure that could be used to interpret dispute severity. The five point level of hostility (LOH) scale ranges from 1 to 5 where 1 is no militarized action (relevant only in the case of an unreciprocated dispute), 2 is the threat to use force, 3 is the display of force, 4 is the use of force, and 5 is war (a use of force where there were at least 1000 battle related fatalities). There is, however, a large range of action that falls within each of these ordinal categories. It is preferable to use an interval scale that contains more information, such as the measure developed by Diehl and Goertz. The use of this measure as a dependent variable here enables us to differentiate between disputes of different severity and gives us a richer outcome to explain. Additionally, BRL has the virtue of combining the two most widely used
measures of dispute severity, level of hostility and fatalities, into one measure.\textsuperscript{136} These indicators are often employed separately (e.g. Senese 1999).

BRL is a combination of the MID level of hostility scale and the number of fatalities, if any, that occur in that particular dispute. A full accounting of the procedures used to develop this scale can be found in Diehl and Goertz (2000, 281-98), but a brief explanation is appropriate. For the zero fatality cases, the LOH for each state in a disputatious dyad is multiplied. This ordinal scale is then converted into an interval scale by using the cumulative frequency obtained when all zero conflict disputes are analyzed. For instance, the lowest LOH (2x1), an unreciprocated verbal threat, occurs 6\% of the time, that type of dispute receives a score of 6. Unreciprocated displays take us up to a cumulative frequency of 23\%, and hence receive a score of 23. This continues up to reciprocated uses of force (4x4), which get a score of 100. The same procedure is used to generate the severity measures for those disputes that had fatalities. This includes all wars, which by definition must have at least 1000 fatalities (Small and Singer 1982). The only difference is that Diehl and Goertz take the natural log of fatalities to trim the long tail of fatal conflicts. As they point out, this has the virtue of valuing the first few fatalities of a conflict more than the last few (Diehl and Goertz 2000, 295). The two scales are then spliced together so that the non-fatality cases are of lower severity than

\textsuperscript{136} Other measures of dispute severity that seem plausible have limitations. One could argue, for instance, that the duration of a conflict is a valid measure of its severity. However, there are many conflicts that endure over a long period of time but are of relatively low severity in terms of the type of force used and the number of fatalities, and there are a few conflicts of relative short duration that involve not only the use of force but a substantial level of fatalities. This flaw precludes using the duration of conflicts in the severity measure.
the conflicts with fatalities. This has the attractive property that disputes without fatalities have BRL scores less than or equal to 100, and disputes with fatalities have BRL scores that are greater than 100. Since Diehl and Goertz use a polynomial regression to smooth the distribution once it is spliced together the scale ranges from 8 to 214. Figure 4.1 details how the two sets of cases (non-fatality and fatality) are spliced together.

The measure has good face validity. For instance, the five disputes between the United States and Canada (1974, 1975, 1979, 1989, and 1991) each receive a score of 31, whereas World War Two in the United States – Germany and United States - Japan dyads each get a severity score of 201. The measure also has the virtue of being dyad specific, which is particularly helpful in sorting out the conflicts with multiple actors. Continuing the example of World War Two, German and Japanese dyadic conflict with states like Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and Panama (who were all on the allied side in the war, yet did not participate in the war effort in any substantial way), all receive a score of 31. This accurately reflects that German and Japanese conflict with the United States during World War Two was much more severe than it was with the Central American states. These reasons, combined with the interval level, greater range, and additional information included in this measure make it preferable to a measure based on a simple 1 through 5 scale. In the equations below that deal with severity of disputes, the dependent variable is the BRL measure.
4.4 The Independent Variables

Our key hypotheses center on the dyadic balance of military capabilities, the dyadic level of interest similarity, and the interaction between the two. As described in chapter two, the dyadic balance of military capabilities is measured using the Correlates of War Project’s Composite Index of National Capabilities. In order to make the measure dyadic, Capability Ratio is the relative military capability of the stronger state in the dyad is divided by the total relative military capability in the dyad. This gives a measure that is bound between .5 (indicating a balance of military capabilities) and 1 (indicating a preponderance of military capabilities).

In this chapter, Interest Similarity combines the alliance portfolio measure with the UN voting measure.\textsuperscript{137} This implies that from 1886 to 1945 the measure relies solely on alliance portfolios, but from 1946 to 1992 the measure is the average of the alliance portfolio and UN voting scores. Results are presented in two ways in order to account for the change in this key independent variable. In the full operationalization a dummy variable, coded 1 from 1946 to 1992, is included in the model to control for the change. A lack of statistical significance on that dummy variable should assure us that the change in the operationalization is relatively unproblematic. I also present results where interest similarity is operationalized with only the alliance portfolio measure; if the results from that model estimation are similar to the estimation with the full model we will be further assured that adding the UN voting portfolios to the operationalization does not cause any

\textsuperscript{137} The MID based measure is excluded from the analysis here because of its obvious relationship with the dependent variable.
The Interaction between Capability Ratio and Interest Similarity will allow us to test how the severity of dyadic conflict varies as changes in the two variables occur conditional on each other. This will allow us to explicitly assess the dyadic theory of conflict in each of the four conditions laid out in Figure 1.2.

The quantitative models that follow include a number of control variables that are commonly thought to influence the severity of interstate disputes. The first six are drawn directly from the democratic peace literature (Oneal and Russett 1999). First, \textit{Democracy}_L is the democracy level of the least democratic state in the dyad. This variable, of course, has long been associated with a decrease in the probability of conflict between states, but in terms of conflict severity expectations diverge. McLaughlin Mitchell and Prins (1999) report that the few democracies that do fight have disputes that are of relatively low severity. Reed (2000, 91) finds that democracy is negatively related to the likelihood of a dispute, but statistically unrelated to whether that dispute becomes a war and suggests this is because, “jointly democratic dyads avoid war because they rarely become involved in militarized disputes.” These findings suggest that democracy should be associated with less severe disputes. On the other hand, the audience costs argument advanced by Fearon (1994b) suggests that disputes in democratic dyads may be more severe since democracies, with their higher audience costs, are less likely to back down

\footnote{Further robustness checks were performed substituting all of the possible combinations of the interest similarity measure for the one employed here. In no case did the results differ substantially from those presented below.}
once in a dispute. There has been some empirical support for this proposition as well (Senese 1997). The conflict severity model will thus present a test of these competing hypotheses.

Second, $\text{Dependence}_L$ is the measure of trade dependence used by Oneal and Russett. They divide a country’s total trade with its dyadic partner by its GDP in order to discount for the economic importance of the trade, and include the lower dependence score of the dyad in the model. We expect this variable to be negatively related to dispute severity as a long list of international relations scholars have found that increased trade flows decrease the level of conflict between nations (e.g. Polachek 1980, Oneal and Russett 1999, 2001). Third, I include a measure of the number of joint International Governmental Organization (IGO) memberships, $\text{Common IGOs}$, a pair of states share. Researchers working within the democratic peace tradition have noted that common IGO memberships should reduce the level of conflict between states because they reduce uncertainty by conveying information and promote cooperation by coercing rule breakers and mediating among conflicting parties (Oneal, Russett, and Davis 1998). Importantly, this variable could have an even greater negative effect on dispute severity than it does on the likelihood of dispute.\textsuperscript{139} If two states do get into a military dispute, but share a number of inter-governmental linkages, they have numerous channels through which to resolve their differences without much bloodshed. It has long been a tenet of Neo-Liberal theory that institutions facilitate bargaining and promote problem solving (e.g. Keohane 1984). We expect this variable to be negatively related to dispute severity.
Fourth, I include a dummy variable equal to one if both states in the dyad are *Major Powers*. Major Powers have more resources to employ in a dispute than other states. So, we expect disputes among major powers to be more severe than disputes among other types of dyads. Moreover, when Major Powers become involved in a dispute they may be less willing to back down because of the damage it may do to their reputation. Finally, I include both measures of geography from the Oneal and Russett model, *Log Distance* and *Contiguous*. We expect greater distances between protagonists to be related to less severe disputes because of the difficulty of projecting military power over distance (Boulding 1962). Contiguity should be related to more severe disputes; not only do contiguous states have less distance to traverse, but they may have more outstanding disputes, particularly over territory.\(^{140}\)

I include two additional variables in the model of dispute severity. *Actors* controls for the number of states in a given dispute. It is intuitive that as the number of actors increases so does the severity of the dispute, even if some of those actors do not fight. The types of conflicts that are likely to draw a large number of actors, like the two World Wars, are likely quite severe. This argument has some empirical support (Cusack and Eberwein 1982; Brecher 1993). Finally, *Territory* is a dummy variable coded 1 if the dispute was over territorial issues and 0 otherwise. Scholars have found that territorial

\(^{139}\) Note that Oneal and Russett (1999) themselves did not find a consistent negative relationship between common IGO membership and dispute onset.

\(^{140}\) The only substantive variable from the Oneal and Russett (1999) model not included in the severity equation is a dummy variable indicating whether the two states are allied. This is excluded primarily because it is encompassed in the measure of interest similarity. When the ally dummy variable is included in the severity equation, the results presented below do not change substantially.
disputes are more likely to escalate than disputes over other issues (Senese 1996; Hensel 1996, 2000). Territory can be important for the resources it contains, or is thought to contain, for its strategic location, or for its importance for national identity. For these reasons we expect territorial disputes to be more severe.

4.5 Methodology

Before turning to the models I address four statistical points. First, while I argued above that it is better to investigate the severity of interstate disputes, in order to account for their heterogeneity, than it is to treat all disputes as if they were the same, this creates a nontrivial statistical problem. The subset of interstate dyads that experienced a militarized dispute are a nonrandom sample of all of the interstate dyads in the system. To address this problem I employ a sample selection model (Heckman 1974, 1979) to predict dispute severity. The method is to first estimate a model that predicts whether a dyad will experience a dispute \( z \) using a set of variables \( w \), and then use those results in the regression on dispute severity \( y \) with the set of variables detailed above \( x \). A brief discussion will clarify the point, and highlight why it is necessary.\(^{141}\)

To begin, we estimate a probit model, called the selection equation, for the probability of \( z = 1 \) (the probability a dyad will have a dispute), which is estimated using all of the observations in the dataset and yields a coefficient vector \( \alpha \):

\[
pr(z_i = 1) = \Phi(w'_i\alpha).
\]

\(^{141}\) This discussion draws on Breen (1996).
This probit model has an error term, $e$, which we assume is normally distributed. The second step is to estimate the expected value of the severity of those disputes ($y$), conditional on $z = 1$, and on the vector $x_i$ using OLS. The OLS estimation also has an error term, $u$, which we assume is normally distributed. This equation is the outcome equation. In other words,

$$E(y_i \mid z = 1, x_i) = x_i'\beta + E(u_i \mid z = 1), \text{ or}$$

$$x_i'\beta + E(u_i \mid e_i > w_i'\alpha) \quad (1)$$

The selection and outcome equation are linked by the correlation ($\rho$) in their error terms. We know (e.g. Greene 2000) that the expected value of one of the variables in a bivariate distribution ($u$) censored with respect to the value of the other variable in the distribution ($e$) is given by

$$E(u_i \mid e_i > w_i'\alpha) = \rho \sigma_e \sigma_u \frac{\phi(w_i'\alpha)}{\Phi(w_i'\alpha)}. \quad (2)$$

By substituting (2) into (1) we get

$$E(y_i \mid z = 1, x_i) = x_i'\beta + \rho \sigma_e \sigma_u \frac{\phi(w_i'\alpha)}{\Phi(w_i'\alpha)}. \quad (3)$$

To estimate this model, we take the probit results and, for those observations where $z = 1$, we compute $\frac{\phi_i}{\Phi_i}$, which is known as the inverse mills ratio and often denoted $\lambda_i$. Then, for the same sample we use OLS to regress $y_i$ on $x_i$ and our estimate of $\lambda_i$:

$$E(y_i \mid z - 1, x_i) = x_i'\hat{\beta} + \Theta\hat{\lambda}_i. \quad (4)$$
Equation (4) shows that, in general, the estimates of $\beta$ will be biased if the variable $\lambda$ is omitted. As Breen (1996, 37) notes, “The problem of sample-selection bias thus becomes equivalent to a misspecification problem arising through the omission of a regressor variable.” A selection model, then, accounts for selection bias that would occur if, for instance, we were to only look at disputes that actually occurred to determine their severity. International relations scholars are becoming more concerned with the issue of sample selection in international conflict and are specifying models accordingly (Huth 1996; Reed 2000; Lemke and Reed 2001).

In order to apply this methodology here, I will need an equation of the probability a dyad has a dispute to serve as the selection equation. Fortunately the literature on this question is well developed, and a core model of that probability exists. I use Oneal and Russett (1999), which models the probability of dyadic conflict as a function of 

\[ \text{Capability Ratio, Democracy}_L, \text{Dependence}_L, \text{Common IGOs, Contiguous, Log Distance, Major Powers, and Allies}. \]

This core model of the democratic peace research program is well cited and generally accepted as a robust predictor of dyadic conflict by the international relations research community, so its use here should be uncontroversial.

Second, to counter possible endogeneity problems I lag most of the independent variables in the equations. This is a standard manner by which to deal with this vexing

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142 There are two instances in which this will not be a problem. First, if $\rho = 0$ then, according to (3) then $\Theta$ must also be 0 and (4) reduces to an OLS equation. In the analysis below $\rho$ does not equal zero. Second, if the correlation between the estimate of $\lambda$ and any variable $x_k$ is zero, then the OLS estimate of this variable’s coefficient will be unbiased (Gujarati, 1993). The implications of this will be discussed below.

143 All of these variables were operationalized above, except for Allies, which is a dummy variable coded 1 if the states in the dyad had an alliance according to the Correlates of War Project, and zero otherwise.
problem (e.g. Oneal and Russett 1999, 11). The only variables in the models that are not lagged are those that are dispute specific (Territory and Actors). Third, Beck, Katz, and Tucker (1998) have shown, using some of Oneal and Russett’s work, that employing a binary dependent variable model to analyze cross sectional time series data will give misleading results if the data are temporally dependent within the cross section. They suggest two steps, which I have taken, to alleviate this problem. I include a spline function for the number of years since the states in any dyad have last had a militarized dispute.\textsuperscript{144} I also use Huber-White standard errors which account for heteroskedasticity in the panels.

Finally, in order to convey the substantive impact of the covariates in the outcome equation, I use the model estimates to compute an expected level of dispute severity for the base model and then calculate first differences from that base severity level as all covariates in the model are perturbed, one at a time, by one and two standard deviations (Table 4.4). Point predictions, such as these, are often calculated without acknowledging they are estimates derived from probabilistic models. King et al. (2000) develop a technique based on simulation, implemented with their program \textit{Clarify}, to incorporate uncertainty into model predictions such as the ones employed below. The results presented here extend their technique to the sample selection model.\textsuperscript{145} An additional

\textsuperscript{144} The counter and splines were generated using Tucker (1999).

\textsuperscript{145} The method employed below closely mirrors that suggested, and indeed implemented for various estimators, by King et al. (2000). First, the model was estimated and the parameters were adjusted to account for the latent variable included in the selection equation (see Table Two). Uncertainty in the predictions was then incorporated by repeatedly drawing coefficients from the multivariate normal distribution with a mean vector and variance-covariance matrix derived from the original model estimates. The expected values and first differences were then calculated on each set of simulated parameters. This
benefit of this type of methodology for our specific argument is that we will be able to replicate the dyadic theory of conflict presented in Table 1.2 with severity expectations for each of the four conditions. These expectations will have confidence intervals around them which will enable us to state, with some degree of statistical precision, whether the four conditions differ significantly from each other.

4.6 Results

We now move to a test of the dyadic theory of conflict laid out in Chapter One, where it was argued that the dyadic balance of military capabilities, the dyadic level of interest similarity, and their interaction, have a crucial effect on severe interstate conflict – in this case, conflict severity.\textsuperscript{146} Tables 4.1 and 4.2 present two sample selection models each of dispute onset and severity for all dyads between 1886 and 1992. Table 4.1 presents results for the full sample of interstate dyads, while Table 4.2 presents results for the sample of politically relevant dyads. In both cases, Model 1 operationalizes interest similarity as only alliance portfolios while Model 2 includes UN voting records and a control for the switch in operationalization.\textsuperscript{147} The interaction term is statistically significant in all models presented, this \textit{supports hypothesis three} – there is a meaningful process was computationally intensive, taking over 25 hours on a Pentium 4 microcomputer, but the reward is an improvement in, “the candor and realism of statistical discourse about politics” hoped for by King et al. (2000, 348).

\textsuperscript{146} Descriptive statistics for the model are located in Appendix B, Table B.3.

\textsuperscript{147} I replicated the models reported in Tables 4.1 and 4.2 for the years 1946-1992 as an additional check on whether the switch in the operationalization of interest similarity was having a substantial effect on the estimation. The results from those replications were similar to those presented above, with the only substantial difference being that the coefficient on the major powers variable falls just below conventional levels of statistical significance. These models are presented in Appendix B in Tables B.1 and B.2.
interaction between the dyadic balance of military power and the level of dyadic interest similarity when determining conflict severity. This result is central to confirming the arguments laid out in Chapter One because it not only lends credibility to the theoretical claim that there is an important interaction between these two central variables, but it also justifies describing our theory in terms of a 2 x 2 table. A 2 x 2 table implies a significant interaction between the two independent variables.

How this interaction term plays out for the other hypotheses laid out in the first chapter is going to require a bit more work to decipher. We can see that the estimates for all four models in Tables 4.1 and 4.2 are quite similar, so I will focus on Model 2 in Table 4.1, which has the more detailed operationalization of the concept for the larger sample of interstate dyads.

We can begin our interpretation with the results from the selection equation for model 2 in Table 4.1. It is crucial that the selection equation be a robust predictor of the onset of dyadic conflict, and because the modeling strategy is different here than it is in the bulk of the literature on the subject, it would be reassuring if the results from the selection equation mirrored those in the existing literature. Consistent with the bulk of the literature on the democratic peace, and with Oneal and Russett (1999) specifically, we find that higher levels of democracy and higher levels of dyadic trade are associated with a decreased likelihood of militarized interstate dispute onset. The results on the geographic variables are also consistent with the existing literature. Contiguous states are more likely to have a militarized dispute, while states that are further away from each
other are less likely to experience conflict. Finally, Major Power dyads are more likely to have a militarized dispute, while allied dyads are less likely to have a dispute. All of these results are highly statistically significant, which is also consistent with the existing literature. Contrary to expectations, however, we find that the greater the number of common IGO memberships members of a dyad share the more likely they are to experience military conflict. This result counters Oneal, Russett, and Davis (1998), who examined the question with a shorter temporal domain, but is consistent with Oneal and Russett (1999, 22) who fail to find support for the institutional hypothesis over the 1886 to 1992 time period. While it is possible that there simply is no support for the hypothesis that IGO memberships are conflict inhibiting, it is also possible that these results will turn around when we examine the severity of the conflicts that do break out. IGOs may not be able prevent the start of hostilities between two states, but, perhaps, once the hostilities begin they help to quell the severity because they serve as a forum for peaceful discussion and dispute resolution. Nevertheless, even the results on the IGO variable are consistent with the extant literature.

In sum, all of the results from the selection equation are consistent with the existing literature and provide a robust estimate of the likelihood of dispute onset. As we argued above, however, not only does combining the heterogeneous group of disputes into a binary variable throw away useful information, but a binary dependent variable does not fit our purposes here. That is the focus of the outcome equation.

Interpretation of the coefficients in the outcome equation of Model 2 of Table 4.1 is complicated by two factors. First, some of the coefficients also appear in the selection
equation. Second, the two variables we are most interested in here are specified as an interaction. On the first complication, Sigelman and Zeng (1999) demonstrate that if a coefficient in the outcome equation is not included in the selection equation, then it can be interpreted as an ols coefficient. In other words, the estimate of $\beta$ is an estimate of the marginal effect of a change in that $X$ on the dependent variable. This is the case for the two dispute specific variables, number of actors and territorial disputes.

The other control variables appear in both the outcome and selection equations. When this is the case, it is incorrect to interpret $\hat{\beta}_k$ as the marginal effect of $x_k$ on $y$. Instead, the marginal effect is given by Sigelman and Zeng (1999, 177) as:

$$\hat{\beta}_k - \hat{\gamma}_k \rho \sigma_e \delta(-w\gamma),$$

where

- $\hat{\gamma}_k$ = the estimated coefficient for $x_k$ in the selection equation$^{148}$
- $\rho$ = the correlation between the error terms in the two equations
- $\sigma_e$ = the root mean squared error of the outcome equation$^{149}$
- $\delta(-w\gamma)$ = a function of the inverse mills ratio for each observation.$^{150}$

The formula gives an estimate of $\beta_k$ for each observation in the model. Sigelman and Zeng (1999) suggest averaging across observations for interpretation, but also suggest assessing the sensitivity of the estimates across observations for each variable. This is done in Table 4.3 for the seven variables that appear in both the outcome and selection portions of the Model. We can see that the average of all of the estimates come

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$^{148}$ It is easy to see here why the coefficient on a variable in the outcome equation that does not appear in the selection equation can be standardly interpreted. In this case $\gamma_k$ is constrained to be zero.

$^{149}$ The root mean squared error for the outcome equation in Model Two is 48.22304.

$^{150}$ Details are provided by Sigelman and Zeng (1999), and Greene (2000, 926-33).
reasonably close to the estimates presented in Table 4.1, and, as suggested by the relatively small standard deviations and range, the sensitivities are tight. This latter point suggests that it is permissible to use the average $\beta_k$ of these seven variables for the purpose of interpretation.

The second complication presented by the model is that the two main independent variables are modeled as an interaction term. While it is apparent that there is a statistically significant interaction between the dyadic balance of military capabilities and the dyadic level of interest similarity that needs to be modeled when seeking to explain the severity of interstate disputes; the coefficients on each variable must be interpreted conditionally as the estimates presented in Tables 4.1 and 4.3 are the marginal effect of each covariate when the other is zero - a value which is outside the range (.5 to 1) for both variables\textsuperscript{151} (Friedrich 1982, Jaccard et al. 1990).\textsuperscript{152} The conditional coefficients for each component of the interaction term are displayed in Figures 4.2 and 4.3.\textsuperscript{153}

\textsuperscript{151} Note that for the quantitative models I have rescaled the interest similarity variable. In the original variable -1 indicated total interest dissimilarity and 1 indicated complete interest similarity. This variable was rescaled by adding 3 to each observations and then dividing by 4. The new range is .5 (total dissimilarity) to 1 (complete similarity). This move was made to facilitate interpretability.

\textsuperscript{152} The formulas for doing so are as follows:

\[ \beta_1 \text{ at } X_2 = \beta_1 + \beta_2 X_2; \text{ and} \]
\[ SE(\beta_1 \text{ at } X_2) = \left[ \text{var}(\beta_1) + X_2^2 \text{var}(\beta_2) + 2X_2 \text{cov}(\beta_1, \beta_2) \right]^{1/2} \]

\[ \beta_2 \text{ at } X_1 = \beta_2 + \beta_1 X_1; \text{ and} \]
\[ SE(\beta_2 \text{ at } X_1) = \left[ \text{var}(\beta_2) + X_1^2 \text{var}(\beta_1) + 2X_1 \text{cov}(\beta_1, \beta_2) \right]^{1/2} \]

Indeed, the estimates from Model 2 in Table 4.1 can be recovered if the lines in Figures 4.2 and 4.3 are extended to the left until the value on the X-axis is zero.

\textsuperscript{153} Since the estimate for the capability ratio variable is not very sensitive across observations (see Table 4.3), I use the average $\hat{\beta}_k$ for that variable (165.669) to interpret the interaction term. The averaged estimate is not substantially different than the actual estimate (167.901), so either would yield similar results.
Figure 4.2 displays the values and statistical significance of the coefficient for the interest similarity variable over the range of values for capability ratio. Unsurprisingly, greater levels of dyadic interest similarity are associated with less severe disputes regardless of the balance of military capabilities. As the figure indicates, this result is statistically significant at the .05 level across the entire range of possible values of the capability ratio variable. Interest similarity also has a rather large substantive effect on the severity of militarized interstate disputes. As the first row of Table 4.4 indicates, increasing the level of interest similarity by one standard deviation, while holding all other variables constant at their means, decreases the expected severity of a dispute from almost 75 on the BRL scale to a little under 40 on that scale – a drop of over 47%. Moreover, we are 95% confident that dispute severity drops to at least 41 on the scale from such a shift. Decreasing the level of dyadic interest similarity by two standard deviations, on the other hand, increases the expected severity of a dispute by almost 95%. In sum, interest similarity has a rather large and not unexpected effect on dyadic conflict severity. The greater the level of interest similarity between two states the less severe their disputes, a finding which strongly supports hypothesis two. I will discuss how this plays into the observable implications for the four conditions described by the 2 x 2 table below, but first we need to see how the other component of the interaction affects dyadic conflict severity.

Figure 4.3 displays the conditional coefficient on the capability ratio estimate for the range of the interest similarity variable. The effect of the balance of military capabilities changes dramatically as interests become more similar. When interests are
most dissimilar (interest similarity = .5), a preponderant relationship in the dyad is associated with more severe disputes. This result is not only statistically significant, but as the second row of Table 4.4 shows the substantive impact is also fairly large. A two standard deviation shift toward preponderance, when interests are most dissimilar, leads to disputes that are almost 34% more severe than the baseline expected severity.

The size of the coefficient on the capability ratio variable decreases as dyadic interests become more similar. When there is a moderate level of interest similarity (.75) between the members of the dyad, the point at which the conditional coefficient falls below standard levels of statistical significance, the deleterious marginal effect of a preponderance has decreased. As the third row of Table 4.4 indicates, a one standard deviation shift toward preponderance only increases the severity of disputes by 2.2%. As Figure 4.3 indicates, preponderances are more peaceful when the interests of the states in the dyad are most similar. The conditional coefficient on the capability ratio term flips signs when the interest similarity score equals .87 and becomes statistically significant when interest similarity equals .95. As the fourth row of Table 4.4 indicates, by the time the interests of the members of the dyad are completely concordant, a one standard deviation increase in capability ratio decreases the severity of disputes by about 11%.

The results from the capability ratio coefficient offer support for hypothesis three, that balances are more pacific, but only when the interests of two states are relatively dissimilar. This is supportive because most conflicts occur between states with dissimilar interests. When we combine the results on both components of the interaction term we
can not only test hypothesis four, that the level of interest similarity has a greater effect on the severity of interstate conflict, but we can test the differences in the four conditions laid out in the 2 x 2 table in Chapter One.

4.6.1 Four Conditions: Testing the Dyadic Theory of Conflict with Conflict Severity

In order to place the results from the interaction into proper context, it is useful to again consider the 2 x2 table derived from the dyadic theory of conflict. This is done in Table 4.5, which reproduces the table from the first chapter with the expected severity of conflicts, derived from model 2 in table 4.1, for the mid points of each condition placed in the boxes. The numbers in parentheses are 95% confidence intervals around those predictions, and we can conclude that the conditions are significantly different if the expected level of conflict for any given condition does not fall within the 95% confidence interval of another.154 We can assess the fourth hypothesis, that the balance of interests is more important than the balance of power, by looking at the absolute differences in the conflict severity expectations in the four conditions. If the horizontal difference between them is greater than the vertical difference, hypothesis four will be supported.

Because we specified the theory in a two by two table, the hypothesis three stated that there should be a meaningful interaction between the dyadic balance of military capabilities and the dyadic level of interest similarity. We have already noted that this hypothesis has been confirmed, and that there is some evidence in favor of hypotheses one and two, this figure will provide the definitive test. Recall that we argued there are

________________________
two main constraints working in these worlds: the dyadic balance of power and the dyadic level of interest similarity, where the latter had a greater effect on conflict severity than the former. From that argument we derived three additional hypotheses, and a number of observable implications of them. Hypothesis two stated that when interests were more similar we would see less severe conflicts. We found this to be the case in Figure 4.2. The implication of this hypothesis for the 2 x 2 table was that conditions where interests are more similar should have less severe conflicts than conditions where interests are dissimilar. This hypothesis is clearly supported in Table 4.5. Under conditions of both balance and preponderance, disputes are less severe when interests are similar. In preponderant conditions disputes are 41.7% more severe when interests are dissimilar (situation 4 = 112.7) than when they are similar (situation 2 = 67.5). These results hold under balanced conditions as well where disputes are 31.8% more severe when interests are dissimilar (situation 3 = 101.2) than when they are similar (situation 1 = 69.0).

Hypothesis one stated that when there is a balance of military capability conflict will be less severe than when there is a preponderance of military capability. There is mixed support for this hypothesis. It is confirmed when the dyadic balance of interests points toward dissimilarity. As Table 4.5 shows, condition 4 (112.7) is more conflictual than condition 3 (101.2). Moreover, we can say with certainty that these conditions are statistically different from each other, because their confidence intervals do not overlap.

154 The confidence intervals were generated using the same simulation based procedure, derived from King et al. (2000), used in Table 4.3. The program used to generate these results is located in Appendix B.
When interests are similar, however, the hypothesis is not supported – condition 2 (67.5) is not notably more conflictual than condition 1 (69.0). In fact, since the confidence intervals for these two situations overlap, we cannot say that they are statistically different from each other. Apparently, the constraint imposed by the balance of capability does not operate when dyadic interests are similar, at least with respect to conflict severity.

The final hypothesis, that interests impose a larger constraint on dyadic conflict severity than military power, can also be assessed with the results shown in Table 4.5. Not only are the horizontal differences in the table greater than the vertical differences, indicating that interest similarity is a larger constraint on conflict severity than the balance of power, but the interest constraint applies in both preponderant and balanced conditions, while the balance constraint applies only in conditions where dyadic interests are dissimilar. The lack of support for one half of hypothesis three makes the case for hypothesis four stronger.

It is also useful to briefly consider the results from the rest of the control variables. First, the democracy coefficient is positive suggesting that democracies, if they do have a dispute, have disputes that are slightly more severe. This is consistent with Fearon’s (1994b) argument that democracies, since they have higher audience costs, will be more committed in a dispute. Some notes of caution, however, are appropriate. It is evident from the selection equation that democracies rarely do have disputes. Moreover, the estimate, while statistically significant at the .10 level in the outcome equation, but falls below even that level (Z=1.54) when we use the average $\beta_k$ from
Table 4.3. Finally, the substantive impact democracy on dispute severity is quite small, as Table 4.4 indicates. It is probably best to conclude that jointly democratic dyads are less likely to have disputes, but if they do their joint level of democracy has little effect on the severity of their dispute.

Second, trade dependence is negatively related to the severity of disputes. We can confidently say that dyads that have a higher level of trade dependence are likely to have less severe disputes because utilizing the averaged estimate from Table 4.3 increases the absolute size of the coefficient. The substantive impact of increases in trade dependence, however, is somewhat smaller than the impact of the two main variables in the interaction. Third, while an increased number of common IGOs memberships does decrease the severity of any militarized disputes that break out in a dyad, this result falls just short of statistical significance in the outcome equation, and is further weakened when the sensitivities are analyzed in Table 4.3 (Z=1.37). Nevertheless, the result is in the correct direction indicating that joint IGO membership has a far greater pacific effect on dispute severity than it does on dispute onset. This suggests a solution to the mystery associated with the positive coefficient on common IGO membership with respect to conflict onset. States that share many intergovernmental linkages are not less likely to have militarized disputes,\textsuperscript{155} but once a militarized dispute breaks it appears that a larger number of intergovernmental linkages do help in conflict resolution.

\textsuperscript{155} Indeed, they are more likely to have disputes. This suggests that states with many IGO linkages may have many issues over which to disagree, which in turn increases the likelihood that they will have a disagreement.
Of the remaining variables in the model, three have an effect that is statistically discernable from zero. Major Power dyads, as expected, have disputes that are more severe than dyads composed of at least one minor power. Once the sensitivity of this coefficient is assessed we see that major power dyads have disputes that are almost 16 points more severe on the BRL scale, an increase of over 20%. Disputes are also more severe as the number of actors in them increases and/or if they are over territorial issues. Since neither of these variables appears in the selection equation the estimated coefficient from the outcome equation of Table 4.1 is the marginal effect of a one unit increase in that variable. Territorial disputes are a little over 12 points more severe, an increase of just over 16%, and each additional actor adds almost 3.8 points on the severity scale. If we increase the number of actors by one standard deviation (5.7) disputes, as Table 4.4 indicates, are almost 30% more severe. The rather small coefficient, however, substantiates the argument that the number of actors is not a good measure by which to assess the severity of disputes. Finally, while the two geographic variables in the model are in the correct direction, neither achieves statistical significance. This suggests that while contiguity and distance are important determinants of the likelihood a dispute will break out, once two states cross the threshold of militarization the distance between them is a relatively small constraint.

4.7 Conclusion

This chapter has tested the dyadic theory of conflict in the realm of conflict severity. Overall, there is substantial support for the four main hypotheses. First, it is
clear that there is a significant interaction between the dyadic balance of power and the dyadic balance of interests with respect to conflict severity. This confirms the theoretical proposition that the meaning of the dyadic balance of power is conditioned by the level of interest similarity, and offers support for the notion that the dyadic theory of conflict can be depicted as a 2 x 2 table. Second, there is also clear support for the notion that dyads with similar interests have less severe conflicts than dyads with dissimilar interests. This holds under conditions of both preponderance and balance of military capabilities. Third, it is also clear that interests are more important in determining conflict severity than is the dyadic balance of power. This confirms the fourth hypothesis. Finally, there is mixed support for the hypothesis on the balance constraint. Dyadic balances are indeed an important constraint when dyadic interests are dissimilar, but they do not appear to be a significant constraint when dyadic interests are similar. This still implies support for hypothesis one, however, because most disputes occur in dyads where interests are dissimilar.

These results offer good support for the dyadic theory of conflict in the realm of conflict severity. However, when we defined severe interstate conflict in the first chapter we included a dynamic element that was intended to speak to the current quantitative conflict literature. In order to accomplish this, we need to add dispute timing and the escalation properties of those disputes to the quantitative tests. The next chapter takes up the last two dependent variables, in quantitative tests that provide a much harder test for the dyadic theory of conflict because the focus will be on dyads with a history of conflict.
It will be interesting to see if the results from this chapter are duplicated with respect to the timing and escalation properties of dyadic disputes.
<table>
<thead>
<tr>
<th>Capability Ratio</th>
<th>$Y_1$: MID Onset</th>
<th>$Y_2$: Severity</th>
<th>$Y_1$: MID Onset</th>
<th>$Y_2$: Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y(-0.558*** 133.366*) (7.38)</td>
<td>133.366* (1.89)</td>
<td>-0.558*** (7.39)</td>
<td>167.901*** (2.36)</td>
<td></td>
</tr>
<tr>
<td>Interest Similarity</td>
<td>--- ---</td>
<td>4.569 (0.15)</td>
<td>--- ---</td>
<td>-2.058 (0.06)</td>
</tr>
<tr>
<td>Y(-154.677*** (1.97)</td>
<td>--- ---</td>
<td>-154.677*** (1.97)</td>
<td>--- ---</td>
<td>-194.944*** (2.43)</td>
</tr>
<tr>
<td>Interest Similarity</td>
<td>--- ---</td>
<td>-154.677*** (1.97)</td>
<td>--- ---</td>
<td>-194.944*** (2.43)</td>
</tr>
<tr>
<td>DemocracyL</td>
<td>-0.026*** (9.40)</td>
<td>0.572* (1.80)</td>
<td>-0.026*** (9.39)</td>
<td>0.594* (1.87)</td>
</tr>
<tr>
<td>DependenceL</td>
<td>-15.418*** (5.19)</td>
<td>-1294.937*** (4.40)</td>
<td>-15.419*** (5.20)</td>
<td>-1277.716*** (4.17)</td>
</tr>
<tr>
<td>Common IGOs</td>
<td>0.008*** (7.87)</td>
<td>-0.173* (1.64)</td>
<td>0.008*** (7.86)</td>
<td>-0.207 (1.62)</td>
</tr>
<tr>
<td>Contiguous</td>
<td>0.926*** (24.49)</td>
<td>7.579 (1.47)</td>
<td>0.926*** (24.49)</td>
<td>7.292 (1.37)</td>
</tr>
<tr>
<td>Log Distance</td>
<td>-0.168*** (11.00)</td>
<td>-0.873 (0.48)</td>
<td>-0.168*** (11.00)</td>
<td>-0.823 (0.45)</td>
</tr>
<tr>
<td>Major Powers</td>
<td>0.718*** (20.62)</td>
<td>12.030* (1.87)</td>
<td>0.718*** (20.63)</td>
<td>12.998** (2.01)</td>
</tr>
<tr>
<td>Allies</td>
<td>-0.165*** (4.00)</td>
<td>--- ---</td>
<td>-0.165*** (3.99)</td>
<td>--- ---</td>
</tr>
<tr>
<td>Territory</td>
<td>--- ---</td>
<td>11.724*** (2.74)</td>
<td>--- ---</td>
<td>12.266*** (2.77)</td>
</tr>
<tr>
<td>Actors</td>
<td>--- ---</td>
<td>3.791*** (7.97)</td>
<td>--- ---</td>
<td>3.786*** (7.80)</td>
</tr>
<tr>
<td>Post 1945</td>
<td>--- ---</td>
<td>--- ---</td>
<td>--- ---</td>
<td>2.661 (0.51)</td>
</tr>
</tbody>
</table>

Table 4.1: Estimates of Dispute Onset and Severity, All Dyads, 1886-1992

(Continued)
Table 4.1 (continued),

<table>
<thead>
<tr>
<th></th>
<th>Counter</th>
<th>Spline1</th>
<th>Spline2</th>
<th>Spline3</th>
<th>Constant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.194***</td>
<td>-0.002***</td>
<td>0.001***</td>
<td>-5.25e-5***</td>
<td>-1.392***</td>
</tr>
<tr>
<td></td>
<td>(17.98)</td>
<td>(17.98)</td>
<td>(11.12)</td>
<td>(11.13)</td>
<td>(10.55)</td>
</tr>
<tr>
<td></td>
<td>---.---</td>
<td>---.---</td>
<td>---.---</td>
<td>---.---</td>
<td>67.296**</td>
</tr>
<tr>
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<td>-0.194***</td>
<td>-0.002***</td>
<td>0.001***</td>
<td>-5.25e-5***</td>
<td>-1.392***</td>
</tr>
<tr>
<td></td>
<td>(17.98)</td>
<td>(17.98)</td>
<td>(11.12)</td>
<td>(11.13)</td>
<td>(10.55)</td>
</tr>
<tr>
<td></td>
<td>---.---</td>
<td>---.---</td>
<td>---.---</td>
<td>---.---</td>
<td>72.490**</td>
</tr>
</tbody>
</table>

N(Observations)   | 149,004     | 149,004     |
N(Uncensored)     | 972         | 972         |
\(\rho\)         | -.085**     | -.088**     |
\(\chi^2\)       | 128.74***   | 131.16***   |
Log Likelihood    | -9160.532   | -9159.573   |

Note: Figures in parentheses are asymptotic z-statistics using Huber/Sandwhich standard errors, clustered on the dyad.

*** --- p <= .01; **--- p <= .05, *--- p <= .10; two tailed tests.
<table>
<thead>
<tr>
<th></th>
<th>(1) Alliance Portfolios Only</th>
<th>(2) Alliance Portfolios &amp; UN Voting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capability Ratio Y₁: MID Onset</td>
<td>-0.867*** (8.94)</td>
<td>-0.867*** (8.96)</td>
</tr>
<tr>
<td></td>
<td>Y₂: Severity</td>
<td>113.787 (1.46)</td>
</tr>
<tr>
<td>Interest Similarity</td>
<td>---,--- 30.677 (0.92)</td>
<td>---,--- 48.971 (1.32)</td>
</tr>
<tr>
<td>Capability Ratio* Y₁: MID Onset</td>
<td>---,--- -133.152* (1.95)</td>
<td>---,--- -161.41* (1.82)</td>
</tr>
<tr>
<td>Interest Similarity</td>
<td>---,---</td>
<td>---,---</td>
</tr>
<tr>
<td>Democracyₐ₁</td>
<td>-0.021*** (6.92) 0.471 (1.29)</td>
<td>-0.021*** (6.93) 0.443 (1.23)</td>
</tr>
<tr>
<td>Dependenceₐ₁</td>
<td>-11.478*** (4.19) -1183.178*** (3.66)</td>
<td>-11.508*** (4.20) -1061.285*** (3.17)</td>
</tr>
<tr>
<td>Common IGOs</td>
<td>0.004*** (3.73) -0.058 (0.51)</td>
<td>0.004*** (3.74) -0.146* (1.07)</td>
</tr>
<tr>
<td>Contiguous</td>
<td>0.574*** (12.42) 2.288 (0.43)</td>
<td>0.574*** (12.43) 0.074 (0.01)</td>
</tr>
<tr>
<td>Log Distance</td>
<td>-0.103*** (5.42) -0.926 (0.49)</td>
<td>-0.104*** (5.44) -0.494 (0.26)</td>
</tr>
<tr>
<td>Major Powers</td>
<td>0.287*** (5.57) 10.632 (1.57)</td>
<td>0.289*** (5.62) 13.779** (2.03)</td>
</tr>
<tr>
<td>Allies</td>
<td>-0.154*** (3.23) ---,---</td>
<td>-0.154*** (3.24) ---,---</td>
</tr>
<tr>
<td>Territory</td>
<td>---,--- 10.220** (2.29)</td>
<td>---,--- 12.106*** (2.65)</td>
</tr>
<tr>
<td>Actors</td>
<td>---,--- 4.657*** (10.37)</td>
<td>---,--- 4.725*** (9.95)</td>
</tr>
<tr>
<td>Post 1945</td>
<td>---,---</td>
<td>---,--- 1.947 (0.94)</td>
</tr>
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</table>

Table 4.2: Estimates of Dispute Onset and Severity, Politically Relevant Dyads, 1886-1992

(Continued)
Table 4.2 (continued),

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
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<td>Counter</td>
<td>-0.205***</td>
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<td>-0.205***</td>
<td>---</td>
</tr>
<tr>
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<td>(16.61)</td>
<td></td>
<td>(16.61)</td>
<td></td>
</tr>
<tr>
<td>Spline 1</td>
<td>-0.002***</td>
<td>---</td>
<td>-0.002***</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>(10.60)</td>
<td></td>
<td>(10.62)</td>
<td></td>
</tr>
<tr>
<td>Spline 2</td>
<td>0.001***</td>
<td>---</td>
<td>0.001***</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>(8.92)</td>
<td></td>
<td>(8.93)</td>
<td></td>
</tr>
<tr>
<td>Spline 3</td>
<td>-6.8e^-5***</td>
<td>---</td>
<td>-6.8e^-5***</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>(4.03)</td>
<td></td>
<td>(4.03)</td>
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</tr>
<tr>
<td>Constant</td>
<td>-1.188***</td>
<td>49.312</td>
<td>-1.187***</td>
<td>29.701</td>
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<tr>
<td></td>
<td>(7.69)</td>
<td>(1.39)</td>
<td>(7.69)</td>
<td>(0.78)</td>
</tr>
</tbody>
</table>

N(Observations) = 31,132
N(Uncensored) = 817
ρ = -0.152*
χ² = 156.44***
Log Likelihood = -7338.63

Note: Figures in parentheses are asymptotic z-statistics using Huber/Sandwhich standard errors, clustered on the dyad.

*** --- p <= .01; ** --- p <= .05, * --- p <= .10; two tailed tests.
<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Mean</th>
<th>Standard Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capability Ratio</td>
<td>165.699</td>
<td>0.060</td>
<td>165.580</td>
<td>166.353</td>
</tr>
<tr>
<td>Democracy$_L$</td>
<td>0.491</td>
<td>0.003</td>
<td>0.486</td>
<td>0.522</td>
</tr>
<tr>
<td>Dependence$_L$</td>
<td>-1338.552</td>
<td>1.664</td>
<td>-1341.861</td>
<td>-1320.479</td>
</tr>
<tr>
<td>Common IGOs</td>
<td>-0.175</td>
<td>0.001</td>
<td>-0.185</td>
<td>-0.174</td>
</tr>
<tr>
<td>Contiguous</td>
<td>10.946</td>
<td>0.100</td>
<td>9.860</td>
<td>11.144</td>
</tr>
<tr>
<td>Log Distance</td>
<td>-1.486</td>
<td>0.018</td>
<td>-1.522</td>
<td>-1.289</td>
</tr>
<tr>
<td>Major Powers</td>
<td>15.831</td>
<td>0.078</td>
<td>14.989</td>
<td>15.985</td>
</tr>
</tbody>
</table>

**Table 4.3:** Sensitivities of the coefficients from Model 2 in Table 4.1 that appear in both the outcome and selection equations.
Baseline Expected Severity: 74.87 (74.1, 75.7)

<table>
<thead>
<tr>
<th>Minus 2 SD</th>
<th>Minus 1 SD</th>
<th>Continuous Variables</th>
<th>Plus 1 SD</th>
<th>Plus 2 SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>145.88</td>
<td>110.28</td>
<td>39.39</td>
<td>4.19</td>
<td></td>
</tr>
<tr>
<td>(143.2, 148.2)</td>
<td>(109.2, 111.8)</td>
<td>(38.1, 41.0)</td>
<td>(1.6, 7.1)</td>
<td></td>
</tr>
<tr>
<td>94.9</td>
<td>47.3</td>
<td>-47.4</td>
<td>-94.4</td>
<td></td>
</tr>
<tr>
<td>45.58</td>
<td>59.09</td>
<td>Capability Ratio</td>
<td>86.65</td>
<td>100.16</td>
</tr>
<tr>
<td>(44.8, 46.3)</td>
<td>(58.5, 59.9)</td>
<td>(85.2, 88.0)</td>
<td>(97.9, 101.9)</td>
<td></td>
</tr>
<tr>
<td>-39.1</td>
<td>-21.1</td>
<td>(Interest Similarity = .5)</td>
<td>15.7</td>
<td>33.8</td>
</tr>
<tr>
<td>64.63</td>
<td>68.52</td>
<td>Capability Ratio</td>
<td>76.53</td>
<td>80.52</td>
</tr>
<tr>
<td>(64.2, 65.2)</td>
<td>(67.9, 69.1)</td>
<td>(75.7, 77.4)</td>
<td>(79.8, 81.4)</td>
<td></td>
</tr>
<tr>
<td>-13.7</td>
<td>-8.5</td>
<td>(Interest Similarity = .75)</td>
<td>2.2</td>
<td>7.5</td>
</tr>
<tr>
<td>83.71</td>
<td>77.73</td>
<td>Capability Ratio</td>
<td>66.58</td>
<td>60.68</td>
</tr>
<tr>
<td>(82.9, 84.4)</td>
<td>(77.0, 78.7)</td>
<td>(65.5, 67.5)</td>
<td>(59.7, 61.6)</td>
<td></td>
</tr>
<tr>
<td>11.8</td>
<td>3.8</td>
<td>(Interest Similarity = 1)</td>
<td>-11.1</td>
<td>-19.0</td>
</tr>
<tr>
<td>71.47</td>
<td>71.51</td>
<td>DemocracyL</td>
<td>78.32</td>
<td>81.85</td>
</tr>
<tr>
<td>(70.8, 72.3)</td>
<td>(70.8, 72.4)</td>
<td>(77.4, 79.0)</td>
<td>(81.1, 82.5)</td>
<td></td>
</tr>
<tr>
<td>-4.5</td>
<td>-4.5</td>
<td>(Interest Similarity = .5)</td>
<td>4.6</td>
<td>9.3</td>
</tr>
<tr>
<td>81.42</td>
<td>88.07</td>
<td>DependenceL</td>
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<td>61.93</td>
</tr>
<tr>
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<td>(87.3, 88.7)</td>
<td>(67.7, 68.9)</td>
<td>(61.2, 62.6)</td>
<td></td>
</tr>
<tr>
<td>17.6</td>
<td>8.7</td>
<td>(Interest Similarity = 1)</td>
<td>-8.9</td>
<td>-17.3</td>
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<td>77.30</td>
<td>Common IGOs</td>
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<tr>
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<td>(71.8, 73.1)</td>
<td>(69.5, 71.1)</td>
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</tr>
<tr>
<td>5.6</td>
<td>3.2</td>
<td>(Interest Similarity = .5)</td>
<td>-3.2</td>
<td>-6.2</td>
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<td>32.07</td>
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<td>Actors</td>
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<td>(117.2, 118.8)</td>
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<td>28.6</td>
<td>57.4</td>
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<td>76.20</td>
<td>Distance</td>
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<td>72.06</td>
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<td>(72.9, 74.2)</td>
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<td></td>
</tr>
<tr>
<td>3.7</td>
<td>1.8</td>
<td>(Interest Similarity = .5)</td>
<td>-1.8</td>
<td>-3.8</td>
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**Table 4.4:** Changes in Expected Severity of Militarized Disputes

(Continued)
Table 4.4 (continued)

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<thead>
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<tr>
<td>74.86</td>
<td>Territory</td>
<td>87.02</td>
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<tr>
<td>(74.1,75.7)</td>
<td></td>
<td>(86.2,87.8)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>16.2</td>
</tr>
<tr>
<td>73.93</td>
<td>Contiguity</td>
<td>84.52</td>
</tr>
<tr>
<td>(73.4,74.8)</td>
<td></td>
<td>(83.7,85.1)</td>
</tr>
<tr>
<td>-1.3</td>
<td></td>
<td>12.9</td>
</tr>
<tr>
<td>74.80</td>
<td>Major Powers</td>
<td>91.28</td>
</tr>
<tr>
<td>(74.1,75.6)</td>
<td></td>
<td>(90.4,92.1)</td>
</tr>
<tr>
<td>-0.1</td>
<td></td>
<td>21.9</td>
</tr>
</tbody>
</table>

Note: 95% Confidence Intervals in Parentheses, Percentage Change from Base Predicted Severity in Italics.
<table>
<thead>
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<th>Condition 4</th>
<th>Condition 2</th>
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<tr>
<td></td>
<td>112.7</td>
<td>67.5</td>
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<tr>
<td></td>
<td>(111.3,114.2)</td>
<td>(66.6,68.2)</td>
</tr>
<tr>
<td></td>
<td>101.2</td>
<td>69.0</td>
</tr>
<tr>
<td></td>
<td>(100.0,102.6)</td>
<td>(67.9,69.6)</td>
</tr>
</tbody>
</table>

**Table 4.5: Four Conditions: Testing the Dyadic Theory of Conflict on Conflict Severity**

Note: Figures in parentheses are 95% confidence intervals around the expected dispute severity.
Zero Fatality Disputes, $X = \text{HostA} \times \text{HostB}

Disputes With Fatalities, $X = \ln(\text{fatalities}) + 16$

Dispute Severity = $7.779x - .034x^2$

Figure 4.1 Calculating the BRL Measure
Figure 4.2 Interest Similarity \( \beta \) Conditional on Capability Ratio for Dispute Severity
**Figure 4.3** Capability Ratio $\beta$ Conditional on Interest Similarity for Dispute Severity

- * Capability Ratio $\beta$ Significant at .05
- • Capability Ratio $\beta$ Significant at .10
- □ Capability Ratio $\beta$ Not Significant
CHAPTER 5

TESTING THE DYADIC THEORY OF CONFLICT:
A DYNAMIC MODEL OF CONFLICT TIMING AND ESCALATION

5.1 Introduction

As Chapter Four demonstrated the dyadic theory of conflict offers a powerful explanation for specific severe conflicts between states. However, when we defined the concept of severe military conflict in the first chapter the goal was to bridge the definitions used by classical and contemporary scholars in a way that speaks to the current quantitative literature on the subject. While the previous chapter offered the advantage of distinguishing between MIDs by their severity, the dependent variable employed did not encompass the entire definition specified in Chapter One. There was a dynamic component to it that is missing from the statistical tests conducted to this point. Recall that it was not only the occurrence of specific conflicts that we were interested in, but also “a state of relations in which repeated militarized clashes create the atmosphere of interstate rivalry where war is a real possibility.”\textsuperscript{156} In order to get at the second part

\textsuperscript{156}Questions of interstate rivalry and recurrent conflict have been a central part of the quantitative international relations literature for the past 20 years, and they continue to be an important topic today (see: Leng 1983, Goertz and Diehl 1992, Diehl and Goertz 2000, Wayman 2000, and Colaresi and Thompson 2002).
of this definition we will add two dependent variables in this chapter. First, to consider the question of dispute timing I employ a repeated events duration model to assess the duration of peace in dyads after they have had a dispute (Box-Steffensmeier and Zorn 2002).\textsuperscript{157} Second, because dyads that have repeated militarized clashes may have escalating or de-escalating conflict, I employ a sample selection model where the dependent variable in the outcome equation is change in dispute severity (Heckman 1979).\textsuperscript{158} This is an important addition to the analysis because, as we demonstrated in Chapter Four, simply having a dispute is insufficient information about the conflict intensity of disputatious dyads since the threshold for a MID is so low.\textsuperscript{159}

Adding dynamism in this chapter offers advantages over the previous estimation, because it sheds light on the confusing question of how changes in the dyadic balance of military capabilities affect interstate conflict. Because typical interstate conflict models are static in nature we have little knowledge of how changes in the important independent variables affect the timing of disputes within a dyad. This is particularly true with respect to the question of how changing dyadic distributions of power affect conflict because there is even less theoretical and empirical agreement on this question in the dynamic setting than there was in the static setting investigated in Chapter Four.

\textsuperscript{157} Throughout this chapter I refer to these dyads as disputatious dyads. It is vital to reiterate that these are dyads with \textit{a history of violent conflict} since they need to have one militarized dispute in order to enter the dataset. This has implications for the treatment of the theoretical literature in Section 5.2.

\textsuperscript{158} Dispute severity is the same as the previous chapter, the Baseline Rivalry Level (BRL) from Diehl and Goertz (2000).

\textsuperscript{159} The minimum requirement for a MID is that one member of the international system makes an explicit verbal threat to use force against another member of the system. Thus, MIDs do not require the use of force, nor to they require a reciprocal action by the target state.
Because we are interested in the ‘time between disputes’ and in ‘changes in dispute severity,’ the sample of interstate dyads used in this chapter will be limited to that subset of dyads that has had at least one Militarized Interstate Dispute (MID).\textsuperscript{160} Change in military capabilities is not only a central part of Classical Balance of Power and Power Transition theories; it also lies at the heart of Expected Utility Theory, Preventive War Theory, and the Theory of Status Inconsistency. As I demonstrate in Section 5.2, what is interesting about this compilation of theories is that together it yields a full set of completely contradictory predictions, not only about whether changes toward dyadic balances or preponderances are more pacific, but also about which side, the stronger or the weaker, is likely to initiate the conflict. Adding dynamism to the dyadic theory of conflict should help to clarify the theoretical confusion.

Moreover, I also demonstrate in section 5.2, the empirical literature on the question of dynamic capability balances and interstate conflict is disjointed. On the one hand, while those who have sought to test Power Transition theory have begun to address the question on the right hand side of the equation, namely how shits in the capability balance effect conflict, the dependent variables they employ are limited to specific conflict occurrences. This choice ignores the possibility that conflicts in disputatious dyads are linked over time. The modeling strategy employed in this chapter addresses this shortcoming.\textsuperscript{161} On the other hand, the empirical literature on rivalries and recurrent

\textsuperscript{160} The temporal domain remains 1886-1992.

\textsuperscript{161} There are several additional problems with the empirical literature on Power Transition Theory which I will also describe.
conflict recognizes the temporal linkages between conflicts on the left hand side of their equations, but generally do not incorporate shifts in capability ratios, interest similarity, or their interaction on the right hand side. This is a significant omission given the arguments raised, and the evidence presented, in the previous chapters. The analysis below offers the chance to address the shortcomings of these two empirical literatures.

After a review of these theoretical and empirical literatures Section 5.3 then demonstrates how the dyadic theory of conflict can be applied to these dynamic settings, and how it offers a powerful and parsimonious explanation for dyadic conflict when dynamism is reflected on both sides of the equation. The next section discusses model specification, and section 5.5 addresses questions of methodology. Section 5.6 presents results from both the repeated events duration models of dispute timing and the sample selection models of dispute (de)escalation. Section 5.7 offers some conclusions.

5.2 The Indeterminate Theoretical and Empirical Literature on Changing Power Ratios and Conflict in Disputatious Dyads

Whereas there are aspects of agreement in the theoretical and empirical literature on the relationship between stable capability balances and conflict, this is not the case in a dynamic setting. This section reviews both the theoretical literature (Section 5.2.1) and the empirical literature (Section 5.2.2) on the question of dynamic capability balances and conflict. It will set the stage for the dynamic dyadic theory of conflict discussed in section 5.3.
5.2.1 Theoretical Literature on Changing Power Ratios and Conflict in Disputatious Dyads

While the static dyadic conflict literature reviewed in Chapter One has tended to conclude dyadic preponderances of power are more pacific, when we view this question in dynamic terms the answers are not as clear. It would seem that if static preponderance deters conflict, shifts towards preponderance would do so as well, but there are several theoretical arguments that both shifts toward parity and shifts toward preponderance could spark conflict. In this section I show that plausible hypotheses on either side of the question can be generated from the existing theoretical literature. This implies that this research topic is an ideal area in which to apply the dyadic theory of conflict.

While a dyadic shift in capabilities can occur in only one of two directions, toward preponderance or toward parity, that shift can manifest itself in four different ways, depending on which state is strengthening or weakening. Figure 5.1 details the current state of the literature and displays the theoretical frameworks that argue conflict can occur both when the dyadic balance of capabilities is moving toward preponderance and when it is moving toward parity. Moreover, although I do not assess initiation in the empirical analysis, the Figure shows that either the stronger or weaker state may have reason to initiate the conflict when the balance of capabilities is changing in either direction. I address each of the four possibilities in turn.

Shifts toward preponderance within a dyad can be achieved in two ways, either the stronger state can gain strength or the weaker state can lose it. Under both of these

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162 Of course, this is a simplified treatment of the issue of capability shifts, in reality the capabilities of both states could be changing simultaneously. Under those conditions the Figure 5.1 would be more complicated, but the conflict expectations I detail below would remain the same.
circumstances, however, conflict could ensue. In the first case, a shift toward preponderance happens when the stronger state in the dyad gains additional strength. This situation is what classical Balance of Power theorists feared would lead to conflict because the strengthening state might attempt a drive toward hegemony (e.g. Claude 1962, Wright 1965, Morgenthau 1967). This hegemonic or ‘imperialistic’ drive is not necessarily one for world domination, open to only the strongest of states, but could have goals as limited as a local preponderance (Morgenthau 1967, 54). Such drives can take many forms, but “The most obvious, the most ancient” of which is military conquest (Morgenthau 1967, 55). Thus, an increase in capability of a state relative to an adversary could easily whet the appetite of that state and cause conflict.\(^{163}\) Conflict could also ensue under such a circumstance by the hand of the weaker state. As Claude (1962, 410) notes, “When any state or bloc becomes, or threatens to become, inordinately powerful, other states should recognize this as a threat to their security and respond by taking equivalent measures, individually or jointly, to enhance their power.” These equivalent measures can include military build-ups (internal balancing), alliances (external balancing), and/or military action. In either case it is clear: when the stronger state in a disputatious dyad gains strength militarized conflict is possible.

In the second case, a shift toward preponderance occurs when the weaker state in the dyad loses strength. On its face, it would seem that the weakening state in this instance would have no incentive whatsoever to initiate conflict, as it would almost

\(^{163}\) Given that in this chapter we deal only with those dyads that have a history of militarized conflict, this scenario seems particularly likely.
certainly lose. But this is not the case. According to Bueno de Mesquita’s (1981) Expected Utility Theory of war, rational actors who lead states that are weakening relative to a stronger adversary can choose to initiate war even if their chances for victory are very slim, so long as the expected gains to the initiator are greater than the expected losses. The weakening state could rationally initiate a defensive preventive war designed to close a window of vulnerability before it opens any wider. As Levy (1987, 89) explains, “the logic of prevention would… apply to a weaker state which perceives that its inferiority will increase in the future and that the status quo will deteriorate even further. Though such a state would be likely to lose a preventive war, the probability and costs of defeat in a later war would presumably be even greater, so that the expected utility of fighting now would exceed the expected utility of delay.” Schweller (1992, 236) also unites this expected utility logic with that of preventive war and changing power balances when he notes, “statesmen may rationally choose preventive war with little or no hope of victory if the expected costs of peace are thought to be even higher, for instance, when war is seen as inevitable and when, due to a declining power gradient, it is better to fight now rather than later.” In dyads with a history of conflict, like the ones investigated in this chapter, this scenario is particularly likely because the weakening state is apt to be sensitive to its window of vulnerability.

Dyadic shifts toward balance have also been linked theoretically to an increased likelihood of conflict. The first case, where the stronger side is deteriorating, is perhaps the most well studied type of power shift since it relates to the popular question of the
declining systemic hegemony (e.g. Gilpin 1981, Kennedy 1987). In this case the stronger, but weakening, state can rationally initiate war by the same expected utility logic as weak, but further weakening, states use. Fighting now is simply better than fighting later, especially in the case where the weakening state is still stronger than its adversary. In this case the preventive war has an offensive characteristic as the stronger state attempts to jump through a window of opportunity before it closes. Gilpin (1981, 191) notes, “The first and most attractive response to a society’s decline is to eliminate the source of the problem. By launching a preventive war the declining power destroys or weakens the rising challenger while the military advantage is still with the declining power… When the choice ahead has appeared to be to decline or to fight, statesmen have most generally fought.”

Finally, shifts toward parity can also lead the strengthening, but still weaker state, to initiate conflict against its adversary. This behavior is consistent with the notion of status inconsistency (Galtung 1964) whereby the strengthening state has a fairly high, and increasing achieved status, by virtue of it increasing power, but may not have commensurately high ascribed status in terms of its recognition and prestige. Conflict ensues when the strengthening state decides to use military force to redress the imbalance between its achieved and ascribed status. Empirical studies of this phenomena have generally found support for it at the systemic level, with both East (1971) and Wallace (1971) reporting that the level of status inconsistency in the system correlates positively with the amount of war. The argument that the strengthening state should be the first to initiate conflict is also consistent with Power Transition Theory. In the original
formulation of the theory Organski (1968, 371) notes, “Germany, Italy, and Japan attacked the dominant nation and its allies long before they equaled them in power, and the attack was launched by the challengers, not the dominant camp.” Thus, by either status inconsistency or power transition logic a shift toward parity can result in conflict initiated by the rising, but still weaker, state. Again, this should be particularly likely in dyads that have a history of conflict between them.

Given the theoretical ambiguity, it is unsurprising that a large number of studies have sought to test the relationship between dynamic dyadic capability balances and interstate conflict. These studies have mainly focused on empirical tests of power transition theory, but several shortcomings in this literature leave the question of whether shifts toward balance or shifts toward preponderance are more pacific essentially open. The dynamic dyadic theory of conflict developed in Section 5.3 not only cuts through the theoretical uncertainty detailed above, but also rectifies the empirical ambiguity to which we now turn.

164 The timing of when the strengthening state would initiate the conflict, before or after it achieved parity with its adversary, has been a subject of some question (Levy 1987), and in a later formulation of Power Transition Theory Organski and Kugler (1980) suggest that the challenge from the rising state will only occur after parity is reached. Morrow (1996, 327), however, has given a more recent statement on this question arguing that the transition point, the point at which parity is actually reached, “is no more dangerous than any other time,” and that the timing of the challenge is determined by factors such as the expected costs of the war and the risk aversion of the challenger. The rising state will challenge prior to reaching parity if it believes the costs of the war will be low and/or it is sufficiently risk acceptant.

165 While this review of the theoretical literature has included a discussion of conflict initiation, I should again point out that I do not deal with that question below. The above discussion was designed merely to be exemplary of the confused state of the literature. The focus below is solely on the occurrence of conflict within a particular dyad. This is for two reasons. First, my desire is to keep the analysis in this chapter consistent with the analyses in Chapters Three and Four, where I dealt only with conflict onset. Second, the dyadic theory of conflict does not distinguish, at this point, between initiation and targeting. This is something that is possible in future work, however an important constraint on that task is that we are much better at observing conflict onset than we are at observing who started it.
5.2.2 Empirical Literature on Changing Power Ratios and Conflict in Disputatious Dyads

There are many studies to note within the Power Transition school that have sought to test the relationship between dynamic power ratios and conflict. While there have generally been more studies that have found in favor of the ‘shifts toward preponderance lead to peace school,’ the support is not universal and the literature is limited in important ways. Organski and Kugler (1980), as mentioned in Chapter One, provided the first test of Organski’s (1958) Power Transition theory, and find that war is more likely to occur between pairs of states as they move toward equality. This result was somewhat limited in that Organski and Kugler needed to restrict the sample to ‘contender dyads’ to reach it.\footnote{As we mentioned in Chapter One, contender dyads are only those dyads comprised of the most powerful state in the system and its most powerful major power challengers. When the sample is broadened to include all major power dyads the result is weakened to below statistical significance (Organski and Kugler 1980, 50).} Using new data Houweling and Siccama (1988), find greater support for the dynamic power transition proposition among all major power dyads. Subsequently, Geller (1996), Werner and Lemke (1996), and Wayman (1996) have all found that shifts toward parity increase the likelihood of conflict.

There are, however, a number of questions that can be generated from looking at the broad swath of the Power Transition literature on dynamic dyadic capability balances. First, several studies operating under the same rubric do not report similar findings. Kim (1991) sets out to test the proposition that shifts toward balance are more conflictual, but does not find supportive results amongst the set of great powers from 1816 to 1975. Kim
(1992) actually finds weak results in support of the opposite proposition, namely that shifts toward preponderance increase the likelihood of war. Finally, Gochman (1990) finds that both shifts toward parity and shifts toward preponderance increase the likelihood of militarized disputes between great powers and rival Latin American states between 1816 and 1980.

Second, these divergent results cannot be solely attributed to differing sets of observations as most of them study the great powers since the Congress of Vienna. More likely a cause of the divergent findings is that, for the most part, these are correlational studies that do not control for other potentially important causes of conflict - such as those highlighted by the recent research on the democratic peace. More importantly, few of the studies control for the level of interest similarity between the dyads in question, or the interaction between shifts in the balance of military capabilities and shifts in interest similarity. Moreover, the few that do posit such an interaction in a dynamic model (Kim 1991, Kim 1992, Werner and Lemke 1996) fall well short of the standard of interpretation set in the previous chapter.

Werner and Lemke (1996), who generally find support for the ‘shifts toward preponderance lead to peace school,’ may be taken as an example. In an ambitious article, they set out to extend power transition theory beyond the small subset of contender dyads to a series of local hierarchies, and to test not only the basic power transition argument that balances, and shifts to balances, should be more conflictual; but also that interest similarity is an important conflict deterrent and that there is a
meaningful interaction between these two terms. However, when they operationalize dynamic power ratios they throw away so much information that their results are questionable at best. Their operationalization (1996, 246), “specifies a series of dichotomous dynamic variables each indicating whether the relationship [of the weaker state to the stronger state] crossed a 70 percent, 80 percent, or 90 percent threshold of parity.” Such a coding decision makes it virtually impossible to assess the conditional nature of dynamic power ratios on interests because there are only two values dynamic power ratios can assume, zero and one. In addition, Werner and Lemke (1996) do not include the component terms of their interaction in the model. This move takes it from virtually impossible to interpret the conditional effects, to actually impossible to interpret them. As I showed in the previous chapter, in detail, a correct conditional assessment must take all three coefficients (and their variances and covariances) into account. This is impossible when the component terms are left out of the model.

Third, adding dynamism to the right hand side of the model begs the question of why a temporal component is seldom included on the left hand side of these models. While Organski’s (1958) original power transition theory was clearly not concerned with conflict over time within disputatious dyads and its (de)escalatory characteristics, recent literature on interstate rivalry and recurrent conflicts has established that the temporal dimension is vitally important to understanding the bulk of severe interstate conflict (e.g. Diehl ed., 1998). As Diehl and Goertz (2000, 1) point out, “Wars do not suddenly occur

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168 Apart from wasting important information, Werner and Lemke (1996) also do not include any control variables in their estimation. This casts further doubt upon the validity of their results.
between two states, but rather almost always arise in situations in which the two countries have had serious conflict and have been using the military instruments of foreign policy against one another.” It would seem that our empirical studies of how changing dyadic capability balances affect conflict should take the temporal dimension into account. Power Transition theorists, with their almost exclusive focus on isolated wars, and often only the most severe of these wars, miss this potentially important factor.

When we look to the empirical literature on rivalries and recurrent conflict for evidence of the effect of shifting capability balances conditional on shifting dyadic interest similarity, however, we are also disappointed. While the focus in this literature is correctly on the temporal underpinnings of international conflict, few firm conclusions on the evolution of this type conflict have been reached. The literature on interstate rivalries has, for the most part, focused on either definitional questions (Gochman and Maoz 1984, Diehl 1985a; Goertz and Diehl 1992, 1993, 1995a), or questions of the formation or termination of rivalries as a whole (Bennett 1996, 1998; Goertz and Diehl 1995b), and not questions of dispute timing or escalation. In the scant empirical literature under the rubric of interstate rivalries that does address such questions; results on our central question of interest have been mixed. Geller (1993) finds that shifts toward balance increase the likelihood of conflict among major power rivals; Diehl (1985b) finds that shifts toward balance decrease the likelihood of conflict between rivals, and Huth and Russett (1993) find that any shift in the balance of military capabilities within rival dyads increases the chances for conflict. A larger problem is that there has been no study to
date in this literature that either includes a measure of interest similarity on the right hand side, or includes the interaction between interest similarity and relative power.

The nascent literature on recurrent conflict has also yielded inconclusive results on the question of whether it is shifts toward dyadic preponderances or balances that are more pacific, and has also universally failed to include shifting dyadic interest similarity, or its interaction with changing relative power, in empirical models.\textsuperscript{169} Hensel (1994) finds that shifts toward balance within Latin American Dyads lead to an increased likelihood of a future conflict, but that it is the stronger of the two states that will initiate that conflict. Werner (1999) finds that any changes in the post conflict balance of military capability, shifts toward either balance or preponderance, between protagonists leads to an increased hazard of a further dispute; while Grieco (2001) finds that increases in a challenger’s relative military capability are unrelated to whether that challenger initiates a further dispute.

Overall, the empirical literature that has thus far sought to test the dynamic version of Power Transition Theory has failed to shed sufficient light on our central questions. Not only does that literature often exclude relevant control variables, like dyadic interest similarity, but when it does include them the analysis has not adequately tested the main hypotheses. It is also limited by the fact that conflict tends to be treated as isolated, as the temporal interdependence of repeated conflict within disputatious dyads is ignored. Moreover, neither the literature on interstate rivalries nor the literature on recurring conflict has shed any light on the effects of shifting capability balances and
shifting interest similarity on conflict timing or (de)escalation within disputatious dyads. This has led Goertz and Diehl (2000, 210-1) to conclude, “Although it is widely assumed that endogenous factors condition the rivalry context, the evidence for a strong, systematic effect is thus far limited. This is largely because few scholars have investigated these factors empirically but also because the results thus far are weak and disappointing.” We can address the shortcomings of both the empirical literatures on Power Transition Theory and rivalry/recurrent conflict by making the dyadic theory of conflict from Chapter One dynamic.

5.3 A Dynamic Dyadic Theory of Conflict

This section generates four hypotheses which parallel the four central hypotheses that have driven the analysis to this point. The only difference between these hypotheses and the hypotheses tested in the previous chapters is that now the focus is on how changes in the dyadic balance of military capabilities and changes in the dyadic level of interest similarity affect the timing and (de)escalation of conflict within disputatious dyads. We handle each of the four central hypotheses in turn.

The most controversial hypothesis put forth in this section is that dyads experiencing a shift toward balanced relative military capabilities should be less conflictual than dyads shifting toward more preponderant capabilities. The predominant

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169 The literature on recurrent conflict differs from the literature on interstate rivalry in that no definitional requirement, such as those typically associated with defining a ‘rivalry,’ are imposed upon the data.

170 As I phrase it in the hypotheses that follow, disputatious dyads with an increasing hazard of a further dispute and/or an increased likelihood of severe disputes in the future are more conflictual.
argument in the current literature would hold the opposite to be the case. However, as I
demonstrated above, there is only sketchy empirical support for this proposition in the
power transition literature, and there is virtually no empirical support for it in the
empirical literature on rivalry and recurrent conflict. And, as I pointed out in the first
chapter, the preponderance leads to peace argument turns on three critical assumptions
that are simply not true. The first is that states are always risk acceptant, the second is
that the weak will not fight back when challenged by the strong, and the third is that the
international system is hierarchic and not anarchic. This second assumption is
particularly problematic in a dynamic setting because, as we demonstrated in the first
section of chapter, it is completely rational for a weakening state to fight with a stronger
adversary (and even to initiate the fight) if it fears it will be worse off in the future than it
is now. The third assumption is also problematic in the dynamic setting because it is the
anarchic condition of the international system that leads classical balance of power
theorists to fear drives for hegemony by strengthening states. Either of these assumptions
is even more likely to be false in dyads with a history of conflict, like the ones
investigated in this chapter.

A clearer picture emerges when we consider whether the states in these
disputatious dyads are becoming more or less constrained by the changing distribution of
relative power. When there is a shift toward balance it is the weaker state that is
becoming less constrained by the power distribution. It is growing stronger relative to its
adversary, either by virtue of its own increase in military power or because the stronger
state is weakening. However, the weaker state is still constrained by the situation precisely because it is weaker. Assuming its condition is going to continue to improve, it would be better to fight later than now. Meanwhile, the stronger, but weakening, state is becoming more constrained by the situation – it would have been better to fight yesterday than today. When there is a shift toward balance, neither state has much incentive to fight. When there is a shift toward preponderance, on the other hand, it is unequivocally true that the stronger state in the dyad is becoming less constrained relative to its adversary. The weaker state, on the other hand, is becoming more constrained by the power distribution. Given that these are dyads with a history of conflict, it is reasonable to argue that the stronger state may seek to put its increased military advantage to good use. If it does, there is every reason to think that the weaker state will fight back.\(^{171}\) Given these arguments, we arrive at the first hypothesis in the dynamic dyadic theory of conflict:

**H1:** Conditions in which there is a shift toward a dyadic balance of power are less conflictual than conditions in which there is a shift toward a dyadic preponderance of power.

In the first chapter we noted that interest similarity within a dyad acts in three primary ways to reduce the severity of conflict. Shifts toward interest similarity act in the same three ways to reduce the hazard, and/or the severity, of a future conflict should it

\(^{171}\) Two additional points should be made here. First, there are unquestionably hypotheses about conflict initiation lurking in these arguments. I do not address those here, but do plan on turning to them in future work. Second, this stylized treatment of the relationship between shifts in relative power and conflict should be treated as such, because we can only really assess how shifts in relative power will affect the conflict propensity of disputatious dyads when we take the level of dyadic interest similarity into account.
occur. First, whereas a dyad with a high level of interest similarity has little to fight over, dyads with increasing interest similarity scores should have less and less to fight over. This should reduce the hazard of a future conflict. Second, an increasing interest similarity score implies that the two states are beginning to agree on the major issues in international politics. This should, obviously, decrease the hazard of further conflict, but it should also decrease the severity of future conflicts. Should they occur, future conflicts will likely be over increasingly minor issues with little intrinsic potential to escalate. Third, higher levels of interest similarity imply more common interests will be put in jeopardy if another dispute occurs. Shifts toward interest similarity decrease the hazard of any type of future dispute because the two parties may work harder to resolve the conflict before it becomes militarized. This should also decrease the severity of future disputes because, if they become militarized, both sides have incentive to resolve the conflict before it escalates out of control. These three mechanisms combine to make us reasonably sure that increases in interest similarity for disputatious dyads imply a lower hazard of a further dispute, and a decrease in the severity of that dispute, should it break out.

**H2:** Conditions where there is a shift to higher levels of dyadic interest similarity are less conflictual than conditions where there is a shift to higher levels of dyadic interest dissimilarity.

There is no reason to believe that there would not continue to be a significant interaction between dyadic interest similarity and the dyadic balance of military
capabilities in a model where both variables were operationalized dynamically. As was discussed in Chapter One, both parties to the balance-preponderance debate originated from theoretical arguments (Morgenthau 1948/1967, Organski 1958/1968) that held the effect of the dyadic balance of military capabilities on conflict was conditional on interest similarity. In the dynamic case, however, it is not the static levels of the dyadic balance of power that are interpreted through the lens of interest similarity, it is the changes in the dyadic balance of military capabilities that are interpreted through the lens of changing dyadic interest similarity. In a disputatious dyad with interests shifting toward dissimilarity each state will view that military capability of the other state as more and more of a threat. This type of condition is likely to lead to increased levels of conflict as both sides attempt manage the changing military balance to their advantage through aggressive foreign policies that include external alliances and militarized action directed against the opponent. In a disputatious dyad where interests are shifting toward similarity, on the other hand, the military power of each state will be seen as less and less threatening and may begin to be seen by the other as an opportunity to gain in the international system – regardless of the direction the military balance is swinging. Such a condition is likely to lead to cooperation, not conflict. This leads to our third hypothesis.

**H3:** There should be a significant interaction effect between changes in the dyadic distribution of power and changes in the dyadic level of interest similarity in the quantitative models of dispute timing and (de)escalation.

Our final hypothesis has to do with which of the two main variables in the dynamic dyadic theory of conflict will have the greater effect on dispute timing and
(de)escalation. We expect changes in dyadic interest similarity to have a greater effect for three reasons. First, while there has been some theoretical, and empirical, debate about whether it is shifts toward balances or shifts toward preponderances that are more pacific, there is unambiguous agreement that shifts toward greater dyadic interest similarity should reduce conflict. Second, a shift toward interest similarity within a dyad reduces the number of contentious issues between them that have an intrinsic potential to escalate. Two states that agree on an increasing number of issues are less likely to disagree over questions of territory or regime change, and it is disagreements over those issues that lead to frequent and escalatory conflict. Third, as we stressed in the first chapter, and as diverse strands of recent theoretical literature have argued (Schweller 1996, 1998; Wendt 1999), it is dyadic interest similarity that defines the meaning of the dyadic balance of military capabilities. It is not the other way around. There is no reason to believe this will be any different in a dynamic setting than it was in the static setting. Two states that have an increasing degree of interest similarity are more likely to view the power of the other state as an opportunity to gain (either in security or in booty) in the international system. They are, thus, less likely to come into conflict and more likely to cooperate. On the other hand, two states with an increasing amount of interest dissimilarity are more likely to view the power of the other state as a threat to their own security, and will likely take measures (such as external alliances, arms buildsups, and overt conflict) to alleviate that threat. It is for these reasons we expect shifts in interest similarity to have a greater effect on conflict than shifts in relative power, and this leads to our fourth central hypothesis:
**H4:** Shifts in dyadic interest similarity have a greater effect on conflict timing and (de)escalation than do shifts in the dyadic distribution of power.

The four central hypotheses of the dynamic dyadic theory of conflict are pulled together in Figure 5.2. According to hypothesis one, we expect shifts toward balances of dyadic military capabilities to be more conflictual than shifts toward preponderances of military capability. This implies condition (4) will be more conflictual than condition (3), condition (2) will be more conflictual than condition (1). According to hypothesis two we expect dyads that have increasing levels of interest dissimilarity to be more conflictual than dyads where interests are increasingly similar. This implies that condition (4) will be more conflictual than condition (2) and condition (3) will be more conflictual than condition (1). Finally, according to hypothesis four we expect shifts in interest similarity to have a greater effect on dyadic conflict than shifts in the balance of relative military capabilities. This implies that the horizontal differences in this 2 x 2 table should be greater than the vertical differences, and that the greatest difference between any two conditions will be between condition (3) and condition (2).

As we can see, the dynamic dyadic theory of conflict offers essentially the same clear hypotheses as the static theory did, however, now we will be able to assess how changes in the two key independent variables effect changing patterns of conflict between states. The analysis that follows should increase our confidence in the theory because we will be testing it among only those states that have a history of conflict. Next, I turn to questions of model specification.
5.4 Model Specification

In this section we will cover the specification of both sets of models employed in this chapter. I begin with the dependent variables. We will then turn to the operationalization of the control variables, and justification of the model specification. Like Chapter Four, this section will offer hypotheses on the control variables.

5.4.1 The Dependent Variables

In order to get at the timing of militarized conflict between disputatious dyads, the first set of models used are repeated events duration models (Box-Steffensmeier and Zorn 2002). As discussed in the introduction to this chapter, a dyad must have a dispute to enter the data set. Observation of the dyads begins at the first dispute they have which occurs after 1885. Thus, the United States and Canada do not enter the data set until 1974 - the year of their first dispute, whereas the United States and Mexico enter in 1886 (the earliest possible entry date based on the temporal domain of this study) by virtue of the fact that they had a dispute in 1886. The dependent variable in these models is simply a counter variable that measures time since last dispute. A repeated events data set up is employed since dyads can, and of course do, have multiple disputes. After each dispute

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172 In a sense this tests the dynamic dyadic theory of conflict amongst ‘hard’ cases. It seems likely that all of the dyads that never had a dispute have a high degree of interest similarity. If we included all dyads in the analysis, rather than looking at only those that have had at least one dispute, results in favor of the theory would be bolstered.
the clock starts over again, counting the duration of peace until the next dispute.\textsuperscript{173} As has been the case throughout this dissertation, disputes are coded with the Militarized Interstate Dispute (MID) 2.1 data set, where a dispute is defined as a conflict between international system members that involves the threat, display, or use, of armed force (Jones, Bremer, and Singer 1996).

The second set of models in the empirical analysis that follows are sample selection models. These are the same type of models used in Chapter Four, but here we are interested in the change in dispute severity from one dispute to the next within each dyad, given that dyad has at least one further dispute. This will help us to identify the conditions under which disputatious dyads escalate and de-escalate their conflicts. A selection model is employ because looking only at those dyads that did have a further dispute would constitute omitted variable bias to the extent that the errors in explaining the likelihood of a further dispute also are correlated with the change in the severity level of that dispute (Heckman 1979).\textsuperscript{174} Change in dispute severity is operationalized with the same severity measure, Diehl and Goertz’s (2001) Baseline Rivalry Level (BRL), that was used in Chapter Four. It is the change in the BRL from one dispute to the next within the dyad. Dyads that only experience one dispute over the period of observation have no escalation or de-escalation value since there is no second dispute in which to ‘escalate.’ Thus, if dyad AB had a dispute with a BRL of 31 at time $t_{-1}$ and a dispute with

\textsuperscript{173} Useful introductions on how to set up repeated events duration models can be found in Box- Steffensmeier and Zorn (2002) or in Cleves (1999).

\textsuperscript{174} For an argument that much of what explains war between states is constrained to our error terms see Gartzke (1999).
a BRL of 8 at time t, the escalation score is -25. If the dispute at time t were 57 instead, the escalation score is 25. Such a calculation is made for each additional dispute a pair of states experienced. In the data, this value is bound between -183 and 184. Figure 5.3 depicts the distribution of the change in BRL, which is the dependent variable in the outcome equation of the selection model.

5.4.2 The Independent Variables

For the most part, the independent variables employed in the two sets of models below are overlapping, and many of them were used in the previous chapter. In this section I will first detail the operationalization of the variables in both models, especially those that are new to the analysis. After the operationalization of each variable I hypothesize about its relationship to the timing of interstate disputes and/or the escalation tendencies from one dispute to another.

The key hypotheses again center on Capability Ratio, Interest Similarity, and their interaction. They appear in both the repeated events duration models and in the outcome equation of the sample selection models. In this chapter, however, we are interested in how the changes in these variables affect interstate conflict. Thus, \( \Delta \text{Capability Ratio} \) is operationalized as the change in Chapter Four’s Capability Ratio score; which was measured with the Correlated of War Project’s Composite Index of National Capability, and operationalized as the relative military capability of the stronger state in the dyad divided by the dyad’s total relative military capability. In the repeated events models
change is the cumulative running change since the previous dyadic dispute. In the sample selection models, change is year on year difference in the Capability Ratio score. \(\Delta\) Interest Similarity is operationalized in the same way. As in the previous chapter, the full Interest Similarity score combines the alliance portfolio measure with the UN voting measure and two sets of models are presented: one in which alliance portfolios only are used, and one in which the full measure is used along with a dummy variable coded one for the years in which UN voting is added to the measure. The Interaction between the \(\Delta\) Capability Ratio variable and the \(\Delta\) Interest Similarity variable will allow us to test the four central hypotheses of the dynamic dyadic theory of conflict.

The remainder of both the repeated events models and the outcome equations in the sample selection models are specified with many of the same variables that were employed in Chapter Four. First, \(\Delta\) Democracy\(_L\), \(\Delta\) Dependence\(_L\), and \(\Delta\) Common IGOs are included to see how changes in the operational measures of the three legs of the Kantian peace affect dispute timing and escalation. My expectations for these control variables diverge in the two types of models that follow. In the repeated events duration models I expect all three to be negatively related to the hazard of dispute occurrence. This is owing to the large literature (e.g. Russett and Oneal 2001) which has demonstrated that these three variables are correlated with a decreased likelihood of militarized conflict. As a matter of fact, we saw evidence of this in the selection equation

\[ \text{175 I employ the change variables in different ways in the two sets of models because the nature of the dependent variable is different in each model. In the repeated events models the dependent variable, duration of peace, gets reset only after each dispute, thus the change variables are operationalized in the same way so they can speak to the timing of the dispute. In the selection models the dependent variables, occurrence of a further dispute and change in dispute severity, assess the change from the previous year so they can speak to the likelihood of a dispute, and its escalation or de-escalation, in that particular year.} \]
portion of the sample selection models in the last chapter for the democracy and trade variables. In the models of dispute (de)escalation, I expect increasing amount of common IGO linkages to reduce the severity of further disputes.\textsuperscript{176} In those models, however, it is not only possible that a shift toward democratization may increase the severity of a further dispute;\textsuperscript{177} it is also possible that a shift toward greater trade dependence will increase the severity of disputes. Realists have long argued that dependence actually increases the chances of conflict as it, at times, can be manipulated as the larger state takes advantage of the smaller state (Hirschman 1980 [1945]). In fact, Kenneth Waltz (1970, 205) has argued, “The fiercest civil wars and the bloodiest international ones have been fought within arenas populated by highly similar people whose affairs had become quite closely knit together.” Keeping in mind that the sample of dyads employed in this chapter are only those that have had at least one dispute, and in many cases they have had even more than one dispute, increasing dependence in this sample may increase the severity of further militarized disputes.

Second, three additional variables from the outcome equations of Chapter Four also appear in both the repeated events duration models and the outcome equations of the sample selection models that follow. Here we expect \textit{Contiguous}, \textit{Log Distance}, and \textit{Major Powers} to have the same effects they had in the previous chapter. Namely,

\textsuperscript{176} See Chapter Four for the logic behind this assertion.

\textsuperscript{177} This argument is based on Fearon’s (1994b) audience cost argument. If audience costs push democratic disputants to fight harder once committed to a conflict, there is no reason why democratizing disputants (presumably with increasingly expensive audience costs) should not fight harder still. See Chapter Four for a greater elaboration of this argument.
contiguity should increase the hazard of further disputes and increase the likelihood that
these disputes are more severe than previous ones. Greater distance, on the other hand,
should decrease the hazard of a further dispute occurring and lead to de-escalation if
those further disputes occur. Finally, disputes between two major powers should be more
frequent and escalatory in nature.

Third, the two dispute specific variables that appeared in the outcome equation in
Chapter Four are included in the outcome portions of the sample selection models in this
chapter as well. *Territory* is a dummy variable that is coded as one if the particular
dispute is territorial in nature. Since there is strong support in the literature that territorial
disputes are more severe (Senese 1996; Hensel 1996, 2000), and we found that to be the
case in the previous chapter, we expect further disputes to be escalatory in nature if they
are over territorial issues. *Actors* is a count of the number of states involved in each
particular dispute. The argument that the more actors participating in a dispute leads to
more severe disputes has received empirical support both in the literature (Cusack and
Eberwein 1982; Brecher 1999) and in Chapter Four. This suggests it is an important
control to include here as well. We expect disputes to be increasingly escalatory as more
actors are involved.

Finally, I include four additional variables (which appear in both models) that
have not yet been used in the statistical analysis in this dissertation. They require
somewhat greater elaboration. We could hypothesize how the outcomes of previous
disputes effect both the time until next dispute and whether that dispute is more or less
severe than the previous dispute should it occur. The MID data set includes eight
variables on dispute outcome and settlement type that are ideally suited for these types of hypotheses (see Jones, Bremer, and Singer 1996, pp.179-81), and I have combined these eight variables into three for the purposes of the models below. First, \textit{Bad Outcome} is coded one when the previous dispute in the dyad either had a stalemated outcome or was not settled at all.\footnote{“Stalemates” occur when there is a lack of any decisive change in the pre-dispute status quo and the outcome of the dispute does not favor one side or the other (Jones, Bremer, and Singer 1996, p.180). Settlement type is coded “none” when there is a lack of any formal or informal effort that successfully resolves or terminates the dispute (Jones, Bremer, and Singer 1996, 181).} We would expect this variable to be positively related to the hazard of another dispute, since the underlying issues in the dispute have not been resolved (Maoz 1984, Hensel 1994).

We should also expect this variable to be positively related to escalation in the next dispute. If a dyad has a further dispute after a previous unsettled dispute, both sides are likely to devote more energy this time around to settling the dispute in their favor. A disputatious dyad with unsettled issues evokes images of a true ‘conflict spiral’ (Jervis 1976) with each side acquiring arms in the hopes that it will finally be able to favorably settle the disputed issues with its rival. As Brecher (1993, 152) points out, “the larger the number of unresolved issues, the more uncertain will be the environment for bargaining and non-violent accommodation by the crisis actors… In that setting of instability and disruptive interaction, adversaries will be more disposed to resolve the disputes by violent escalation.”

Second, \textit{Force Outcome} equals one if the previous dispute: had an imposed settlement, was coded as a victory for one of the states in the dyad, or if one of the states

\footnote{“Stalemates” occur when there is a lack of any decisive change in the pre-dispute status quo and the outcome of the dispute does not favor one side or the other (Jones, Bremer, and Singer 1996, p.180). Settlement type is coded “none” when there is a lack of any formal or informal effort that successfully resolves or terminates the dispute (Jones, Bremer, and Singer 1996, 181).}
in the dyad was coded as yielding to the other at the conclusion of the dispute. In the repeated events model, we expect this variable to be negatively related to the hazard rate. Thus, if the last dispute had a forceful ending the duration of peace until the next dispute is expected to be longer since the ‘loser’ will be unlikely to use militarized action in the future. For Clausewitz (1989, 90) the defeat of your enemy, the occupation of his territory, and the destruction of his will to fight, were necessary conditions to prevent the recurrence of conflict. Without them (80), the defeated state, “considers the outcome merely as a transitory evil.” It is doubtless something less than this complete type of victory is measured in the MID outcome and settlement categories used to code this variable, yet some support for the notion that imposed settlements tend to last longer has been found. Maoz (1984) finds that the time from the termination of one dispute to the outbreak of another in the same dyad is longer if the victor in the previous dispute is able to impose its will on the loser. Viewing imposed settlements through the lens of enforcement, Werner (1999, 916) notes, “Since only one side makes promises of future behavior, imposed settlements are generally easier to enforce.” She finds that imposed settlements do, in fact, lead to a longer period of peace.

A Force Outcome should also be negatively related to escalation in the next dispute, should a next dispute occur. The loser will be less apt to escalate any future conflicts to a serious level if its adversary has defeated it in the past, since it is likely to know that defeat would occur in any future conflicts as well. Blainey’s remark that

179 “Imposed” settlements are agreements that are forced on another state by overwhelming authority and without invitation (Jones, Bremer, and Singer 1996, p.181). “Victories” occur where one state favorably alters the status quo with another through the use of militarized force, and “yield” is the outcome type when
(1988, 114), “War is a dispute about the measurement of power” is useful here, since after a clear cut victory by one side there will be no disputing which side is more powerful, and this will lead to a greatly decreased likelihood of war. On the other hand, if the previous conflict did not end in a decisive victory for one side the chances are very good that the next conflict will not only recur more quickly, but will also be more severe. There is a good chance that each side spends the duration of peace arming for the next conflict. With greater military resources at the disposal of each contestant, the next conflict is likely to be more severe.

Third, Good Outcome equals one if the previous dispute in the dyad ended with a compromise settlement or if the outcome of that previous dispute was negotiated or released.\(^{180}\) Obviously, good outcomes should be associated with a decreased hazard of a further dispute, and de-escalatory tendencies should further disputes occur. Yet, this assumes the states in the dyad have resolved every issue over which they could fight. If one dispute ends with a good outcome, however, this does not necessarily preclude the possibility of another dispute developing over a different issue in a relatively short amount of time. Moreover, that dispute could escalatory in nature. For that reason, we

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\(^{180}\) “Compromise” indicates an outcome where each side in the dispute gives up some demands or makes some concessions. “Released” outcome types occur in situations where the MID involved the seizure of material or personal, and is coded one where the material or personal were released from captivity at the end of the dispute. (Jones, Bremer, and Singer 1996, p.180). “Negotiated” settlements occur where there is a, “successful attempt to confer, bargain, or discuss an unresolved issue with a view towards reaching an acceptable settlement” (Jones, Bremer, and Singer 1996, p. 181).
do not expect good outcomes to be negatively related to the time until another dispute and do not expect that dispute, should it occur, to be any less severe than the previous dispute.

Finally, *War Weary* tests the intuitive notion that particularly severe conflicts will be followed by a relatively longer period of peace, and relatively less severe disputes should another dispute occur. The variable is a simple decaying function of the severity of the last dispute, and equals the BRL of the most recent dispute divide by the number of years since that dispute occurred. In both the repeated events models of peace and the selection models of escalation tendencies there are numerous reasons to expect the effect of *War Weariness* to be negative and significant. After a severe dispute the rivals may experience a general revulsion against war for a period of time (Richardson 1960, Toynbee 1954). In fact, severe fighting has often been associated with attempts to form security communities to prevent the recurrence of war, such as the Concert of Europe after the Napoleonic Wars (Jervis 1985), the League of Nations after World War One, and the United Nations after World War Two. Moreover, even if a general revulsion toward war does not occur in the rivals, at least they will need some time to replenish their arms before having another go at conflict. That conflict should be less severe than the previous conflict, however, because both sides will be sensitive to the material losses that occurred in the previous conflict. By this intuitive sense we should expect the severity of the last conflict to be negatively related to the hazard for another conflict and associated with de-escalation should that conflict occur.
As with most intuitively appealing theories, however, things are not as simple as the proponents of the war weariness hypothesis would believe. As Levy and Morgan (1986, 28) point out,

There are a number of theoretical problems with the war-weariness hypothesis… A victorious war might actually increase the likelihood of a later war by increasing a state’s power and hence its ability to fight again; by inflaming the nationalistic passions and jingoistic attitudes of society as a whole; by bringing to power an elite whose political power is based largely on its successful conduct of war and who may have an incentive to continue the bellicose policies that brought it to office; or by creating or reinforcing a cultural norm which regards war as a legitimate instrument of national policy. Even an unsuccessful war might increase the likelihood of a subsequent war, by generating throughout society demands for revenge, as the post-World War One German case indicates.

Moreover, it is somewhat doubtful that the masses experience any war weariness at all. Blainey (1988, 8-9) approvingly cites Adam Smith’s account of the lack of eighteenth century British war weariness, “In great empires, the people who live in the capital,… feel…, scarcely any inconveniency from the war, but enjoy at their ease the amusement of reading in the newspapers the exploits of their own fleets and armies.” Blainey adds, “Even at the end of the Napoleonic Wars - wars which ran with brief pauses for 23 years - one cannot be sure who was weary. In the British Isles those farmers and manufacturers who had earned high profits during the war might have been weary less of the war than of the subsequent peace.” Finally, if disputes between nations are in fact temporally related, a fact which the concept of enduring rivalries would seem to suggest, it is unlikely that previous disputes will either decrease the amount of time until the next dispute or decrease its severity in any demonstrable way. In fact, there is scant empirical evidence of war weariness across a broad range of operationalizations (Levy and Morgan 1986),
and several empirical studies have found that dyads that have had one dispute are likely
to have another in short order (Richardson 1960b, Maoz 1984, Anderson and McKeown
1987, Diehl et al. 1996). For these reasons we expect War Weary to be positively
associated with both the hazard of future disputes and the escalation of those future
disputes when they occur.

5.5 Methodology

Now that the specification of both models has been completed, I will turn to
certain statistical questions associated with repeated events duration modeling and sample
selection modeling. Since a sample selection model was used in the last chapter, and
should be familiar, I will concentrate on the duration analysis.181

5.5.1 Repeated Events Duration Models

The repeated events models employed below are a variation of Cox’s (1972)
proportional hazards model

\[ h(t) = \lambda_0(t) \exp(X_t \beta) \]

where \( h(t) \) is the hazard rate of the event under study, or the rate at which subjects ‘fail,’
\( X_t \) is a vector of covariates, the independent variables specified for the repeated events
model in the previous section, \( \beta \) are their corresponding coefficients, and \( \lambda_0 \) is an

181 In order to convey the substantive impact of the covariates in both sets of models, I again use the model
estimates to calculate first differences. Like the previous chapter, the appropriate amount of uncertainty
was introduced into these first differences with a simulation method akin to King et al.’s (2000) Clarify
program. Tables 5.2 and 5.3 depict the fruits of this labor for the repeated events duration models, and
tables 5.5 and 5.6 do so for the sample selection models. Appendix C details the simulation programs that
were written to obtain the output in Tables 5.3 and 5.6.
unspecified baseline hazard. Parametric models, like those based on the Weibull or exponential distributions, parameterize the baseline hazard according to the specified distribution, and have been used frequently in political science studies (e.g. Bennett 1998, Werner 1999). Yet the assumption about the form of the baseline hazard is just one more assumption for a model to make and because of that they are not as widely used outside of political science as is the Cox model (Box-Steefensmeier and Zorn 2002, 1072). Moreover, these parametric assumptions, “may have a substantial impact on the inferences one make about the process” (Box-Steefensmeier and Jones 1998, 1432). To avoid having to make choices about the shape of the baseline hazard we employ the proportional hazard model here.

The variation on the standard Cox model employed here has to do with the repeated nature of the data. Since dyads can fail more than once, or have more than one dispute, the variance-covariance matrix must be adjusted. Box-Steefensmeier and Zorn (2002, 1072) detail a class of model that do this, “Variance-correction models take advantage of the fact that, in the presence of repeated events, standard Cox model estimates for $\beta$ converge to a well-defined vector (usually termed $\beta^*$), which can often be interpreted meaningfully, but the estimated covariance matrix is inappropriate for hypothesis testing. These models thus estimate a standard Cox model and adjust the variance-covariance matrix to account for the individual- or group-specific effects that remain.” Specifically, I have chosen the conditional risk set model in gap time (Prentice, Williams, and Peterson 1981), where dyads are not at risk to have a dispute, say the fifth dispute, until the previous four have occurred and the ‘clock’ restarts after each dispute.
Box-Steffensmeier and Zorn (2002, 1075) conclude, “The [Prentice, Williams, Peterson] model’s explicit ordering of sequential events makes it an intuitively appealing choice for the majority of repeated events applications in political science, particularly in instances where the events in question occur sequentially, and where a unit is not “at risk” for a later event until all previous events have occurred.”

In order to account for the repeated aspect of dyadic disputes, the repeated events model must be stratified by relevant groups so that separate baseline hazards can be estimated for each group. One way to do this is to stratify by event number, so that each failure has its own baseline hazard. Thus all first disputes, second disputes, and so on, would each have their own baseline hazard. Such a stratification would make sense if we expected, for instance, the second dispute to occur more quickly than the first, and the third dispute to occur more quickly than the second, and so on. This may very well be the case, but a few dyads (like the United States and Soviet Union) have had many disputes, while most dyads have had only a few. This raises the problem that a only a few strata (e.g. first dispute, second dispute) are well populated, whereas most strata (e.g. twentieth dispute through fifty sixth dispute) are not well populated.

To handle this exact problem Box-Steffensmeier and Zorn (2002) suggest combining the upper strata to increase their ‘population.’ This is likely a good suggestion if there are relatively few sparsely populated strata, but since there are many sparsely populated strata in this specific case, and no theoretical guidance on how to combine the upper strata into one, I have decided to revert to theory for my stratification decision.

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182 This is the number of disputes the United States and Russia/Soviet Union had between 1886 and 1992.
The literature on interstate rivalry has, generally, settled on a classification scheme for rival dyads based on the number of disputes they have over a set period of time. Diehl and Goertz (2000) break rivals dyads up into three types: Enduring, Proto, and Isolated. We know, by their very operational definition, that enduring rivals fail more quickly than proto-rivals (at least 6 disputes in 20 years), and proto-rivals (at least 3, but no more than 5, disputes in 20 years) fail more quickly than isolated rivals (at least one, but no more than 2, disputes in 20 years). This suggests, in fact dictates, that these three types of rivals have their own baseline hazards. This is what I have done. In the repeated events duration models that follow the data is stratified by rivalry type. For dyads that were once enduring rivals and are now less disputatious isolated rivals (or not fighting at all), the period of time where they were enduring rivals belongs to that strata and the peaceful period of time since belongs to the isolated rivalry strata. Thus, we can account both for the repeated nature of the dependent variable and the fact that the different types of rivals will have different underlying hazard rates. Finally, in all of the repeated events models that follow I use robust variance estimates (Lin and Wei 1989, Box-Steffensmeier and Zorn 2002) clustered on each dyad. These standard errors assume that observations are independent across the dyads but not within them. If ‘naïve’ standard errors were used they would likely be biased downward, thereby artificially increasing the significance of the parameter estimates.  

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183 One final issue with the duration models is the question of proportionality (Box-Steffensmeier and Zorn 2001, Box-Steffensmeier et al. 2003). Cox models (and parametric models as well), like the one I employ below, require that hazards over different values of the covariates are proportional. Non-proportionality, “can result in biased estimates, incorrect standard errors, and faulty inferences about the
5.5.2 Sample Selection Models

The methodology of sample selection models was covered in detail in Chapter Four, however, there are a few points that should be clarified before moving on to the results from the various estimations. First, sample selection models are necessary in the models of (de)escalation if the unmodeled factors that cause dyads to have additional disputes are correlated with the errors in the equation predicting change in dispute severity. There is reason to believe that is the case in these equations because the relevant ‘unobservables,’ such as resolve (Gartzke 1999) likely play a role here as well. As in the previous chapter I will use the basic Oneal and Russett (1999) dispute likelihood model as the selection equation. We will, however, skip the Sigelman and Zeng (1999) corrections because the variables in the outcome equation are different from the variables in the selection equation by virtue of the fact that they are modeled dynamically.\textsuperscript{184} Second, as in the previous chapter, most of the independent variables are lagged to counter endogeneity problems. Finally, the Beck, Katz, and Tucker (1998) correction for temporal dependence is included in the selection equations.\textsuperscript{185}

\textsuperscript{184} This is not the case for Contiguity, Log Distance, and Major Powers. But, these variables are only peripheral to the analysis, and since the Sigelman and Zeng (1999) correction revealed little difference in their effects in the previous chapter we will simply use the estimated coefficient here.

\textsuperscript{185} The counter and splines were again significant.
5.6 Results

Because there are two distinct sets of models to interpret, and each must be interpreted according to the proper procedures (which differ for duration and sample selection models), so the results section is broken up into two parts. The next section considers the repeated events duration models of dispute timing. Section 5.6.2 considers the sample selection models of dispute (de)escalation. 186

5.6.1 Repeated Events Duration Models of Dispute Timing

Our first test of the dynamic dyadic theory of conflict begins in Table 5.1 which displays the results of two repeated events duration models of conflict timing for all disputatious dyads between 1886 and 1992. Model 1 contains results when interest similarity is operationalized with alliance portfolios alone, model 2 contains results with the more complete operationalization of the interest similarity variable which uses alliance portfolios along with UN voting. Since the results do not differ substantially between the two models, we will focus our attention on model 2. Note first that the interaction term between $\Delta$ Capability Ratio and $\Delta$ Interests Similarity is statistically significant. This supports hypothesis three – there is an important interaction effect between these two key variables when explaining conflict timing between disputatious states. This is an important finding, not only because it again confirms our theoretical argument about the relationship between changes in dyadic capability ratios and changes

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186 Descriptive statistics for all variables in each of the two sets of models are located in Appendix C, Table C.1.
in dyadic interest similarity, but also because it justifies or description of the dynamic
dyadic theory of conflict in a 2 x 2 table.

In order to tell how this interaction terms plays out for the other key hypotheses in
the model, we will again need to go beyond the results presented in Table 5.1 and view
the conditional coefficients for each component of the interaction term. These are
displayed in Figures 5.4 and 5.5.

Figure 5.4 displays the magnitude and statistical significance of the $\Delta$ Interest
Similarity coefficient over the range of values for $\Delta$ Capability Ratio. We can see that $\Delta$
Interest Similarity always has a negative effect on the hazard of a further dispute,
although this result is not statistically significant when the dyadic Capability Ratio is
experiencing extreme shifts toward balance. We can get a better sense of the support for
hypothesis two by examining how first differences in the $\Delta$ Interest Similarity variable
effect the timing of militarized disputes. This is done in the first row of Table 5.2. As
indicated there, a one standard deviation increase in $\Delta$ Interest Similarity decreases the
hazard of a further dispute by 27.02% with all other variables held at their means.\(^{187}\)
Moreover, using the simulation method described above and employed in the previous
chapter, we can say that we are 95% sure this substantive decrease is between -27.9% and
-26.4%. As the Table shows, larger increases in $\Delta$ Interest Similarity have a larger

\(^{187}\) It is reasonable to wonder, given that $\Delta$ Interest Similarity is not statistically significant across all values of $\Delta$ Capability Ratio why we do not assess the substantive impact of this variable at places other than the mean of $\Delta$ Capability Ratio. Given that the $\Delta$ Interest Similarity does not change direction over the range of $\Delta$ Capability Ratio, the results would not be dramatically different if other points were assessed. The main goal here was to maintain comparability with Table 4.4, which assesses the substantive impact of Interest Similarity at only one point, and the substantive impact of Capability Ratio at three points.
negative effect on the hazard of disputes, and decreases in $\Delta$ Interest Similarity have a substantively important positive effect on the hazard of disputes. All of this evidence suggests support for hypothesis two – disputatious dyads that experience shifts toward greater interest similarity have a decreased hazard of having another dispute. This support, however, is not quite as robust as it was in the previous chapter because the pacific effect of shifts toward interest similarity is not statistically significant across all values of $\Delta$ Capability Ratio.

Figure 5.5 displays the conditional magnitude of the $\Delta$ Capability Ratio coefficient as $\Delta$ Interest Similarity varies, and unlike the previous chapter the results are unambiguous here. Changes toward a preponderance of military capability in a disputatious dyad increase the hazard of a further militarized dispute. This finding is statistically significant across all values of $\Delta$ Interest Similarity, although the size of the coefficient (unsurprisingly) decrease somewhat as the dyads experience increasing shifts toward interest similarity. The next three rows of Table 5.2 show the substance of the deleterious effect of shifts toward preponderance, and show how increasingly larger shifts toward interest similarity mitigate them somewhat. As Table 5.2 details, when $\Delta$ Interest Similarity is at its 25th percentile, a two standard deviation increase in $\Delta$ Capability Ratio increases the hazard of a further dispute by at least 51%; when $\Delta$ Interest Similarity is at its median the substantive effect of a two standard deviation shift toward preponderance results in at least a 47% increase in the hazard of a further dispute; and when $\Delta$ Interest Similarity is at its 75th percentile the deleterious effect of a two standard deviation shift toward preponderance does decrease, but there is still at least 45.6% increase in the
hazard of a further dispute. Shifts toward balance have a similar substantive effect in decreasing the hazard of a further dispute. Taken as a whole, these results suggest **strong support here for hypothesis one**—shifts toward balance are more pacific than shifts toward preponderance.

We can complete our assessment of the four central hypotheses by answering whether $\Delta$ Interest Similarity is more important than $\Delta$ Capability Ratio. There is little obvious support for this notion in Table 5.2, as shifts in both variables have relatively large, and quite similar, effects on the hazard of further disputes. However, we can get a better sense of this question by looking at Table 5.3, which displays the exponentiated linear prediction $e^{(x\beta)}$, or hazard ratios, for the mid point in each of the four conditions of the dynamic dyadic theory of conflict.\(^{188}\) Hypothesis four is supported if the horizontal differences are greater than the vertical differences, and if the difference between conditions 3 and 2 is greater than the difference between any other pair of conditions.

A hazard ratio greater than one indicates an increased hazard of a militarized dispute, whereas a hazard ratio less than one indicates a decreased hazard of a militarized dispute. Taken as a whole the four central hypotheses imply that in terms of the hazard of conflict the conditions are ranked such that $4\gg3\gg2\gg1$. Not only are the conditions are in the correct order in Figure 5.6, it is clear that horizontal differences are again greater than the vertical differences. This **supports hypothesis four**. In condition 4, the most conflictual of the four conditions where dyads are shifting toward preponderance and

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188 For instance, the cell entry in condition 4 is the hazard ratio when $\Delta$ Interest Similarity is at its 25\textsuperscript{th} percentile (a shift toward dissimilarity) and $\Delta$ Capability Ratio is at its 75\textsuperscript{th} percentile (a shift toward preponderance).
dissimilarity, dyads are 65% more likely to have a militarized dispute. Dyads in condition 3 are 32% more likely to have a militarized dispute. This difference indicates there is a pacific benefit of shifts toward balance, however, there greater pacific benefit is gained when there is a concomitant shift toward interest similarity. Dyads in condition 2 have a 1% decrease in the hazard of a militarized dispute, whereas dyads in condition 1 have a 37% decrease in the hazard of a militarized dispute. In both cases the substantive effect is greater horizontally (when $\Delta$ Interest Similarity is shifting) than vertically (when $\Delta$ Capability Ratio is shifting). It is also substantively important that shifts toward interest similarity are associated with a decreased hazard of further militarized disputes within disputatious dyads, and shifts toward interest dissimilarity are associated with and increased hazard of disputes. However, support for this hypothesis is tempered somewhat by the fact that there is not an overwhelmingly large difference between conditions 3 and 2.

Overall, there is a strong degree of support for all four hypotheses in the dynamic dyadic theory of conflict as far as the timing of militarized disputes within disputatious dyads. It is also useful to briefly consider the effects of the control variables in the model of dispute timing as several of them shed interesting light on the hazard of militarized disputes. First, note that all three Kantian variables ($\Delta$ Democracy$_L$, $\Delta$ Dependence$_L$, and $\Delta$ Common IGO Membership) decrease the hazard of militarized disputes, and all but the trade dependence coefficient are statistically significant in Table 5.1. This is largely what the literature on dispute timing would expect. However, as indicated in Table 5.2, the
substantive effects of all three of these variables are somewhat smaller than the effects of our key variables. Second, neither of the geographic variables seems to have much of an effect on the hazard of further militarized disputes. This, perhaps, may be explained by the fact that disputatious dyads do not need geographic contiguity to fight, and may fight even if they are separated by large distances. Third, the dummy variable for major powers also has no effect. Given that there are several non-major power dyads with a history of conflict this is also not too surprising. Finally, there is mixed support for the four variables that seek to examine the effect of previous conflicts. The model shows no discernable hazard of a further dispute when the previous dispute ended either by force or was settled, but dyads that had a previous dispute end in a stalemate or with no settlement at all are more likely to have another dispute in short order. We also find that war weariness does not decrease the hazard of a further dispute. In fact, states that have recently had a severe dispute are at an increased risk to have another dispute.

5.6.2 Sample Selection Models of Change in Dispute Severity

The second test of the dynamic dyadic theory of conflict in this chapter has to do with dispute escalation and de-escalation. That is, given that a dyad has had one dispute – is the next dispute more or less severe (if it occurs), and by how much. We assess dispute severity with the same measure employed in Chapter Four, Diehl and Goertz’s BRL, but operationalize the dependent variable here as the change in BRL from one dispute to the next. The same four central hypotheses apply to this test. Table 5.4 displays the results from sample selection models of change in dispute severity. Like the
sample selection models in the previous chapter, the basic Oneal and Russett (1999) Kantian Peace equation serves as the selection equation,\textsuperscript{189} and I present two models, one with the alliance portfolio only operationalization of $\Delta$ Interest Similarity and another with the more complete operationalization of $\Delta$ Interest Similarity which includes UN voting. As with the repeated events duration model (above), and the models presented in Chapter Four, the results for either specification are very similar, so I will focus my interpretation on the more complete operationalization of $\Delta$ Interest Similarity in model 2.

The easiest hypothesis from the dynamic dyadic theory of conflict to assess is that there is a significant interaction between $\Delta$ Interest Similarity and $\Delta$ Capability Ratio in determining the escalation tendencies of repetitive disputes in disputatious dyads. The results in Table 5.4 strongly support hypothesis three, as the interaction terms is statistically significant. Again, this is important not only because it confirms the theoretical argument that the impact of $\Delta$ Capability Ratio is conditional upon $\Delta$ Interest Similarity, and vice-versa, but it also adds credence to portraying this portion of the theory in a 2 x 2 table.

A second central hypothesis holds that shifts toward interest similarity should be associated with de-escalatory conflicts, should any occur. In order to assess this hypothesis we again need to calculate how the coefficient on $\Delta$ Interest Similarity varies in magnitude and statistical significance as $\Delta$ Capability Ratio varies. This is done in\textsuperscript{189} As we can see, the Oneal and Russett (1999) equation is a much less robust predictor of further disputes than it is of first disputes. Since the focus is on the dependent variable in the outcome equation, however, I will have little to say about this.
Figure 5.6. This Figure tells a very similar story to Figure 5.4 in the dispute timing context. Shifts toward interest similarity are associated with de-escalatory disputes regardless of the shift in capability ratio; however, the coefficient is not statistically significant for the largest shifts toward balance. The coefficient is, however, statistically significant for most of the range of $\Delta$ Capability Ratio, and we can get a feel for the substance of this negative effect by assessing how much first differences in $\Delta$ Interest Similarity decrease the severity of further disputes with all other variables in the model, including $\Delta$ Capability Ratio, are held at their means. This is done in the first row of Table 5.5, using the same simulation techniques to put uncertainty around the expected changes in dispute severity. We can see that the first row of Table 5.5 offers support for hypothesis two, with shifts in $\Delta$ Interest Similarity producing the larger substantive changes in dispute (de)escalation than any other variable. For instance, a one standard deviation increase in $\Delta$ Interest Similarity (a shift toward interest similarity) produces a decrease of 52.64 points on the BRL scale. Recalling the range of change in BRL from Figure 5.2, -183 to 184, highlights this effect is substantively large. Moreover, we can be confident that the decrease is at least 50.4 on the change in BRL scale. Shifts toward interest dissimilarity (minus one and two standard deviations on $\Delta$ Interest Similarity), on the other hand, produce large increases in the change in BRL measure.

Hypothesis One holds that shifts toward a preponderance of military capability within disputatious dyads should be associated with increasingly severe disputes. In order to assess this hypothesis we, again, need to display the magnitude and statistical
significance of the \( \Delta \) Capability Ratio coefficient across the range of \( \Delta \) Interest Similarity. This is done in Figure 5.7. As we can see from that Figure, shifts toward preponderance are associated with escalatory disputes, regardless of the value of \( \Delta \) Interest Similarity, although the substantive effect, unsurprisingly, decreases as dyadic interests become more similar. In order to get a better idea of the substantive effects of \( \Delta \) Capability Ratio we consult the next three rows of Table 5.5, which show the effect of first difference shifts on \( \Delta \) Capability Ratio for the 25\(^{th}\), 50\(^{th}\), and 75\(^{th}\) percentiles of \( \Delta \) Interest Similarity. These three rows demonstrate strong support for hypothesis one in the context of escalatory tendencies within disputatious dyads. We can see that a one standard deviation shift toward preponderance increases the severity of the next dispute in disputatious dyads by almost 38 points on the change in BRL scale when \( \Delta \) Interest Similarity is at its 25\(^{th}\) percentile (shifting toward dissimilarity), almost 30 points when \( \Delta \) Interest Similarity is at its median (unchanged), and a little more than 22 points when \( \Delta \) Interest Similarity is at its 75\(^{th}\) percentile (shifting toward similarity). These changes are substantively significant given the range of the dependent variable, and almost as large as the substantive effects of changes in \( \Delta \) Interest Similarity.

Hypothesis Four states that the effect of \( \Delta \) Interest Similarity should be larger than the effect of \( \Delta \) Capability Ratio. The results in Table 5.5 are agnostic, as both variables seem to have a similarly large effect on changes in dispute severity. As should be familiar by now, the best way to assess this hypothesis is by placing our expected changes in dispute severity back in the 2 x 2 table, and seeing if the horizontal changes are greater than the vertical changes. This is done in Table 5.6, which displays the
expected change in dispute severity for the mid points of the four conditions, with 95% confidence intervals around those predictions. If the horizontal changes are larger, the effect of $\Delta$ Interest Similarity is larger than the effect of $\Delta$ Capability Ratio. As Table 5.6 shows, the horizontal changes (16, and 16.7) are slightly larger than the vertical changes (11.5, 12.2). Taken as a whole, Table 5.6 offers support for hypothesis four in the context of dispute (de)escalation. Dyads at the mid point of condition 4 (shifting toward dissimilar interests and preponderance) experience disputes that 14.2 points more severe on the change in BRL scale, whereas dyads at the mid point of condition 1 (shifting toward interest similarity and balance) experience disputes that we are 97.5% sure are at least 12.3 points less severe on the change in BRL scale.

Table 5.6 also provides strong support for the dynamic dyadic theory of conflict as a whole. Condition 4 is more conflictual than condition 3, 3 is more conflictual than condition 2, and 2 is more conflictual than condition 1. And, we can see again that the mid point of $\Delta$ Interest Similarity is the line of demarcation between disputes that increase in severity and disputes that decrease in severity. Overall, there is strong support for the dynamic dyadic theory of conflict in the context of dispute escalation and de-escalation.

We should also briefly say something about the control variables in the outcome equation portion of the sample selection model of change in dispute severity. As we can see in Tables 5.4 and 5.5 not many of the controls have either a statistical or substantive relationship with change in dispute severity, however there are a few that have very interesting relationships. First, note that increasing trade dependence within disputatious
dyads actually increases the severity of any further disputes. And, Table 5.5 shows that the substantive effect of this result is non-trivial. This not only lends support to the realist notion that increases in trade dependence heighten tensions, but also puts to proper scope conditions around the theoretical argument – it applies within disputatious dyads.

Second, several of the variables measuring the effect of previous disputes also have discernable influence on the change in dispute severity. As we hypothesized, when a previous dispute ends in a bad outcome, which are coded one for stalemates and/or disputes that were not settled, the next dispute is likely to be more severe. Table 5.5 shows that the substance of a bad outcome in a previous dispute is to increase the severity of the next dispute by a little over 8 points on the change in BRL scale. When the previous dispute ends by force, however, the next dispute is less severe. When one of the disputants has been defeated by force in the previous dispute, it seems that it is unlikely to escalate the next dispute to a severe level. Moreover, the substance of this de-escalatory factor is fairly large, as Table 5.5 shows. Finally, we again find little evidence that war weariness quells subsequent disputes. The war weariness coefficient in Table 5.4 is positive and significant, and Table 5.5 shows that a one standard deviation increase in war weariness increases the severity of the next dispute by a little over 25 points on the change in BRL scale.

5.7 Conclusion

This chapter has expanded the dyadic theory of conflict to cover two dynamic aspects of militarized interstate conflict – conflict timing and escalation tendencies. In
doing so, we have not only applied the theory to the complete definition of severe interstate conflict that was laid out in Chapter One, but we have found very robust support for all four of our central theoretical propositions. First, we have demonstrated that there is a statistically significant interaction effect between $\Delta$ Interest Similarity and $\Delta$ Capability Ratio in terms of both dispute timing and dispute (de)escalation. Results like these with two diverse dependent variables confirm that these two variables are conditionally related and assessing them in any other way is a misspecification. Second, we have shown that when disputatious dyads experience a shift toward greater interest similarity they have both a decreased likelihood of another dispute occurring and if this dispute does occur it is very likely to be less severe than the previous one, although support for this hypothesis is not unconditional as it was in Chapter Four. Third, the results presented here continue to overturn the conventional wisdom that dyadic preponderances of military capability are more pacific. In this chapter there has been clear evidence that shifts toward a dyadic preponderance of military capability not only cause an increased hazard of another dispute occurring, but also lead those disputes to be more severe than previous ones. Fourth, we have demonstrated that $\Delta$ Interest Similarity has a larger effect on conflict timing and escalation than does $\Delta$ Capability Ratio.\textsuperscript{190} This further confirms the theoretical argument that the degree of interest similarity between two states colors the meaning of the balance of military capabilities in important ways. In sum, the detailed quantitative tests in this chapter have not only demonstrated that both $\Delta$ Interest Similarity and $\Delta$ Capability Ratio have important independent effects on the

\textsuperscript{190} Although, again, support for this hypothesis was not as strong as it was in Chapter Four.
timing and escalation of militarized conflict, but they also have important interactive effects. The results presented in this chapter show the extent of these independent and interactive effects.

Expanding the dyadic theory of conflict to dynamic situations has had a number of advantages. First, the full complement of dependent variables examined here and in the previous chapter has exhausted our definition of severe interstate conflict. Not only have we now examined the severe conflicts that classical scholars were most concerned with, but we have also addressed the questions of lower-level conflict onset, timing, and escalation that have tended to dominate the more recent literature. Moreover, we have done so with appropriate and useful dependent variables. Second, whereas we demonstrated in the previous chapter that the dyadic theory of conflict applies in the very large-n setting of ‘all dyads,’ or all ‘politically relevant dyads,’ this chapter has shown that it applies just as well to the subset of interstate dyads that have experienced interstate conflict. This is an important contribution because it serves to incorporate the previously separate literature on interstate rivalries and recurrent conflict with the literature on capability balances and conflict. This not only serves to advance the rivalry literature in terms of rivalry dynamics, it also gives that literature a theoretical focus, which it had previously lacked. Third, the static and dynamic literatures on the relationship between capability balances and international conflict are really distinct literatures. Assessing both static (in Chapter Four) and dynamic (in this Chapter) models has demonstrated that the dyadic theory of conflict has purchase in both arenas, and has the power to unite these
previously separate literatures. Fourth, while there has been support for all four central hypotheses in the realm of disputatious dyads, the extent of support differs from the ‘all dyads’ framework of the previous chapter. This says something about when and how power matters in international relations. We will take this point, and others, up in the concluding chapter.
<table>
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<tr>
<th></th>
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**Table 5.1**: Repeated Events Duration Model of Dispute timing, Disputatious Dyads

1886-1992

(Continued)
Table 5.1 (continued)

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Note: Figures in parentheses are asymptotic x-statistics using standard errors clustered on the dyad.

***---p<=.01; **---p<=.05; *---p<=.10; two tailed tests
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<td>Δ Interest Similarity</td>
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<td>(Δ Interest Similarity = 75%)</td>
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<tr>
<td>(4.4, 5.2)</td>
<td>(2.1, 2.4)</td>
<td></td>
<td>(-3.0, -2.5)</td>
<td>(-5.6, -4.8)</td>
</tr>
<tr>
<td>11.71%</td>
<td>3.58%</td>
<td>Δ Common IGOs</td>
<td>-11.0%</td>
<td>-17.44%</td>
</tr>
<tr>
<td>(11.3, 12.2)</td>
<td>(3.5, 3.7)</td>
<td></td>
<td>(-11.3, -10.6)</td>
<td>(-18.0, -16.9)</td>
</tr>
<tr>
<td>3.07%</td>
<td>-4.78%</td>
<td>Distance</td>
<td>-18.73%</td>
<td>-24.91%</td>
</tr>
<tr>
<td>(2.5, 3.7)</td>
<td>(-5.7, -4.0)</td>
<td></td>
<td>(-22.0, -15.9)</td>
<td>(-29.1, -21.2)</td>
</tr>
<tr>
<td>-64.61%</td>
<td>-27.54%</td>
<td>War Weary</td>
<td>20.39%</td>
<td>52.23%</td>
</tr>
<tr>
<td>(-64.8, -64.5)</td>
<td>(-27.6, -27.5)</td>
<td></td>
<td>(20.3, 20.5)</td>
<td>(51.8, 52.6)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0</th>
<th>Binary Variables</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>--.--</td>
<td>Contiguity</td>
<td>-11.82%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-14.5, -9.1)</td>
</tr>
<tr>
<td>--.--</td>
<td>Major Powers</td>
<td>-3.81%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-5.3, -2.2)</td>
</tr>
<tr>
<td>--.--</td>
<td>Good Outcome</td>
<td>5.97%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5.3, 6.6)</td>
</tr>
</tbody>
</table>

**Table 5.2:** Changes to Hazard Rate of MIDs, Disputatious Dyads 1886-1992.

(Continued)
Table 5.2 (continued)

<table>
<thead>
<tr>
<th>0</th>
<th>Binary Variables</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>--.--</td>
<td>Bad Outcome</td>
<td>43.00% (41.6, 44.1)</td>
</tr>
<tr>
<td>--.--</td>
<td>Force Outcome</td>
<td>1.60% (1.1, 2.3)</td>
</tr>
</tbody>
</table>

Note: Figures in parentheses are 95% confidence intervals around the predicted hazard rate, and are percentages themselves however the % is omitted to conserve space.
Table 5.3: Four Conditions: Testing the Dynamic Dyadic Theory of Conflict on Dispute Timing

Note: Cell entries are hazard ratios from the exponentiated linear prediction $e^{(x\beta)}$ from Model 2 of Table 5.1 for the mid-points of the four cells. Figures in parentheses are 95% confidence intervals around each hazard ratio.
<table>
<thead>
<tr>
<th>Variable</th>
<th>(1) Alliance Portfolios Only</th>
<th></th>
<th>(2) Alliance Portfolios &amp; UN Voting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$Y_1$: MID Onset</td>
<td>$Y_2$: Δ Severity</td>
<td>$Y_1$: MID Onset</td>
<td>$Y_2$: Δ Severity</td>
</tr>
<tr>
<td>Δ Capability Ratio</td>
<td>-0.785** (0.309)</td>
<td>995.119 (684.754)</td>
<td>-0.796** (0.305)</td>
<td>1562.031*** (451.937)</td>
</tr>
<tr>
<td>Δ Interest Similarity</td>
<td>--.-- (531.283)</td>
<td>-794.899 (551.463)</td>
<td>--.--</td>
<td>-1118.343** (409.874)</td>
</tr>
<tr>
<td>Δ Capability Ratio*</td>
<td>--.-- (571.463)</td>
<td>-1004.826* (571.463)</td>
<td>--.--</td>
<td>-1623.568** (512.803)</td>
</tr>
<tr>
<td>Δ DemocracyL</td>
<td>-0.019** (0.007)</td>
<td>0.070 (1.173)</td>
<td>-0.019** (0.007)</td>
<td>0.210 (1.193)</td>
</tr>
<tr>
<td>Δ DependenceL</td>
<td>-5.922 (12.203)</td>
<td>2927.806** (1278.347)</td>
<td>-6.023</td>
<td>2908.656** (1333.349)</td>
</tr>
<tr>
<td>Δ Common IGOs</td>
<td>-0.002 (0.003)</td>
<td>0.274 (0.742)</td>
<td>-0.003</td>
<td>0.268 (0.719)</td>
</tr>
<tr>
<td>Contiguous</td>
<td>-0.290 (0.405)</td>
<td>-39.710 (26.439)</td>
<td>-0.292</td>
<td>-26.115 (27.923)</td>
</tr>
<tr>
<td>Log Distance</td>
<td>-0.095* (0.056)</td>
<td>-3.305 (3.505)</td>
<td>-0.096*</td>
<td>-1.815 (3.700)</td>
</tr>
<tr>
<td>Major Powers</td>
<td>0.409* (0.214)</td>
<td>11.180 (8.920)</td>
<td>0.406*</td>
<td>9.928 (8.143)</td>
</tr>
<tr>
<td>Allies</td>
<td>0.036 (0.040)</td>
<td>--.-- (0.040)</td>
<td>0.036</td>
<td>--.-- (0.040)</td>
</tr>
<tr>
<td>Territory</td>
<td>--.-- (5.397)</td>
<td>8.444 (5.987)</td>
<td>--.--</td>
<td>3.410 (5.987)</td>
</tr>
<tr>
<td>Actors</td>
<td>--.-- (0.888)</td>
<td>0.637 (0.836)</td>
<td>--.--</td>
<td>0.499 (0.836)</td>
</tr>
</tbody>
</table>

Table 5.4: Estimates of Dispute Onset and Change in Severity, Disputatious Dyads, 1886-1992

(Continued)
Table 5.4 (continued)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad Outcome</td>
<td>19.712**</td>
<td>6.464</td>
<td>21.212**</td>
<td>6.584</td>
</tr>
<tr>
<td>Force Outcome</td>
<td>-20.315**</td>
<td>7.262</td>
<td>-26.580**</td>
<td>7.454</td>
</tr>
<tr>
<td>War Weary</td>
<td>0.825***</td>
<td>0.046</td>
<td>0.820***</td>
<td>0.045</td>
</tr>
<tr>
<td>Post 1945</td>
<td>--.--</td>
<td>--.--</td>
<td>-13.625**</td>
<td>5.755</td>
</tr>
<tr>
<td>Counter</td>
<td>-0.217***</td>
<td>14.32</td>
<td>-0.216***</td>
<td>14.32</td>
</tr>
<tr>
<td>Spline1</td>
<td>-0.003***</td>
<td>9.58</td>
<td>-0.003***</td>
<td>9.58</td>
</tr>
<tr>
<td>Spline2</td>
<td>0.002***</td>
<td>6.94</td>
<td>0.002***</td>
<td>6.92</td>
</tr>
<tr>
<td>Spline3</td>
<td>-4.3e-5***</td>
<td>3.03</td>
<td>-4.3e-5***</td>
<td>3.03</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.610</td>
<td>0.460</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N(Observations) 13,880 13,880  
N(Uncensored) 579 579  
\( \rho \) 0.224 0.323*  
\( \chi^2 \) 519.43*** 541.93***  
Log Likelihood -5282.195 -5274.395  

Note: Static independent variables are used in the selection equations (Y₁), \( \Delta \) applies only to the independent variables in the outcome equations where indicated (Y₂).
Baseline Expected $\Delta$ Severity: 0.52 (-1.21, 2.22)

<table>
<thead>
<tr>
<th>Minus 2 SD</th>
<th>Minus 1 SD</th>
<th>Continuous Variables</th>
<th>Plus 1 SD</th>
<th>Plus 2 SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>78.11</td>
<td>34.45</td>
<td>$\Delta$ Interest Similarity</td>
<td>-52.64</td>
<td>-95.09</td>
</tr>
<tr>
<td>(75.5, 80.3)</td>
<td>(32.1, 36.7)</td>
<td>((\Delta) Cap. Ratio at Mean)</td>
<td>(-54.6, -50.4)</td>
<td>(-98.8, -92.6)</td>
</tr>
<tr>
<td>-80.74</td>
<td>-40.18</td>
<td>$\Delta$ Capability Ratio</td>
<td>37.89</td>
<td>77.03</td>
</tr>
<tr>
<td>(-83.2, -77.6)</td>
<td>(-42.5, -38.5)</td>
<td>((\Delta) Interest Similarity = 25%)</td>
<td>(36.0, 39.4)</td>
<td>(75.2, 79.4)</td>
</tr>
<tr>
<td>-89.67</td>
<td>-49.55</td>
<td>$\Delta$ Capability Ratio</td>
<td>29.37</td>
<td>68.87</td>
</tr>
<tr>
<td>(-92.0, -87.0)</td>
<td>(-52.3, -47.7)</td>
<td>((\Delta) Int. Similarity = 50%)</td>
<td>(27.5, 31.1)</td>
<td>(67.3, 71.1)</td>
</tr>
<tr>
<td>-98.25</td>
<td>-58.33</td>
<td>$\Delta$ Capability Ratio</td>
<td>22.35</td>
<td>61.97</td>
</tr>
<tr>
<td>(-100.9, -96.2)</td>
<td>(-61.1, -56.5)</td>
<td>((\Delta) Interest Similarity = 75%)</td>
<td>(20.4, 23.9)</td>
<td>(59.6, 63.8)</td>
</tr>
</tbody>
</table>

| 0.07       | 0.10       | $\Delta$ Democracy \_L | 0.67      | 0.64      |
| (-1.4, 2.0) | (-1.6, 2.1) |                      | (-0.9, 2.0) | (-1.2, 2.3) |
| 0.50       | 0.50       | $\Delta$ Dependence \_L | 28.63     | 57.40     |
| (-1.2, 2.2) | (-1.2, 2.2) |                      | (26.6, 30.1) | (54.4, 60.0) |
| 0.52       | 0.52       | $\Delta$ Common IGOs | 0.86      | 2.20      |
| (-1.2, 2.2) | (-1.2, 2.2) |                      | (-0.4, 2.9) | (0.3, 3.5) |
| 12.23      | 7.92       | Distance            | -2.94     | -9.53     |
| (10.3, 15.2) | (6.5, 9.3) |                      | (-5.1, -1.4) | (-12.1, -6.8) |
| -0.55      | -0.55      | Actors              | 3.29      | 7.04      |
| (-2.5, 0.6) | (-2.5, 0.6) |                      | (1.7, 5.5) | (5.1, 8.9) |
| -12.97     | -6.49      | War Weary           | 25.27     | 49.98     |
| (-14.9, -11.3) | (-8.1, -4.8) |                      | (23.6, 27.0) | (47.9, 51.6) |

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>Binary Variables</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.24</td>
<td>Contiguity</td>
<td>-18.00</td>
<td>(-20.3, -16.4)</td>
<td></td>
</tr>
<tr>
<td>(4.4, 8.1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.16</td>
<td>Major Powers</td>
<td>10.04</td>
<td>(8.5, 11.4)</td>
<td></td>
</tr>
<tr>
<td>(-1.7, 1.8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 5.5:** Changes to $\Delta$ Severity of Militarized Disputes, Disputatious Dyads 1886-1992

(Continued)
Table 5.5 (continued)

<table>
<thead>
<tr>
<th>0</th>
<th>Binary Variables</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.06</td>
<td>Territory</td>
<td>2.84</td>
</tr>
<tr>
<td>(-1.5, 1.7)</td>
<td></td>
<td>(-1.5, 4.3)</td>
</tr>
<tr>
<td>-1.42</td>
<td>Good Outcome</td>
<td>7.58</td>
</tr>
<tr>
<td>(-2.9, -0.2)</td>
<td></td>
<td>(5.7, 9.7)</td>
</tr>
<tr>
<td>-12.99</td>
<td>Bad Outcome</td>
<td>8.28</td>
</tr>
<tr>
<td>(-14.3, -10.7)</td>
<td></td>
<td>(6.7, 10.1)</td>
</tr>
<tr>
<td>8.35</td>
<td>Force Outcome</td>
<td>-18.44</td>
</tr>
<tr>
<td>(6.4, 9.8)</td>
<td></td>
<td>(-20.3, -16.8)</td>
</tr>
</tbody>
</table>

Note: 95% Confidence Intervals in parentheses.
Table 5.6: Four Conditions: Testing the Dynamic Dyadic Theory of Conflict on Change in Dispute Severity

<table>
<thead>
<tr>
<th></th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 3</th>
<th>Condition 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-14.0</td>
<td>-1.8</td>
<td>+2.7</td>
<td>+14.2</td>
</tr>
<tr>
<td></td>
<td>(-15.5, -12.3)</td>
<td>(-3.3, -0.2)</td>
<td>(1.1, 3.9)</td>
<td>(12.4, 16.3)</td>
</tr>
</tbody>
</table>

Note: Cell entries are predicted change in dispute severity from the linear prediction (xβ) of the outcome equation from Model 2 of Table 5.4 for the mid-points of the four cells. Figures in parentheses are 95% confidence intervals around the change in expected dispute severity.
<table>
<thead>
<tr>
<th>Direction of Change</th>
<th>Which State is Changing?</th>
<th>Logic by Which That State Can Initiate Conflict</th>
</tr>
</thead>
</table>
| Shift Toward Preponderance | Stronger Side Increasing | • Domination Logic  
                               |                                           | • Classical BOP Theory |
| Shift Toward Preponderance | Weaker Side Decreasing | • Preventive War Logic  
                               |                                           | • Expected Utility Theory |
| Shift Toward Parity    | Stronger Side Decreasing | • Preventive War Logic  
                               |                                           | • Expected Utility Theory |
| Shift Toward Parity    | Weaker Side Decreasing | • Status Inconsistency Logic  
                               |                                           | • Power Transition Theory |

**Figure 5.1:** Dyadic Capability Shifts and Diverging Conflict Expectations
Least Conflict Constraints:
↑Balanced Power
↑Similar Interests

Balanced Power

More Conflict Constraints:
↑Balanced Power
↑Similar Interests

Most Conflict Constraints:
No Constraints

Least Conflict Constraints:
Constraints: 
↑Similar Interests

Conflict Expectations: (4) > (3) >> (2) > (1)

Figure 5.2: A Dynamic Dyadic Theory of Conflict
Figure 5.3: Distribution of Change in Baseline Rivalry Level (BRL)

N = 1949
Mean = .0073
Median = 0
Skewness = -.021
Kurtosis = -.028
**Figure 5.4:** $\Delta$ Interest Similarity $\beta$ Conditional on $\Delta$ Capability Ratio for the Timing of Dispute Occurrence
Figure 5.5: $\Delta$ Capability Ratio $\beta$ Conditional on $\Delta$ Interest Similarity for the Timing of Dispute Occurrence
Figure 5.6: Δ Interest Similarity β Conditional on Δ Capability Ratio for the Change in Dispute Severity
Figure 5.7: Δ Capability Ratio β Conditional on Δ Interest Similarity for the Change in Dispute Severity
CHAPTER 6

CONCLUSION

6.1 Introduction

Based on the tests conducted in the previous three chapters, the dyadic theory of conflict has proven to be a powerful explanation for conflict between states. The dyadic balance of military capabilities, the level of dyadic interest similarity, and the interaction between those two variables helps explain not only the onset of militarized conflict, but also the severity, timing, and escalation tendencies of those conflicts. The first section of this conclusion will review the degree of support for the four central hypotheses from each of the tests we have conducted. While this may be viewed as somewhat of a formality, it will give us the opportunity to compare the results across chapters – a process that will yield some interesting additional conclusions.

The second section of this chapter builds on these conclusions and places the dyadic theory of conflict within a larger debate in the field of international relations - namely, the recent debate between liberal and realist scholars. I argue that the above analysis not only casts doubt on a core claim made by liberal scholars, but also sheds significant light on a key empirical question emerging from the debate. The third section
of this chapter begins to do that through a critique of the data that has been employed in
the previous chapters, and notes some research that is currently underway that seeks to
address these shortcomings. The fact that this research is ongoing, however, should not
stop us from seeking to expand the dyadic theory of conflict beyond the dependent
variables that have been tested in the previous chapters. The fourth, and final, section of
this chapter explains how this could be done both by placing the dyadic theory of conflict
within the larger realist research program and by making the dyadic theory of conflict a
dyadic theory of cooperation.

6.2 Summary of Findings

Table 6.1 presents a summary of the findings on the dyadic theory of conflict
from the last three chapters. A short version of each of the four central hypotheses is
located along the top of the table (the last four columns), with the dependent variables
from Chapters 3, 4, and 5 listed at the left of each row. Each cell located in the last four
columns indicates the degree of support for the hypothesis at the heading of the column
with respect to the dependent variable for that row.

A white circle means there was no support for that particular hypothesis on that
particular dependent variable. As it should have been easy to see from the discussion in
the past three chapters, and is easy to see in Table 6.1, none of the four central hypotheses
fails to receive support, regardless of the particular dependent variable, and many of the
hypotheses receive strong support. This represents a strong level of support for the
theory as a whole, and indicates it is a robust explanation for many varied types of
All of the hypotheses receive either support (grey circle) or strong support (black circle) in the empirical tests. For our purposes here, the difference between support and strong support is that the latter is unconditional and unequivocal. That is, if there is strong support the hypothesis holds across all values of the two key independent variables for the particular dependent variable. Support indicates the hypothesis was confirmed either over the vast majority of cases, or in those cases in which it was most essential that it apply. A brief discussion of the findings, broken up by chapter, should make this differentiation more clear.

Chapter Three, after assessing the face validity of the operationalizations of the two key variables, probed the plausibility of the four central hypotheses with descriptive and non-parametric statistics. We, of course, cannot say whether a particular hypothesis is fully supported by these probes, but we can say whether the hypothesis appears plausible on its face.191 This chapter investigated both the occurrence and timing of MIDs, Severe MIDs, and Wars. There was strong support for hypothesis two with any of the six dependent variables – dyads with greater levels of interest similarity had fewer MIDs, Severe MIDs, and Wars, and also tended to have longer durations of peace between these conflictual events.

There was also strong support for hypothesis three. With all six of the dependent variables it was obvious that there was an important conditional relationship between the dyadic balance of military capabilities and the dyadic level of interest similarity. The fact

191 I believe this is an essential task given that the first hypothesis, that balances are more pacific than preponderances, runs counter to the prevailing wisdom.
that there was variation across the four conditions in Figure 3.9 implies that the effect of either variable is conditional on the value of the other. For instance, dyadic preponderances of power were very conflictual when dyadic interest similarity was low, but dramatically less conflictual when dyadic interest similarity was high. This result was echoed in Figures 3.10 to 3.12, which showed the effect of the each key independent variable on conflict timing varied according to the value of the other key variable. If there was no conditional relationship between relative military power and dyadic interest similarity the survivor functions would have been right on top of each other. This is not the case. Such conditionality is clearly supportive of the inclusion of an interaction term between these two variables.

Hypothesis Four, which states that interest similarity is more important than relative power, also received strong support in this chapter. Perhaps the best example of this was the stark difference between Figures 3.7 and 3.8. Dyads with relatively high interest dissimilarity (the bottom two deciles of the interest similarity score in Figure 3.8) experienced most of the interstate conflict, whereas cases of conflict were fairly uniformly spread over the 10 deciles of the capability ratio variable. This latter fact indicated somewhat weaker support for hypothesis one, which holds that balances are more pacific than preponderances. However, it was clear that there was still support for this hypothesis both because it would be virtually impossible to argue the converse (that preponderances are more pacific) from the information conveyed in Figure 3.7, and it was clear that when interests were dissimilar (where most interstate conflict occurs) balances were less conflictual than preponderances (see Figure 3.9).
The results from Chapter Three gave a good amount of confidence in the four central hypotheses as we moved to the multivariate tests of the theory. These began in Chapter Four. In that chapter, I argued that the best way to study particular instances of dyadic conflict was to have a continuous measure of conflict severity, as opposed to collapsing every conflict into a single dummy variable. Sample selection models were used to conduct the tests in this chapter because of the concern that selection bias would become an issue were we to look only at the dyads that had a conflict. The support for the four central hypotheses mirrored the support received in the plausibility probes in Chapter Three.

The argument that there is a meaningful interaction between the balance of military capabilities and dyadic interest similarity (hypothesis three) was clearly supported in the multivariate tests in Chapter Four by the presence of a statistically significant interaction term. Hypothesis Two, that dyads with similar interests will have less severe disputes, was also strongly supported in both Figure 4.2 (which showed the coefficient on interest similarity was negative and statistically significant regardless of the balance of military capabilities) and in Table 4.4 (which showed the substantive effect of interest similarity was quite large, and in fact, larger than any other variable in the outcome equation). The results from Table 4.4, along with the fact that the horizontal differences were greater than the vertical differences in Table 4.5, lend strong support to the notion that interest similarity has a greater effect on conflict severity than the balance of military capabilities (hypothesis 4). It was only hypothesis one, which states that balances are more pacific than preponderances, that failed to receive the strongest
possible support, as a dyadic balance of power was not unconditionally related to less severe disputes. Nevertheless, there was still support for that hypothesis because balances of power were related to less severe disputes when interests were dissimilar (Figure 4.3 and Table 4.5), which is precisely where most conflicts tend to occur.

The strong support for the dyadic theory of conflict was bolstered by adding a dynamic element to the model in Chapter Five, where we limited to the investigation to only those dyads with a history of militarized conflict. There was still a significant interaction effect between changes in the balance of military capabilities and changes in the dyadic level of interest similarity in models of both conflict timing and dispute (de)escalation. This adds further support to hypothesis three. The robust support for this hypothesis across operationalizations of the dependent variable strongly suggests that any test of the ‘balance-preponderance’ question that does not include an interaction with interest similarity is misspecified. This critique is significant because it applies to the vast majority of the literature on this important question.

Interestingly, the level of support for the other three hypotheses differs in Chapter Five. This says something about when and how the balance of military capabilities and dyadic interest similarity matter for different types of dyads. First, note that hypothesis one, which states (in this case) that shifts toward a balance of military capabilities are more pacific than shifts toward a preponderance of military capabilities, receives unequivocally strong support from the two tests in Chapter Five. Shifts toward a balance of military capabilities are related to a decreased hazard of disputes, and to less severe disputes should further disputes occur, regardless of the change in dyadic interest
similarity. This differs from the findings in the previous two chapters. Another difference concerns hypothesis two. Shifts toward interest similarity are not unconditionally related to a decreased hazard, or de-escalation, of further disputes regardless of the shift in the balance of military capabilities. While support for hypothesis two had been unequivocal in the previous chapters, here it is only supported when the dyad is shifting toward preponderance.\footnote{Although, as Figures 5.4 and 5.6 show, the coefficient on $\Delta$ Interest Similarity is always negative. Moreover, since the test of hypothesis one, in this case, indicates that preponderances are unequivocally more conflictual, the finding that shifts toward interest similarity are significantly pacific only when they accompany shifts toward preponderance highlights support for hypothesis two where it matters most.} Finally, while there was support for the argument that shifting interest similarity should have a stronger effect on dyadic conflict than shifting capability ratios (hypothesis four), that support was weaker in Tables 5.3 and 5.6 than it was in the 2 x 2 table in Chapter Four. And, whereas the predicted probabilities in Table 4.4 showed a significant difference in the substantive effects of interest similarity versus capability ratio, the predicted probabilities in Tables 5.2 and 5.5 show a much smaller substantive difference between the effects of our two key independent variables in the subset of disputatious dyads.

Why is there a difference in the results between Chapter Five and the other Chapters, and what does this tell us about the key variables in the dyadic theory of conflict? It tells us that the balance of military capabilities, or more specifically shifts in the balance of military capabilities, is more important in dyads with a history of conflict.\footnote{This makes sense because it is likely to be these dyads that are most sensitive}
to changing military balances by virtue of their conflict history. Put differently, interests matter relatively less than military capabilities when threat within the dyad is most obvious. This strengthens our faith in the general thrust of hypothesis one, which states balances are more peaceful than preponderances, because it is in the dyads that are most sensitive to shifts in the ratio of military capabilities that balances have their most obvious pacific effect. This fact explains the strong support for Hypotheses One, and the somewhat equivocal support for Hypotheses Two and Four.

An important lesson from this dissertation is that the ability to make such detailed statements about when certain distributions of power within a dyad will make conflict more, or less, likely is not possible unless we posit a conditional relationship between the power variable and a variable measuring interests. This is what classical theory tells us to do, and when we do it we are rewarded with rich findings that help us to answer the longstanding ‘balance-preponderance’ question. Simply having measures of both variables and interacting them, however, is not enough. Several studies have already done this, but they lack continuous measures that allow them to assess the true conditional impact of both variables. This is why the results reported here differ from, and in fact improve upon, the existing literature.

193 Recall that the analysis in Chapter Five is on only those dyads that have had at least one militarized dispute in their history.
6.3 The Dyadic Theory of Conflict and a Larger Theoretical Debate

This dissertation has largely been about answering the ‘balance-preponderance’ question. While this is a fairly narrow question, its centrality to research on international conflict makes it worth detailed examination. By taking a step back, however, we can see that the dyadic theory of conflict has implications for broader questions as well. In the introduction I noted the dyadic theory of conflict is a realist theory because it uses the two central variables within the realist paradigm, power and interests, to explain interstate conflict. By incorporating interests into a power based explanation for international conflict, the dyadic theory of conflict confronts a larger theoretical debate between scholars operating within the realist paradigm and those working within the liberal paradigm. Specifically, it directly confronts a core claim of modern liberal theory and it offers an answer to one of the key questions that is at stake in the debate between these two paradigms. I address each in turn.

In a 1997 article in the journal *International Organization*, Andrew Moravcsik offered what many have taken to be the definitive modern statement of liberal theory. This rich article advances many claims, but for our purposes here the most important is the liberal take on the differentiation between liberal and realist theory. Moravcsik (1997, 536-7) asserts that the key difference between the two paradigms is that realist scholars hold state interests constant and vary power, whereas liberal scholars hold state
power constant and vary interests.\footnote{Moravcsik uses the term ‘preferences’ rather than ‘interests.’ I view these terms as largely synonymous. I should also point out that Moravcsik would not agree that I have a measure of preferences, as he argues that who you ally with, or fight with, or vote with in the United Nations is a strategy, not a preference. For him, preferences are more innate properties of societal actors. Until liberal theorists propose a micro-foundational approach to measuring preferences, observing ‘strategies’ is the best we can do to get at the underlying concept.} In a later article with a co-author (Legro and Moravcsik 1999), Moravcsik takes realist scholars to task for violating this strict definition of realist theory by including variation on other variables, like interests, in their causal explanations. This critique was greeted with an acrimonious response by several realist scholars (Feaver et al. 2000), and debate on the question continues to be a hot topic.

This dissertation sheds light on this debate in two ways. First, as should be abundantly clear by virtue of the discussion in the first chapter, classical realist scholarship contains a rich history of using variation in state interests to explain international outcomes. For instance, Figure 1.1 shows that for the Dean of classical realist scholarship, Hans Morgenthau, variation in interests was not only an important part of the explanation for international conflict it was the explanation for international conflict. Several other prominent realists who allow state interests to vary were also cited in Chapter One, as were prominent neo-classical realists who have continued this tradition. The modern liberal critique glosses over the fact that realists incorporate varying interests in their work because it conflates all realist scholarship with one of its many flavors – namely Neorealism (Waltz 1979). Neorealism is the only strand of realist scholarship that holds state interests constant. The modern liberal account of the
differences between realist and liberal scholarship is at least misguided and at most just plain wrong, and this dissertation shows why this is the case.

Second, the research presented above shows that even if we accepted the modern liberal claim about the dichotomy between liberal and realist scholarship, there is absolutely no reason to be bound by it. If we were, we would miss one of the central conclusions of this dissertation. One of the virtues of well constructed research designs is that variation is achieved on all independent variables (King, Keohane, and Verba 1994). There is no reason to constrain one of the two key variables to be a constant. In fact, by following the modern liberal claim and pigeonholing this dissertation into one of the two theoretical camps we would have missed out on the finding that there is a conditional relationship between power and interests when it comes to international conflict. This would have not only been a loss in its own right, the claim that there is a conditional relationship between these two variables is central to many international relations theories that should be tested, but without the conditional test we would not have been able to say something about the relative importance of power and interests. This is the empirical part of the realist-liberal debate which this dissertation sheds a great deal of light on.

195 A further virtue of quantitative analysis, which is the type I employ, is that we may achieve variation on our central variables and a host of control variables in a multivariate setting for a large number of cases. This enables us, when we take substantive interpretation seriously, to say something about the relative importance of our central variables with respect to the control variables. For instance, in the results we reported above we were able to say that the two key variables, power and interests, had a much larger substantive effect on conflict than the popular Kantian Peace troika of democracy, trade, and international governmental organization membership.
Ultimately what is most interesting, in my view, is not the explicit labeling of ‘core assumptions’ of distinct ‘paradigms.’ This may be an important task, but it is not clear how that task helps us to answer important questions in an interesting way. One important question that has been answered here, and I would submit it has been answered in an interesting way, is whether interests or power have a greater effect on interstate conflict. If we take the modern liberal dichotomy between realism and liberalism at face value, this is the defining question on which the debate between the two paradigms should turn. If we reject the dichotomy, as I do, this question is still vitally important because the two variables are central parts of many theoretical explanations of conflict and, as of yet, their relative importance has not been apportioned.

Through the tests conducted above we were able to establish three findings that should be vitally important to all parties to the paradigmatic debate. First, power and interests have a larger substantive effect on various types of conflict than do all other control variables. These control variables include measures associated with the popular Kantian Peace school (regime type, trade, and international institutions), geographic variables (contiguity and distance), dispute specific variables (issue type and number of disputants), and variables associated with the outcome of previous disputes. In all cases, the two key variables have a greater substantive effect and give a relatively parsimonious and powerful explanation of international conflict. Since both variables have proven to be important, a narrow focus on either is unwarranted and unwise.

Second, we were able to establish that in most cases interests have a greater effect on conflict than power. Far from affirming the liberal position, however, this result gives
substantial support to classical realist theory which privileged the position of interests in explanations of interstate conflict. Third, and perhaps most importantly, we were able to show that the relative importance of the two key variables is reversed when the focus was on disputatious dyads, the subset of all dyads with a history of conflictual relations. This result establishes when considerations of relative power matter most – when the level of threat in the dyad is the highest. This is a finding that also squares with realist theory (Schweller, 2003). Taken as a whole, these points illustrate that the dyadic theory of conflict not only speaks to the relatively narrow ‘balance-preponderance’ question, but also relates to one of the major, ongoing, paradigmatic debates in the field.

6.4 Future Research: Better Operational Indicators

The focus of this dissertation has been on quantitative models of international conflict. As I mentioned above, this is a virtuous pursuit because it allows us to achieve variation on several variables and discuss their relative substantive importance with a degree of precision. If we are to proceed with the quantitative investigation of current theoretical claims, one of the items that should be high on the agenda is attaining better measures of our key concepts. While the measures of relative power and interest similarity used in this dissertation meet, or exceed, the disciplinary standard, both can be substantially improved. I discuss each in turn.

Capability ratio measured with the Correlates of War Project’s (COW) Composite Index of National Capabilities (CINC), our measure of the concept of power, has been employed in tens, if not hundreds, of international relations studies over the past three
decades. It is the state of the art. Moreover, the care taken in operationalizing the
concept in Chapter Two should inspire confidence that the right choices were made.
However, the COW CINC has one large weakness that should be remedied: its lack of
change over time. While its consistency is an admirable quality, there is little doubt that
some of the six component measures (military personal, military spending, iron (pre
1895) or steel (since 1895) production, energy consumption, total population, and urban
population) have waxed and waned in importance over time. The demographic measures,
in particular, are suspect. There is no doubt that a large population in the 19th century
was a boon to a nation’s military power, but in the latter half of the 20th century
populations in some states have become so large that they could arguably be considered a
drain on national power and definitely distort the measure. Consider, for instance, the top
five states on the newest version of the data in 2000: United States (.146), China
(.123), Russia (.116), India (.064), Japan (.052). There is no doubt that the relatively
large populations of China and India dramatically improve their ranking (note the
absence of Germany, France, and the United Kingdom from the top five); and distort
their relative score (which in China’s case is very close to the United States). This
problem is compounded by the lack of a true measure of technological prowess. This is a
component of national power that has proven very important on the battlefield in the past
decade. Work using factor analytic techniques (Sweeney 1999) demonstrates that the
current components of the COW CINC most plausibly related to technological

196 Version 3.0 of the COW CINC was released in 2003 and contains data on all states from 1816 to 2001. Version 2.1, which contained data on all states from 1816 to 1993, was used for the analysis in the previous chapters.
development (energy consumption, and to a lesser extent, steel production) correlate more with the military indicators than on a separate technological factor. Work should be done to decrease the weight of the demographic measures and add an explicitly technological component. Perhaps urban population could be removed from the measure and a variable like telephone lines, patents granted, or research and development funding could be put in its place.

Work also needs to be done on the interest similarity measure. The measure employed in this dissertation is, in fact, beyond the state of the art. Research has shown that $S$ is a superior to the standardly used $\tau_a$, as a measure of similarity (Signorino and Ritter 1999), and this is one of the few studies that uses $S$. Moreover, it is near universal practice to rely on alliance portfolios alone, regardless of the measure of similarity employed. This is problematic, as we detailed in Chapter Two, because states do not always express their preferences through their alliance policies and because alliances are a relatively rare occurrence. We have improved upon that here by combining alliance portfolios, MID portfolios, and United Nations voting portfolios in our $S$ score. This brokers against both of the potential problems with relying solely on alliance portfolios, however, work still needs to be done.

National interests are still a fuzzier concept than national power, and we lack a true, or at least agreed upon, multidimensional measure in the discipline. Sweeney and Keshk (2004) begin to address this problem by forming a multidimensional indicator of interest similarity using several aspects of revealed preferences which include: trade, regime type, International Governmental Organization memberships, and diplomatic
missions, in addition to the measures used in the preceding chapters. This research holds the promise of arriving at a multidimensional indicator of interest similarity that rivals the COW CINC on the power variable. This is a very important task because in the preceding chapters we have been able to establish that interest similarity is as important, if not more important, than power when it comes to interstate conflict.

6.5 Future Research: Improving and Extending the Dyadic Theory of Conflict

The dyadic theory of conflict has focused on two distinctly realist variables, power and interests, to offer a parsimonious and powerful explanation for interstate conflict. These two parts of realist theory were plucked and tested both because they are the most important concepts in realism and because the type of detailed analysis that was needed required a relatively narrow focus. Their choice, however, implies that I have implicitly taken a stand on a central debate within realism. My stand suggests a possible way in which the theory can be augmented to explain aberrant cases.

Realist theory can be divided into two strands, offensive and defensive, based on the author’s beliefs about the nature of the international system (Snyder 1991, Glaser 1996, Brooks 1997, Taliaferro 2000/2001). Defensive realists believe that the anarchic nature of the international system only sometimes provides incentives for expansion (see below), whereas offensive realists believe that the anarchic nature of the international system always provides incentives for expansion. As Mearsheimer (2001, xi-xii) frames the offensive realist position, “[a state’s] ultimate aim is to gain a position of power over
others, because having dominant power is the best means to ensure one’s own survival. Strength ensures safety, and the greatest strength is the greatest insurance of safety.”

One need look no further than hypothesis one to confirm that there are significant aspects of offensive realism underlying my argument. Dyadic preponderances of power are dangerous precisely because the stronger state will seek to press its advantage to further increase its security. Such a move often involves military conflict because the weaker state is likely to fight in order to check the power of its stronger adversary. In my theory this will to power is checked by only two constraints: balanced power and similar interests. The former is a constraint because balance power makes victory uncertain for either side, the latter because common interests are put in jeopardy when conflict threatens to break out. Barring these constraints conflict, severe conflict, recurrent conflict, and escalatory conflict are likely. The results from our empirical investigation have shown this to be the case, and I believe it is how the world works.

This is not, however, how the world always works. If it was, all of the conflict we observed would be located in condition 4 (preponderant power, dissimilar interests), and none of the conflict we observe would be located in condition 1 (balanced power, similar interests).197 Relaxing the offensive realist assumption that states always seek to maximize their power in future work could allow the incorporation of additional realist concepts to explain the cases we missed. There are several other aspects of realist theory,

197 For instance, as Figure 3.9 shows 50 of 770 dyad years of war occur in dyads that have similar interests (conditions 1 and 2). The fact that this is a fairly small percentage explains some of the strong statistical results, but the percentage is not zero.
specifically defensive realist theory, which could be incorporated into the dyadic theory of conflict to offer a richer explanation that has this potential to explain aberrant cases.

While we have been able to firmly establish that dyads with similar interests are dramatically less likely to experience conflict, it is not the case that such dyads experience no conflict (see Figure 3.9). Defensive realism offers a ready explanation for these aberrations. A primary focus of the defensive realist argument is that under anarchy states are uncertain about each other’s future intentions (Jervis 1978). Even today’s friend may be tomorrow’s enemy. This condition forces states to constantly seek to increase their security, one way this can be accomplished is by increasing power through arming. Under the uncertainty generated by the anarchic international environment this creates a dilemma in which (Jervis 1978, 178), “the means by which one state tries to increase its security decreases the security of others.” This is all fairly consistent with the assertions of offensive realism.

For defensive realists, however, the effect of the security dilemma varies. Its harshness varies by the extent offensive or defense weapons are dominant and the extent that these two types of weapons can be distinguished from one another.\(^{198}\) When defensive weapons dominate and can be distinguished from offensive weapons, security seeking states can live in relative harmony and do not need to maximize their relative power to achieve security. This is the notable difference between offensive and defensive

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\(^{198}\) Offensive weapons are those which make it easier to take territory in battle, and defensive weapons are those which make it easier to defend territory in battle. There is a vast literature defining what types of weapons systems and technological innovations fall into each category. Moreover other variables, such as geography, national cohesion, cumulativity of resources, and military doctrines have also been added to definitions of the offense-defense balance (see Quester 1977 and Lynn-Jones 1995 for an overview). For our purposes I will simply assume that some of both types exist.
realism. The dilemma is more severe when offensive weapons dominate, because that makes aggression attractive. This deleterious effect is mitigated if offensive and defensive weapons are distinguishable because states can at least tell if they are dealing with an aggressive adversary by observing the type of weapons it procures. The dilemma is at its most intractable when offensive weapons dominate and they are indistinguishable from defensive weapons, because no state can be sure what type of adversary it is dealing with and all states must be on their guard. It is under this condition that aggression and expansion are attractive, even to pure security seekers who only want to defend what they have, because an aggressive foreign policy may be the only way to attain the power to achieve that goal (Jervis 1978, Glaser 1997).

Being caught on the horns of a security dilemma could certainly explain why two states with similar interests would find themselves in a conflict, and at least one prominent scholar (Van Evera 1999) has argued that the balance between offensive and defensive weapons in the international system offers a powerful explanation for interstate conflict. This suggests a future direction in which the dyadic theory of conflict can go to explain the aberrant cases, but several shortcomings in the offense-defense literature must be addressed before this is possible. Critics of offense-defense theory argue it is imprecise, hard to measure, and may not even be a property of the international system (Goddard 1998/9, Betts 1999, Biddle 2001). All three critiques present a problem for incorporating offense-defense theory into the dyadic theory of conflict given the methodology that has been used (although, for an attempt see: Gortzak, Haftel, and
Sweeney, 2004). It might be best to assess the effect of the offense-defense balance with detailed case studies (e.g. Christenson and Snyder 1990), but even if we were to undertake such a task more work on offense-defense theory must be done. Doing such work, however, would be worthwhile because it offers the potential to explain why a pair of states with similar interests would find themselves in conflict.

Even before this work is done, however, it is possible to expand the dyadic theory of conflict beyond its current limits. Such an extension is desirable. The dyadic theory of conflict is a realist theory of international relations because it relies on the two key variables in realism to explain conflict. Realist theory, however, is as much about international cooperation in the form of alliances as it is about conflict. Our two key variables have much to say, some of which is quite novel, about alliance behavior as well.\footnote{As a matter of fact, an entire chapter on the subject of the relationship between power, interests, their interaction and alliance formation and duration has been written, but is not included here. This brief discussion draws on that chapter (Sweeney, n.d.).} Indeed, we could use them to formulate a dyadic theory of cooperation.

Almost fifty years ago Haas and Whiting (1956, 167-8) argued, “Two factors determine choice of [alliance] partners: power and interests. Since the purpose of an alliance is to augment the power of an elite unable to attain its ends unilaterally, the ally must be strong. However, the interest of the ally must not preclude utilization of his power in behalf of the alliance. Similarity of interest without sufficient power can accomplish nothing; conversely strong allies whose interests remain incompatible cannot remain in harmony… it is not power or interest, but power and interest which determine an effective alliance.” Other classical realist works on alliances have made the same
point (Liska 1962, 27; Rothstein 1968: 63). Moreover, modern theoretical work on alliances has continued to maintain the focus on these two variables. For instance, Snyder (1996) and Schweller (1998) have made significant theoretical advances on the questions of alliance formation and duration using models derived from a focus on power and interests.

What is odd is that no quantitative study of alliance formation or duration has yet followed suit. It is not that we do not have good quantitative studies of alliance formation (see: Lai and Reiter 2000), alliance duration (see: Bennett 1997), or alliance dynamics in general (see: Leeds et al. 2000, Sweeney and Fritz, forthcoming), but none of these studies explicitly examines how the balance of military capabilities between two states effects their likelihood of allying, or staying allied. And none of these studies, except Sweeney and Fritz (forthcoming), explicitly examines whether the level of interest similarity between states effects the prospect for an alliance between them, or the duration of that alliance once it is formed. Preliminary research (Sweeney, n.d.) indicates that our two key variables are central to questions of dyadic alliance formation and duration, and offer the potential to unite explanations of both under one theoretical and empirical framework. This is an area into which the dyadic theory of conflict should be pushed.
<table>
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<th>Dependent Variable</th>
<th>Chapter</th>
<th>Method</th>
<th>H1: Dyadic balances of power are more pacific than preponderances of power</th>
<th>H2: Dyads with similar interests are more pacific than dyads with dissimilar interests</th>
<th>H3: There is a significant conditional relationship between power and interests</th>
<th>H4: Interests are more important than power in determining dyadic conflict</th>
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Table 6.1: A Summary of Results from Tests of the Dyadic Theory of Conflict
APPENDIX A

Indices of National Capability

The German Index: National Capabilities = N(L+P+I+M)

Where: N is scored 2 if the state has nuclear weapons, 1 if the state does not.

\[ L = \frac{T}{D} \]

Where: \( T = \) territory in 1000s of km\(^2\).

\[ D = \text{density} = (dp)(dr). \]

\( dp = \) population density, scored: 5 if population density > 200/ km\(^2\)

10 if 30/ km\(^2\) \( \leq \) population density \( \leq \) 200/ km\(^2\)

20 if population density < 30/ km\(^2\)

\( dr = \) railway density, scored: 1.00 if each km of rail net serves \( \leq \) 30 km\(^2\)

1.25 if each km of rail net serves 31-75 km\(^2\)

2.00 if each km of rail net serves 76-150 km\(^2\)

3.0 if each km of rail net serves \( \geq \) 151 km\(^2\)

\[ P = (W)(E) + A \]

Where: \( W = \) workforce in millions

\( E = \) technical efficiency, scored: 1 if \( C < 0.5 \)

2 if 0.5 \( \leq C < 1.5 \)

3 if 1.5 \( \leq C < 3.0 \)

4 if 3.0 \( \leq C < 5.0 \)

5 if \( C \geq 5.0 \)

Where \( C = \) national consumption of energy measured in terms of tons of coal equivalent per head per year.

\[ A = \text{adjustment on workforce} = a_m + a_s + a_f \]

Where:

\( a_m = \) adjustment for workforce in manufacturing

\( a_s = \) adjustment for morale

\( a_f = \) adjustment for food surpluses or deficits

\[ I = (R)(S) + B \]
Where: \( R = \) resources = \( r_t + r_c + r_l + r_o + r_e \)

Where: \( r_t = \) steel production in metric tons per year (millions)
\( r_c = \) coal production in metric tons per year (millions)
\( r_l = \) lignite production (5,000,000 metric tons per year)
\( r_o = \) crude oil production (million metric tons per year)
\( r_e = \) hydroelectricity in millions of ton coal equivalent

Where: \( S = \) presence or absence of directed economy
scored 2 if directed, 1 if not directed

Where: \( B = \) adjustment on resources = \( b_s + b_o + b_m + b_e \)

Where: \( b_s = \) index of surplus or deficit in steel
\( b_o = \) index of surplus or deficit in oil
\( b_m = \) index of surplus or deficit in minerals
\( b_e = \) index of surplus or deficit in engineering

\[ M = \text{number of military personal in 100,000s} \]

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\(^{200}\) Each scored on the following criteria: .1(RS) if large surplus; .05(RS) if surplus; 0(RS) if neither surplus of deficit; -.5(RS) if deficit; -.1(RS) if large deficit.
The Cline Index: Perceived Power = (C + E + M)*(S + W)

C = Critical Mass = Population + Territory

Where: Population = 5 for countries with populations over 100 million
       4 for countries between 50 and 100 million
       3 for countries between 20 and 50 million
       2 for countries between 15 and 20 million
       1 for countries between 12 and 15 million
       0 for countries below 12 million

Territory = 5 for countries with area over 3.5 million miles$^2$
          4 for countries between 1 and 3 million miles$^2$
          3 for countries between .5 and 1 million miles$^2$
          2 for countries between 250 and 500 thousand miles$^2$
          1 for countries between 94 and 250 thousand miles$^2$
          0 for countries below 94 thousand miles$^2$

E = e1 + e2 + e3 + e4 + e5 + e6

Where: e1 = income, measured in terms of gross national product
       e2 = energy, measured in terms of crude oil, hard coal, and nuclear reactors
       e3 = minerals, measured as iron ore, copper, bauxite, chromite, and uranium
       e4 = industry, measured in terms of steel and aluminum production
       e5 = food, measured in terms of wheat, corn, and rice
       e6 = trade, measured in terms of total trade as a percentage of total world trade

M = m1 + m2 = m3

Where: m1 = strategic balance, measured in terms of nuclear warheads capable of being
       deployed by bombers, submarines, and missiles
       m2 = conventional balance, measured as total manpower in thousands
       multiplied by the average of 0 to 1 scores on manpower quality, weapon
       effectiveness, infrastructure and logistics, and organizational quality. That
       total is then multiplied by an assessment of strategic reach measured on a scale
       of .01 to .05.
       m3 = effort, awarded as a bonus weight for those countries that spend a
       disproportionate amount of their gross national product on the military.

S = national strategy

Where national strategy is assigned a weight from 0 to .5.

W = national will
Where national will is assigned a weight from 0 to .5.

*Organski (1958)*: National Capabilities = Population * GNP/Population = GNP

*Organski and Kugler (1980)*: National Capabilities =

\[
\text{National Capabilities} = (\text{Population} * \text{GNP/Population} * \text{Tax Effort}^a) + (\text{Foreign Aid} * \text{Recipient Tax Effort})
\]

Where: **Tax Effort** = Real Tax Ratio/Tax Capacity

Where: **Real Tax Ratio** = Amount of central government revenue/GNP, and 
**Tax Capacity** = the predicted variables from the following regression:
Real Tax Ratio = \(\alpha + \beta_1 \text{Exports/GNP} + \beta_2 \text{Agricultural Production/GDP} + \beta_3 \text{Mineral Production/GDP} + \varepsilon\)

and \(a = 1.75\)

*The Correlates of War Index*: National Capabilities = \(\frac{\text{R}_1 + \text{R}_2 + \text{R}_3 + \text{R}_4 + \text{R}_5 + \text{R}_6}{6}\)

Where: \(\text{R}_1 = (\text{national population} / \text{world population}) * 100\)
\(\text{R}_2 = (\text{national urban population} / \text{world urban population}) * 100\)

Where: national urban population is the number of citizens living in cities with a total population of 20,000 or more, and 
\(\text{R}_3 = (\text{national iron or steel production} / \text{world iron or steel production}) * 100\)

Where: the measure uses iron production before 1895, and steel production thereafter, and 
\(\text{R}_4 = (\text{national energy consumption} / \text{world energy consumption}) * 100\)
\(\text{R}_5 = (\text{national military personnel} / \text{world military personnel}) * 100\)
\(\text{R}_6 = (\text{national military expenditures} / \text{world military expenditures}) * 100\)
When calculating $S$ to generate similarity scores for two states in a given year for a given variable; $S$ is $1-2$ multiplied by the sum of the weighted absolute row differences for that variable, where the rows are every state in the international system. The weights can either be equal or set according to some weighting scheme and are divided by the maximum possible difference between rows. The measure is bound between $-1$, indicating complete dissimilarity, and $1$, indicating complete similarity. A fuller description is presented in Signorino and Ritter (1999), but a hypothetical example is useful here.

There is an international system with 5 states (A,B,C,D,E), and we are interested in calculating $S$ for the similarity of alliance portfolios for states A and B. States can either have defense pacts (3), neutrality pacts (2), ententes (1), or no alliance (0) with each other. The maximum possible difference (d) in this case is 3. Assume that states have defense pacts with themselves. If we weighted all states in the international system equally, we could generate an Unweighted $S$ score:
The sum of the weighted absolute row differences is .4667, and the S score equals .0666.

Alternatively, we could make the case that alliance ties with some states are more important than alliance ties with others. In this case, we would weight the rows by some measure of importance. In the data below row weights are always the relative military capability of that state. The sum of the weighted absolute row differences is .6999, and the S score equals -.3998.
## APPENDIX B

### Table B.1: Estimates of Dispute Onset and Severity, All Dyads, 1946-1992

(Continued)
Table B.1 (continued),

<table>
<thead>
<tr>
<th></th>
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<th>2.076***</th>
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<tr>
<td></td>
<td></td>
<td>(3.48)</td>
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<td>(3.43)</td>
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<tr>
<td>Post 1945</td>
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<td>---</td>
<td>---</td>
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<td>-0.195***</td>
<td>---</td>
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<tr>
<td></td>
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<td>-0.002***</td>
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</tr>
<tr>
<td></td>
<td>(7.77)</td>
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<td>(7.78)</td>
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</tr>
<tr>
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<td>0.001***</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>(5.77)</td>
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<td>(5.78)</td>
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<td>-9.00e-6</td>
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<tr>
<td></td>
<td>(0.48)</td>
<td></td>
<td>(0.48)</td>
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<tr>
<td>Constant</td>
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<td>80.180**</td>
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<td>(7.30)</td>
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<td>N(Uncensored)</td>
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<td>650</td>
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<tr>
<td>ρ</td>
<td>-.079</td>
<td>-.089</td>
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<tr>
<td>χ²</td>
<td>80.92***</td>
<td>87.64***</td>
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<tr>
<td>Log Likelihood</td>
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Note: Figures in parentheses are asymptotic z-statistics using Huber/Sandwhich standard errors, clustered on the dyad.

*** --- p <=.01; **---p <= .05, *--- p <= .10; two tailed tests.
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<thead>
<tr>
<th></th>
<th>(1) Alliance Portfolios Only</th>
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<th>(2) Alliance Portfolios &amp; UN Voting</th>
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<tbody>
<tr>
<td>Capability Ratio</td>
<td>Y₁: MID Onset</td>
<td>-0.477*** 172.429* (3.84)</td>
<td>Y₁: MID Onset</td>
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<td>Y₂: Severity</td>
<td>(1.94)</td>
<td>Y₂: Severity</td>
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<td>Interest Similarity</td>
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<td>41.126 (1.14)</td>
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<td>Capability Ratio*</td>
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<td>-190.185* (1.94)</td>
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<td>Interest Similarity</td>
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<td>41.126 (1.14)</td>
<td>---,---</td>
</tr>
<tr>
<td>Democracyₜ</td>
<td>-0.019***</td>
<td>-0.655 (4.67)</td>
<td>-0.019***</td>
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<tr>
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<td>(0.65)</td>
<td>(1.50)</td>
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<tr>
<td>Dependenceₜ</td>
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<td>-1239.817*** (3.58)</td>
<td>-26.385***</td>
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<tr>
<td></td>
<td>(3.58)</td>
<td>(2.81)</td>
<td>(3.58)</td>
</tr>
<tr>
<td>Common IGOs</td>
<td>0.009***</td>
<td>-0.271 (5.16)</td>
<td>0.009***</td>
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<tr>
<td></td>
<td>(0.009)</td>
<td>(1.63)</td>
<td>(0.009)</td>
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<td>Contiguous</td>
<td>0.593***</td>
<td>0.345 (8.99)</td>
<td>0.593***</td>
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<td>(0.593)</td>
<td>(0.05)</td>
<td>(0.593)</td>
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<td>Log Distance</td>
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<td>-0.044 (3.05)</td>
<td>-0.081***</td>
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<td>(0.081)</td>
<td>(0.02)</td>
<td>(0.081)</td>
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<td>Major Powers</td>
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<td>12.987 (1.88)</td>
<td>0.136**</td>
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<td>(1.21)</td>
<td>(0.136)</td>
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<td>Allies</td>
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<td>---,--- (3.61)</td>
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<tr>
<td></td>
<td>(0.212)</td>
<td>(3.61)</td>
<td>(0.212)</td>
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<tr>
<td>Territory</td>
<td>---,---</td>
<td>10.874* (1.71)</td>
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**Table B.2:** Estimates of Dispute Onset and Severity, Politically Relevant Dyads, 1946-1992
(Continued)
Table B.2 (continued),

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<td>(4.04)</td>
<td></td>
<td>(4.00)</td>
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<tr>
<td>Post 1945</td>
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<td>---.---</td>
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<td>(12.98)</td>
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<td>(6.77)</td>
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<tr>
<td>Spline2</td>
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<td>0.001***</td>
<td>---.---</td>
<td>---.---</td>
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<tr>
<td></td>
<td>(5.04)</td>
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<td>(5.05)</td>
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<tr>
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<tr>
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<td>-1.228***</td>
<td>37.091</td>
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<td></td>
<td>(5.56)</td>
<td>(1.42)</td>
<td>(5.56)</td>
<td>(0.92)</td>
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<td>N(Uncensored)</td>
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<td>504</td>
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<tr>
<td>ρ</td>
<td>-.202**</td>
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<td>-.230**</td>
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<tr>
<td>χ²</td>
<td>60.26***</td>
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<td>70.30***</td>
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<tr>
<td>Log Likelihood</td>
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<td>-4423.20</td>
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</tbody>
</table>

Note: Figures in parentheses are asymptotic z-statistics using Huber/Sandwhich standard errors, clustered on the dyad.

*** --- p <= .01; **---p <= .05, *--- p <= .10; two tailed tests.
Table B.3: Descriptive Statistics for Chapter Four
/* model estimation */
heckman brl2 ln_capratio INTEREST NEWCAP2 smldmat smldep smigoabi TERR2 
ACTORS2 logdstab contigkb post1945 majmaj, robust select (disputex = ln_capratio 
smldmat smldep smigoabi allies contigkb logdstab majpower peace _spline1 _spline2 
_spline3);

/* capture parameter variance */
matrix variance = get(VCE);
/* capture model parameters */
matrix params = e(b);
/* draw uncertain parameters from multivariate normal distribution */
drawnorm b1-b28, means(params) cov(variance);
/* generate uncertain rho, note stata estimates the hyperbolic arctangent of rho */
gen simrho = (exp(2*b27)-1)/(exp(2*b27)+1);
gen simSEE = (exp(b28));
/* generate Sigelman and Zeng corrected coefficients */
predict selxbpr, xbs;
gen testpr = normden(selxbpr)/norm(selxbpr);
gen D = testpr*(testpr + selxbpr);
gen b1r = b1 - (b14*simrho*simSEE*D);
gen b4r = b4 - (b15*simrho*simSEE*D);
gen b5r = b5 - (b16*simrho*simSEE*D);
gen b6r = b6 - (b17*simrho*simSEE*D);
gen b9r = b9 - (b20*simrho*simSEE*D);
gen b10r = b10 - (b19*simrho*simSEE*D);
gen b12r = b12 - (b21*simrho*simSEE*D);
/* generate uncertain predictions for mid-point of each condition */
local i = 1;
gen base_severe=.;

while `i' <=1000 {

/*outcome equation simulations*/
quietly generate t_base_sev = b13[`i'] + 
(b1r[`i']*-2024148) + (b2[`i']*.9123488) + (b3[`i']*-1859804) + (b4r[`i']*-3.316511) + 
(b5r[`i']*.0011818) + (b6r[`i']*25.25205) + (b7[`i']*.0012531) + (b8[`i']*4.533438) + 
(b9r[`i']*8.041873) + (b10r[`i']*.079775) + (b11[`i']*8.294967) + (b12r[`i']*.0035054);

quietly summarize t_base_sev, meanonly;
quietly replace base_severe=r(mean) in `i';

disp `i';
local i=`i'+1;

drop t_base_sev;
}

/*Condition 4*/
gen cap = .875;
gen inter = .625;
gen test = cap*inter;

local i = 1;
gen world4=.;

while `i' <=1000 {

/*outcome equation simulations*/
quietly generate t_world4 = b13[`i'] + 
(b1r[`i']*cap) + (b2[`i']*inter) + (b3[`i']*test) + (b4r[`i']*-3.316511) + (b5r[`i']*.0011818) + 
(b6r[`i']*25.25205) + (b7[`i']*.0012531) + (b8[`i']*4.533438) + (b9r[`i']*8.041873) + 
(b10r[`i']*.079775) + (b11[`i']*8.294967) + (b12r[`i']*.0035054);

quietly summarize t_world4, meanonly;
quietly replace world4=r(mean) in `i';

disp `i';
local i=`i'+1;

drop t_world4;
drop cap inter test;

/*Condition 3*/

gen cap = .625;
gen inter = .625;
gen test = cap*inter;

local i = 1;
gen world3=.;

while `i' <=1000 {

/*outcome equation simulations*/
quietly generate t_world3 = b13[`i'] +
(b1r[`i']*[cap]) + (b2[`i']*[inter]) + (b3[`i']*[test]) + (b4r[`i']*-3.316511) + (b5r[`i'])*.0011818) +
(b6r[`i']*[25.25205]) + (b7[`i'])*.0012531) + (b8[`i']*[4.533438]) + (b9r[`i']*[8.041873]) +
(b10r[`i'])*.079775) + (b11[`i'])*.8294967) + (b12r[`i'])*.0035054);

quietly summarize t_world3, meanonly;
quietly replace world3=r(mean) in `i';

disp `i';
local i=`i'+1;

drop t_world3;
}

drop cap inter test;

/*Condition 2*/

gen cap = .875;
gen inter = .875;
gen test = cap*inter;

local i = 1;
gen world2=.;

while `i' <=1000 {
/*outcome equation simulations*/

quietly generate t_world2 = b13[`i'] +
(b1r[`i']*cap) + (b2[`i']*inter) + (b3[`i']*test) + (b4r[`i']*-3.316511) + (b5r[`i']*.0011818) +
(b6r[`i']*25.25205) + (b7[`i']*.0012531) + (b8[`i']*.4533438) + (b9r[`i']*.8041873) +
(b10r[`i']*.079775) + (b11[`i']*.8294967) + (b12r[`i']*.0035054);

quietly summarize t_world2, meanonly;
quietly replace world2=r(mean) in `i';

disp `i';
local i=`i'+1;

drop t_world2;

};

drop cap inter test;

/*Condition 1*/

gen cap = .625;
gen inter= .875;
gen test = cap*inter;

local i = 1;
gen world1=.;

while `i' <=1000 {

/*outcome equation simulations*/
quietly generate t_world1 = b13[`i'] +
(b1r[`i']*cap) + (b2[`i']*inter) + (b3[`i']*test) + (b4r[`i']*-3.316511) + (b5r[`i']*.0011818) +
(b6r[`i']*25.25205) + (b7[`i']*.0012531) + (b8[`i']*.4533438) + (b9r[`i']*.8041873) +
(b10r[`i']*.079775) + (b11[`i']*.8294967) + (b12r[`i']*.0035054);

quietly summarize t_world1, meanonly;
quietly replace world1=r(mean) in `i';

disp `i';
local i=`i'+1;
drop t_world1;

}
};
drop cap inter test;
centile world4 world3 world2 world1, centile(2.5 50 97.5)
One of the central robustness checks that must be performed on duration models, like the one in Table 5.1, is that the covariates included in the model do not violate the proportional hazards (PH) assumption. Duration models assume that the hazard rate for each covariate is proportional across all values of that covariate. As Box-Steppensmeier and Zorn (2001, 973) put it, “this means that the effects of covariates are constant over time; [and] the effect of an independent variable is to shift the hazard by a factor of proportionality, and the size of that factor remains the same irrespective of when it occurs.” The main point of the Box-Steppensmeier and Zorn (2001) article was not only that violations of the proportional hazards assumption can result in biased coefficients and inefficient standard errors, but that the assumption is rarely checked in social science research (although see: Greeco (2001) and Box-Steppensmeier et al. (2003) for examples). This is particularly important for the analysis presented in this paper because all three of the thus far cited articles have found violations in the PH assumption in duration models of international conflict.

Among the several alternatives for testing the PH assumption, the one suggested by Box-Steppensmeier and Zorn (2001) is the use Schoenfeld residuals to test for both global and variable-specific violations of the PH assumption. Fortunately there is a
routine to calculate these residuals canned in Stata 7.0 which I employ here. I begin by replicating model 2 from Table 5.1.201

Iteration 0:  log likelihood = -5369.8144

Stratified Cox regr. -- Efron method for ties

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<td>Log likelihood</td>
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<td>Prob &gt; chi2</td>
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</table>

(standard errors adjusted for clustering on dyadid)

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<td>Coef.</td>
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</tr>
<tr>
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<td>0.3514597</td>
<td>0.086732</td>
<td>4.05</td>
<td>0.000</td>
</tr>
<tr>
<td>forceout</td>
<td>0.0169361</td>
<td>0.093773</td>
<td>0.18</td>
<td>0.857</td>
</tr>
<tr>
<td>warweary</td>
<td>0.0238391</td>
<td>0.0100077</td>
<td>23.82</td>
<td>0.000</td>
</tr>
<tr>
<td>post1945</td>
<td>-0.0286405</td>
<td>0.0955341</td>
<td>-0.30</td>
<td>0.764</td>
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</tbody>
</table>

Stratified by event2

During the estimation of this model, I saved Schoenfeld Residuals to use post-estimation in order to test the PH assumption both by each covariate and globally. When we have time varying covariates, like we do,

$$\beta_u(t) = \beta_u + q\beta_g(t)$$

Where $\beta_u(t)$ is the coefficient of some time varying covariate, $\beta_u$ is that same covariate when it is not time varying and $q\beta_g(t)$ is a coefficient and some function of time.

201 In order to conserve space I have decided to eschew table construction and simply display the Stata output as it appears.
Grambsch and Therneau (1994) provide a method of scaling the Schoenfeld residual $r_{ij}^*$ which provides that,

$$E(r_{ij}^* + \beta_u) = \beta_u(t)$$

We can test the null hypothesis that $q_j = 0$ by regressing $r_{ij}^*$ on $g(t)$, if we cannot reject the null hypothesis, then the PH assumption for that particular variable, or for the entire model if the test is global, holds. Stata 7.0’s stptest command automates this process (Cleves et al. 2002). The output for the PH test of base model shows that none of the three key covariates (in bold) violates the PH assumption, and despite the fact a couple of the controls do violate the PH assumption, the model as a whole does not.

<table>
<thead>
<tr>
<th></th>
<th>rho</th>
<th>chi2</th>
<th>df</th>
<th>Prob&gt;chi2</th>
</tr>
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<tbody>
<tr>
<td>tot_ch_cap</td>
<td>0.08435</td>
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<tr>
<td>tot_ch_int</td>
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</tr>
<tr>
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<td>14</td>
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<td></td>
</tr>
</tbody>
</table>

Given that these are relatively minor violations of the PH assumptions, and that the few violations the do occur only occur for control variables, it may appear as if the estimated
model is robust and we can end our treatment here. However, as noted in the text of the chapter, we stratified our duration models by rival type (event2) so that each strata could have its own baseline hazard. This presents a problem for testing the PH assumption in this manner as Cleves et al. (2002, 163) note,

> The Grambsch and Therneau test of the proportional hazards assumption in Stata assume homogeneity of variance across risk sets. This allows the use of the estimated overall (pooled) variance-covariance matrix in the equations. Although these tests have been shown to be fairly robust to departures from this assumption, care must be exercised where this assumption may not hold, particularly when used with a stratified Cox model. In such cases, we recommend that the proportional hazards assumption be checked separately for each strata.\textsuperscript{202}

In order to accomplish this task, the base Cox model was re-estimated once for each of the three strata (isolated, proto, and enduring rivals). Fortunately, the results from those estimates and PH tests were similar to the results from the base model, and I conclude model 2 of Table 5.1 is relatively robust to the PH assumption. Below, each of the three sets of model estimates and test results are displayed.

\textsuperscript{202} Italics added.
Estimation for Strata 1
Iteration 0:  log likelihood = -1216.5394

Cox regression -- Efron method for ties

No. of subjects = 13864                     Number of obs = 13864
No. of failures = 303                     Time at risk = 13864
Wald chi2(13) = 1177.06                     Prob > chi2 = 0.0000
(standard errors adjusted for clustering on dyad_id)

------------------------------------------------------------------
     _t |               Robust
     _d |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  tot_ch_cap |   8.817439    2.88522     3.06   0.002     3.162512    14.47237
  tot_ch_int |  -4.138816   2.655358     1.56   0.119     -1.06559    9.343223
  tot_ch_nc |  -5.834427   3.038746    -1.92   0.055    -11.79026    .1214058
  tot_ch_dml |  -0.006182   .0117958    -0.05   0.958    -.0237375     .022501
  tot_ch_dpl3 |   20.73996   23.78799     0.87   0.383    -25.88365    67.36357
  tot_ch_igo3 |  -0.006813   .0063761    -1.07   0.285    -.0193104    .0056834
    contig |   .0511872   .7110809     0.07   0.943    -.1.342506     1.44488
     lndist |  -.0383151   .0879709    -0.44   0.663    -.2107349    .1341048
     twomaj |  -.2312098   .3853712    -0.60   0.549    -.9865235    .5241039
     goodout |   .1401958   .178679     0.78   0.433     .1138141    .1665775
    badout |   .4493701   .1713749     2.62   0.009     .1134814    .7852588
   forceout |   .3201392   .1798298     1.78   0.075    -.0323207    .6725992
   warweary |   .0351808   .0113234    31.07   0.000     .0129614    .0574003
   Post1945 |  -.1241042   .4323674    -0.29   0.774    -.9715287    .7233203
------------------------------------------------------------------

Time:  Time

------------------------------------------------------------------
                      |      rho  | chi2   | df | Prob>chi2
-------------+-------------------+-----------+-----+----------
tot_ch_cap |     -0.05720       1.29    1   0.2560
  tot_ch_int |     -0.06097       1.34    1   0.2478
  tot_ch_nc |      0.06185       1.50    1   0.2210
  tot_ch_dml |      0.09163       2.07    1   0.1499
  tot_ch_dpl3 |     -0.02542       0.25    1   0.6181
  tot_ch_igo3 |      0.04027       0.46    1   0.4981
    contig |      0.03308       0.52    1   0.4700
     lndist |      0.01198       0.07    1   0.7961
     twomaj |      0.01919       0.32    1   0.5702
     goodout |      0.00414       0.01    1   0.9275
    badout |     -0.08372       2.88    1   0.0896
   forceout |      0.06775       2.17    1   0.1411
   warweary |      0.12420       7.09    1   0.0077
------------------------------------------------------------------

---

319
Estimation for Strata 2

Iteration 0: log likelihood = -1864.8147

Cox regression -- Efron method for ties

No. of subjects = 3839
No. of failures = 414
Time at risk = 3839
Log likelihood = -1864.8147

(Wald chi2(13) = 865.07  Prob > chi2 = 0.0000
(standard errors adjusted for clustering on dyadid)

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<th>t</th>
<th>Robust</th>
</tr>
</thead>
<tbody>
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<td>Coef.</td>
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<td>-------------------</td>
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<td>----</td>
<td>-----</td>
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</tr>
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</tr>
<tr>
<td>post1945</td>
<td>-0.024391</td>
</tr>
</tbody>
</table>

| Time: Time |
|------------|-----------|-----|-----|----------------|
|            |            | rho| chi2| df | Prob>chi2 |
| tot_ch_cap | 0.01508    | 1.20 | 1     | 0.2733 |
| tot_ch_int | 0.01742    | 1.14 | 1     | 0.2856 |
| tot_ch_nc  | -0.02066   | 0.78 | 1     | 0.3771 |
| tot_ch_dml | -0.00122   | 0.00 | 1     | 0.9812 |
| tot_ch_dpl3| -0.02870   | 0.30 | 1     | 0.5823 |
| tot_ch_igo3| 0.08505    | 2.50 | 1     | 0.1140 |
| contig     | 0.02692    | 0.31 | 1     | 0.5752 |
| indist     | -0.03763   | 0.59 | 1     | 0.4416 |
| twomaj     | -0.01991   | 0.20 | 1     | 0.6546 |
| goodout    | -0.008584  | 3.86 | 1     | 0.0495 |
| badout     | -0.05975   | 1.75 | 1     | 0.1854 |
| forceout   | 0.04909    | 1.28 | 1     | 0.2583 |
| warweary   | 0.14495    | 15.88 | 1     | 0.0001 |
| post1945   | 0.09115    | 15.88 | 1     | 0.1110 |

| global test | 19.31 | 14 | 0.1534 |
**Estimation for Strata 3**

Iteration 0: log likelihood = -2177.43

Cox regression -- Efron method for ties

No. of subjects = 1956  
Number of obs = 1956  
No. of failures = 471  
Time at risk = 1956  
Wald chi2(13) = 689.66  
Prob > chi2 = 0.0000  
(Log likelihood adjusted for clustering on dyadid)

|              | Coef.  | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|--------------|--------|-----------|-------|------|----------------------|
| **_t**       |        |           |       |      |                      |
| _d           |        |           |       |      |                      |
|  tot_ch_cap  | -.9099537  | 2.814233  | -0.32 | 0.746 | -6.425749  | 4.605842  |
|  tot_ch_int  | -1.964913 | 2.128348  | -0.92 | 0.356 | -6.136399  | 2.206573  |
|  tot_ch_nc   | -3.987927 | 2.991431  | -1.33 | 0.182 | -9.851024  | 1.87517   |
|  tot_ch_dml  | -.032017  | .0161247  | -1.99 | 0.047 | -0.636208  | -.0004132 |
|  tot_ch_dpl3 | -6.538241 | 16.54269  | -0.40 | 0.693 | -38.96132  | 25.88484  |
|  tot_ch_igo3 | .0009894  | .0081201  | 0.12  | 0.903 | -.0149257  | .0169045  |
|  contig      | 1.77060   | 1.071607  | 1.65  | 0.098 | -3.297105  | 3.870911  |
|  lndist      | .2576962  | .1436186  | 1.79  | 0.073 | -0.023791  | .5391835  |
|  twomaj      | .0269996  | .2517067  | 0.11  | 0.915 | -.4663364  | .5203355  |
|  goodout     | -0.030635 | .1476967  | -0.23 | 0.818 | -.3235438  | .2554167  |
|  badout      | .2731299  | .1520295  | 1.80  | 0.072 | -.0248424  | .5711022  |
|  forceout    | .0499097  | .1914603  | 0.26  | 0.794 | -.3253457  | .4251651  |
|  warweary    | .0185959  | .0149060  | 1.248 | 0.000 | .0156744   | .0215174  |
|  post1945    | -.0021864 | .0117169  | -0.19 | 0.852 | -.025151   | .0207783  |

. stptest, detail

Test of proportional hazards assumption

Time: Time

<table>
<thead>
<tr>
<th></th>
<th>rho</th>
<th>chi2</th>
<th>df</th>
<th>Prob&gt;chi2</th>
</tr>
</thead>
<tbody>
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| global test | 20.59 | 14 | 0.1126 |
### Duration

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<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
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<tbody>
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### Sample Selection

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</tr>
<tr>
<td>twomaj</td>
<td>27853</td>
<td>0.247801</td>
<td>0.4317434</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>territor</td>
<td>2617</td>
<td>0.221245</td>
<td>0.4151649</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>actors</td>
<td>2617</td>
<td>4.652565</td>
<td>6.319514</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>goodout</td>
<td>27853</td>
<td>0.247801</td>
<td>0.4317434</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>badout</td>
<td>27853</td>
<td>0.6192511</td>
<td>0.4855797</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>forceout</td>
<td>27853</td>
<td>0.2809033</td>
<td>0.449484</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>warweary</td>
<td>27853</td>
<td>16.53909</td>
<td>30.03407</td>
<td>0.166667</td>
<td>214</td>
</tr>
<tr>
<td>post1945</td>
<td>27853</td>
<td>0.7446595</td>
<td>0.4360603</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>capratio</td>
<td>26982</td>
<td>0.8326597</td>
<td>0.1505189</td>
<td>-0.5</td>
<td>0.999782</td>
</tr>
<tr>
<td>demlow</td>
<td>25579</td>
<td>3.713163</td>
<td>6.424266</td>
<td>-10</td>
<td>10</td>
</tr>
<tr>
<td>deploew</td>
<td>14441</td>
<td>0.0024045</td>
<td>0.0046151</td>
<td>2.09e-08</td>
<td>0.0542962</td>
</tr>
<tr>
<td>igo</td>
<td>15000</td>
<td>31.71267</td>
<td>17.38062</td>
<td>0</td>
<td>126</td>
</tr>
<tr>
<td>alliance</td>
<td>27009</td>
<td>3.373542</td>
<td>1.15924</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

*Table C.1: Descriptive Statistics for Chapter Five*
Simulation program to generate the hazard ratios 
and confidence intervals in Table 5.3

Stata 7.0
#delimit;
set more off;
/*model estimation*/
stcox tot_ch_cap tot_ch_int tot_ch_nc tot_ch_dml tot_ch_dpl3 tot_ch_igo3 contig Indist
twomaj goodout badout forceout warweary post1945, nohr efron robust cluster(dyadid)
strata(event2);
/*capture parameter variance*/
matrix variance = get(VCE);
/*capture model parameters*/
matrix params = e(b);
/*draw uncertain parameters from multivariate normal distribution*/
drawnorm r1-r14, means(params) cov(variance);
/*Condition 4*/
gen test = .0077879;
gen setint = -.0233502;
gen testcap = test*setint;
local i = 1;
gen re_world4=.;
while `i' <=1000 {
/*outcome equation simulations*/
quietly generate t_world = [(r1[`i']*test) + (r2[`i']*setint) + (r3[`i']*testcap) +
(r4[`i']*3052099) + (r5[`i']*0.003074) + (r6[`i']*4.718206) + (r7[`i']*2653933) +
(r8[`i']*5.754139) + (r9[`i']*0.441245) + (r10[`i']*0.247801) + (r11[`i']*6192511) +
(r12[`i']*2809033) + (r13[`i']*16.53909) + (r14[`i']*0.7446595)];
quietly generate t_world4 = exp(t_world);
quietly summarize t_world4, meanonly;
quietly replace re_world4=r(mean) in `i';
disp `i';
local i=`i'+1;
drop t_world t_world4;
);

drop test setint testcap;

/*@Condition 3*/
gen test = -.0326634;
gen setint = -.0233502;
gen testcap = test*setint;

local i = 1;
gen re_world3=.;

while `i' <=1000 {
    /*outcome equation simulations*/
    quietly generate t_world = [(r1[`i']*test) + (r2[`i']*setint) + (r3[`i']*testcap) +
    (r4[`i']*3.052099) + (r5[`i']*.0003074) + (r6[`i']*4.718206) + (r7[`i']*2.653933) +
    (r8[`i']*5.754139) + (r9[`i']*0.441245) + (r10[`i']*0.247801) + (r11[`i']*0.6192511) +
    (r12[`i']*0.2809033) + (r13[`i']*16.53909) + (r14[`i']*0.7446595)];
    quietly generate t_world3 = exp(t_world);
    quietly summarize t_world3, meanonly;
    quietly replace re_world3=r(mean) in `i';
    disp `i';
    local i=`i'+1;

drop t_world t_world3;
);

drop test setint testcap;

/*@Condition 2*/
gen test = .0077879;
gen setint = .0458551;
gen testcap = test*setint;
local i = 1;
gen re_world2=.;

while 'i' <=1000 {

/*outcome equation simulations*/
quietly generate t_world = [(r1[`i']*test) + (r2[`i']*setint) + (r3[`i']*testcap) +
(r4[`i']*.3052099) + (r5[`i']*.0003074) + (r6[`i']*4.718206) + (r7[`i']*.2653933) +
(r8[`i']*5.754139) + (r9[`i']*.0441245) + (r10[`i']*.247801) + (r11[`i']*.6192511) +
(r12[`i']*.2809033) + (r13[`i']*16.53909) + (r14[`i']*.7446595)];

quietly generate t_world2 = exp(t_world);
quietly summarize t_world2, meanonly;
quietly replace re_world2=r(mean) in `i';

disp `i';
local i=`i'+1;

drop t_world t_world2;
}
drop test setint testcap;

/*Condition 1*/
gen test = -.0326634;
gen setint = .0458551;
gen testcap = test*setint;

local i = 1;
gen re_world1=.;

while 'i' <=1000 {

/*outcome equation simulations*/
quietly generate t_world = [(r1[`i']*test) + (r2[`i']*setint) + (r3[`i']*testcap) +
(r4[`i']*.3052099) + (r5[`i']*.0003074) + (r6[`i']*4.718206) + (r7[`i']*.2653933) +
(r8[`i']*5.754139) + (r9[`i']*.0441245) + (r10[`i']*.247801) + (r11[`i']*.6192511) +

(r12[`i']*.2809033) + (r13[`i']*16.53909) + (r14[`i']*.7446595)];

quietly generate t_world1 = exp(t_world);
quietly summarize t_world1, meanonly;
quietly replace re_world1=r(mean) in `i';

disp `i';
local i=`i'+1;

drop t_world t_world1;

};
drop test setint testcap;
Simulation program to generate the predicted changes in dispute severity and confidence intervals in Table 5.6

Stata 7.0
#delimit;
set more off;

/*model estimation*/
heckman chbrl2 deltacap deltaint deltanc deltadml deltadpl2 deltaigo2 contig Indist
twomaj territor actors goodout badout forceout warweary post1945, robust
cluster(dyadid) select(dispute = capratio demlow deplow igo contig Indist twomaj
alliance);

/*capture parameter variance*/
matrix variance = get(VCE);

/*capture model parameters*/
matrix params = e(b);

/*draw uncertain parameters from the multivariate normal distribution*/
drawnorm b1-b28, means(params) cov(variance);

/*generate uncertain rho, note stata estimates the hyperbolic arctangent of rho*/
gen simrho = (exp(2*b27)-1)/(exp(2*b27)+1);

/*generate the base change in dispute severity*/
local i = 1;
gen base_severe=.;
while `i' <=1000 {

/*outcome equation simulations*/
quietly generate t_base_sev = b19[`i'] +
(b1[`i']*.0006984) + (b2[`i']*.0013016) + (b3[`i']*.0005628) + (b4[`i']*.091339) +
(b5[`i']*.00000857) + (b6[`i']*.0088111) + (b7[`i']*.2653933) + (b8[`i']*.5.754139) +
(b9[`i']*.0441245) + (b10[`i']*.2212457) + (b11[`i']*.4.652656) + (b12[`i']*.247801) +
(b13[`i']*.2653933) + (b14[`i']*.2809033) + (b15[`i']*.16.53909) + (b16[`i']*.7446595);
quietly summarize t_base_sev, meanonly;
quietly replace base_severe=r(mean) in `i';
disp `i';
local i=`i'+1;

drop t_base_sev;
}

/*Condition 4*/

gen test = .0032296;
gen setint = .0079088;
gen testcap = test*setint;

local i = 1;
gen world4=.;

while `i' <=1000 {
    /*outcome equation simulations*/
    quietly generate t_world4 = b19[`i'] +
(b1[`i']*test) + (b2[`i']*setint) + (b3[`i']*testcap) + (b4[`i']*0.091339) +
(b5[`i']*0.00000857) + (b6[`i']*0.0088111) + (b7[`i']*0.2653933) + (b8[`i']*5.754139) +
(b9[`i']*0.0441245) + (b10[`i']*0.2212457) + (b11[`i']*4.652656) + (b12[`i']*0.247801) +
(b13[`i']*0.6192511) + (b14[`i']*0.2809033) + (b15[`i']*16.53909) + (b16[`i']*0.7446595) if
_n <=1950;

quietly summarize t_world4, meanonly;
quietly replace world4=r(mean) in `i';

disp `i';
local i=`i'+1;

drop t_world4;
}

drop test setint testcap;

/*Condition 3*/

gen test = -.0046394;
gen setint = .0079088;
gen testcap = test*setint;
local i = 1;
gen world3=.;

while `i' <=1000 {
/*outcome equation simulations*/
quietly generate t_world3 = b19[`i'] + (b1[`i']*test) + (b2[`i']*setint) + (b3[`i']*testcap) + (b4[`i']*0.91339) + (b5[`i']*0.0000857) + (b6[`i']*0.0088111) + (b7[`i']*2.653933) + (b8[`i']*5.754139) + (b9[`i']*0.0441245) + (b10[`i']*2.212457) + (b11[`i']*4.652656) + (b12[`i']*0.247801) + (b13[`i']*0.0192511) + (b14[`i']*2.809033) + (b15[`i']*16.53909) + (b16[`i']*0.746595) if _n <=1950;
quietly summarize t_world3, meanonly;
quietly replace world3=r(mean) in `i';
disp `i';
local i=`i'+1;

drop t_world3;
};

drop test setint testcap;

/*Condition 2*/
gen test = .0032296;
gen setint = -.0071073;
gen testcap = test*setint;
local i = 1;
gen world2=.;

while `i' <=1000 {
/*outcome equation simulations*/
quietly generate t_world2 = b19[`i'] + (b1[`i']*test) + (b2[`i']*setint) + (b3[`i']*testcap) + (b4[`i']*0.91339) + (b5[`i']*0.0000857) + (b6[`i']*0.0088111) + (b7[`i']*2.653933) + (b8[`i']*5.754139) + (b9[`i']*0.0441245) + (b10[`i']*2.212457) + (b11[`i']*4.652656) + (b12[`i']*0.247801) +
(b13[`i']*.6192511) + (b14[`i']*.2809033) + (b15[`i']*16.53909) + (b16[`i']*7446595) if _n <=1950;

quietly summarize t_world2, meanonly;
quietly replace world2=r(mean) in `i';

disp `i';
local i=`i'+1;

drop t_world2;
}

drop test setint testcap;

/*/Condition 1*/

gen test = -.0046394;
gen setint = -.0071073;
gen testcap = test*setint;

local i = 1;
gen world1=.;

while `i' <=1000 {

/*/outcome equation simulations*/
quietly generate t_world1 = b19[`i'] +
(b1[`i']*test) + (b2[`i']*setint) + (b3[`i']*testcap) + (b4[`i']*0.91339) +
(b5[`i']*0.0000857) + (b6[`i']*0.0081111) + (b7[`i']*26.53933) + (b8[`i']*5.754139) +
(b9[`i']*0.0441245) + (b10[`i']*2212457) + (b11[`i']*4.652656) + (b12[`i']*0.247801) +
(b13[`i']*6.192511) + (b14[`i']*0.2809033) + (b15[`i']*16.53909) + (b16[`i']*7446595) if _n <=1950;

quietly summarize t_world1, meanonly;
quietly replace world1=r(mean) in `i';

disp `i';
local i=`i'+1;

drop t_world1;
}

drop test setint testcap;
**BIBLIOGRAPHY**


Box-Steffensmeier, Janet M., Dan Reiter, and Christopher Zorn. 2003. “Nonproportional Hazards and Event History Analysis in International Relations.” *Journal of Conflict Resolution* 47:33-53


Krauthammer, Charles. 1990/1. “The Unipolar Moment” *Foreign Affairs* 71:1


