Reputation and Interstate Conflict

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In international politics, states learn from the behavior of other nations, including the reputations states form through their actions in the international system. This article presents a model of how states process this information and examines how this learning affects international conflict. The model builds off of cognitive balance theory and foreign policy learning models and breaks new ground in its ability to provide a contextual assessment of reputation in world politics. The article then investigates whether a dyad is more likely to experience conflict if at least one state has a reputation for hostility. This hypothesis is tested empirically across all dyads in the international system from 1817 to 2000. The results indicate that states do engage in this learning behavior and that the information generated by extra-dyadic interaction of states has a significant bearing upon the likelihood of dyadic conflict.

Shortly after George W. Bush issued his ultimatum against Saddam Hussein's Iraqi regime to disarm and step down or face war with the United States, North Korea's Kim Jong Il slipped into a rare level of seclusion. Daily reports of his activities disappeared from North Korea's official media. In a culture where the primary focus of the society is on the Dear Leader, such an absence of information is highly unusual. It is a short stretch to imagine that leaders in Iran and Syria were paying close attention as well. Indeed, in the immediate "postwar" period the Bush administration seemed to be counting on the assumption that U.S. actions in Iraq serve as a signal of resolve (Shanker 2002). As conditions in Iraq unraveled, leaders in North Korea and Iran regained their voice and presence in the news, but what are the enduring lessons that they will take away from the U.S. foreign policy toward Iraq?

Similar examples permeate world politics. The force displayed by the United States in its air campaign against Serbia caught the attention of friends and foes alike. From France to China, governments were forced to appreciate the consequences of divergent defense budgets. Nor should we assume that only violent activities catch the attention of uninvolved parties. Treaties and trade are likely examples of dyadic interstate behavior that is observed by other states in the international system. Of course, this claim that governments observe the behavior of their peers is easy enough to make, and it would seem ridiculous to assume otherwise. But the more important and difficult question to answer is whether and when governments alter their foreign policy behavior based on such knowledge.

This article identifies one dimension of this information, a particular form of reputation that states generate through their actions over time, and then poses the following questions. If this information exists, what do governments do with it? How do state leaders interpret the actions of their friends and foes? For example, does the war between the United States and Iraq influence the North Korean government's belief that war between the United States and North Korea is coming? More generally, do nations alter their behavior with others based on what these other nations are doing elsewhere? This broader puzzle is one of both substance and research design. The dyadic level of analysis (pairs of states) has dominated the study of international conflict for the last two decades (Bremer 1992). It is a natural fit with the parallel theoretical emphasis on strategic interaction, but it is not ideally suited to incorporate information that lies beyond the dyad itself (Bueno de Mesquita 1981; Fearon 1994). While we have made progress regarding the dependence of dyadic observations across time (Beck, Katz, and Tucker 1998; Crescenzi and Enterline 2001; Raknerud and Hegre

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1997), we still have a limited understanding of how dyads are influenced by other states and other dyads. Scholars have recently renewed their focus on spatial interdependence and networks (Heagerty, Ward, and Gleditsch 2002; Hoff and Ward 2004; Signorino 1999; Ward and Gleditsch 2002), but we are only beginning to understand how these phenomena relate back to the dyadic level of analysis. The goal here is to be able to assess the impact of this particular form of reputation on crises between states, so preserving the ability to consider reputation at the dyadic level of analysis is important.

There are two specific pieces of this puzzle to sort out. First, how does a state (or more specifically, its policy makers) process the information contained in international relations where that state is not directly involved? Second, once this information is processed, what do policy makers do with it? Does this information affect the choices made in international politics? I offer a solution to this first piece by modeling one way in which states learn from the behavior that surrounds them. States do consider their opponents' historical ties with other nations, but they weigh carefully the degree to which these other nations are similar to themselves. Put simply, the latest U.S.–Iraqi war is more likely to affect the North Korea U.S. relationship than China-U.S. or Mexico-U.S. ties (for different reasons). This learning goes beyond a unique trilateral relationship as well. States typically have the resources to observe how their potential partner/opponent behaves with *all* of the other nations in the international system. They then weigh these histories accordingly to assign a reputation to their partner and perhaps use this information when forming foreign policy.

Three related perspectives offer solutions to the second piece of the puzzle. Leng (1983, 1988, 2000) provides a platform by delineating an experiential model of direct learning within dyads. The rivalry literature (Diehl and Goertz 2001) provides a rich conceptual context of viewing dyads as dynamic, evolutionary political arenas. Finally, Crescenzi and Enterline (2001) develop a flexible model of direct historical learning within dyads that can be expanded to address extra-dyadic learning. This article builds off of this platform to incorporate reputational learning into a dynamic relationship framework.

Once the theory is established, an empirical model is operationalized using data on conflict history (Crescenzi and Enterline 2001), foreign policy similarity (Signorino and Ritter 1999), and power similarity (Singer, Bremer, and Stuckey 1972) to test the hypothesis that a nation is more likely to fight an opponent that has engaged in conflict with that nation's peers. Admittedly, this hypothesis is merely a partial representation of the broader question of reputation and foreign policy behavior, but it is an important piece and a good place to begin evaluating the model developed below. This empirical analysis strongly supports the notion that states are indeed paying close attention to the way their potential enemies treat their friends. When states face opponents that are historically hostile towards other, similar countries, militarized conflict is more likely to occur.

Background

In the scientific study of international politics, researchers frequently assume that dyadic interactions are independent across space, whether we define space in terms of geographic or relational qualities. That is, one pair of states, or one dyad, is usually treated as independent from other states, dyads, and institutions. Clearly, we are aware of the problems associated with this assumption. Scholars have long been aware of the importance of studying world politics beyond the basic dyad-year unit of analysis (Deutsch 1954). The assumption is not made out of ignorance; it stems from challenges associated with theoretical clarity and research design.

Within the dyadic level of analysis (which has dominated the scientific study of international processes for the last two decades), researchers have primarily been preoccupied with the equally important problem of temporal dependence (the problem of treating an observation of a dyad in one year as independent from observations in prior or subsequent years). While great progress has been made toward solving the problems associated with temporal interdependence, issues of research design have forced the assumption of spatial independence to remain in much of the extant empirical research. Over the last 30 years, explicit research dealing with spatial interdependence has typically been at the systemic level of analysis.

Relaxing the assumption that the dyads in the international system are independent from each other has been an infrequent but repeated exercise. Richardson (1960), for example, developed a model of arms races capable of capturing N-nations. Deutsch (1954) understood the spatial interdependence of the international community well. Schrodt and Mintz (1988) conceptualized spatial interdependence as a conditional probability problem. Others have used Richardson's N-nation model to study the qualities of balance and stability in the structure of the international system (Schrodt 1978). The problem of structure (polarity) and stability in the international system has driven most of the research that considers extra-dyadic information and international conflict (Lee, Muncaster, and Zinnes 1994; Zinnes and Muncaster 1997). Ultimately,

these works are focused on the overall stability and peace in the international system, and they remain accordingly at the systemic level of analysis.

The study of *contagion* is a second example (Houweling and Siccama 1985; Kadera 1998; Levy 1982; Most and Starr 1989; Siverson and Starr 1991). War contagion, or diffusion, is the notion that as war breaks out it tends to draw other countries into its grasp. Conflict begets conflict, and the effect is spatial rather than temporal. But the logic of war contagion or diffusion is that the spread of war is rather immediate and directly associated with an original conflict. Of immediate importance to this literature is the understanding of how war can spread to a systemic war like the World Wars.

Recently, the focus has been on the problem of temporal dependence in the dyad-year research design (Beck, Katz, and Tucker 1998; Crescenzi and Enterline 2001; Raknerud and Hegre 1997; Russett and Oneal 2001). Intuitively we know that historical behavior between two nations is likely to influence present and future behavior between these same actors. Solutions to this problem have either focused on treating this temporal dependence as noise in the data to be corrected for (Beck, Katz, and Tucker 1998) or as a theoretical explanation for conflict (Crescenzi and Enterline 2001; Diehl and Goertz 2001). All of these studies save Raknerud and Hegre preserve the assumption that each unique dyad in the international system is independent from the others.[1] Since the initial round of research by Raknerud and Hegre (1997) and Beck, Katz, and Tucker (1998), dealing with temporal dependence in the dyad-year research design has become a standard issue.

More recently, the problem of spatial interdependence has been embraced by political methodologists. Beck and Katz (1995), Heagerty, Ward, and Gleditsch (2002), Hoff and Ward (2004), and Ward and Gleditsch (2002) identify the problem of treating dyads independently. Their approach differs from mine in that geographic space serves as a proxy for the complexities of interaction, while I speak of the spatial dimension in terms of behavioral relationships. Perhaps more importantly, Hoff and Ward (2004) develop a flexible and robust approach to teasing out multiactor relationships using latent data characteristics. The approach taken in this article is more explicit about the causal mechanisms that link nations beyond the dyad, but it is thus more limited in its focus. The two dimensions likely overlap, and both provide meaningful information to the study of dyads. For example, in a renewed focus on the spatial diffusion of war, Ward and Gleditsch (2002) attempt to fix the problem of spatial interdependence by incorporating information about war involvement of proximate states. Heagerty, Ward, and Gleditsch (2002) warn that ignoring the problem of spatial interdependence can lead to erroneous empirical findings and jeopardize the predictive capabilities of current empirical models.

Finally, the concept of reputation, learning, and adaptation has a long-standing presence in the study of international relations (e.g., Dixon 1983; Farkas 1998; Huth 1988; Jervis 1976; Leng 1983, 1988, 1993, 2000; Levy 1994; Maoz 1990, 1996; Mercer 1996; Press 2005; Reiter 1996; Snyder 1991). Learning is a key component of the theory presented below. Specifically, learning is assumed to be *experiential* in that states learn from the experiences and behavior of other states; *diagnostic* in that states use the experiences of others to update their beliefs about the intentions of others; and *vicarious*, or diffuse, in that states learn from experiences in which they are not directly involved (Jervis 1976; Leng 1983; Levy 1994).

Research on learning in foreign policy most frequently is concerned with direct experiential learning at the state and dyadic levels of analysis. For example, Dixon (1983) examines the dynamic, historical sources of affect and their impact on Cold War ties between the United States and the Soviet Union. Reiter (1996) looks at how formative events help states learn about alliances. Snyder (1991) considers how great powers learn and adjust to their early mistakes of overexpansion. Leng (1983) and Crescenzi and Enterline (2001) demonstrate that dyads learn from earlier crises within the dyad and become more bellicose with each other in subsequent crisis situations. Leng (1993, 2000) delves deeply into the dynamic interplay within dyads during crises to understand when states choose dangerous bargaining strategies. All of these studies identify patterns of learning. None of these studies address the ability of states to learn from the indirect behavioral history of their dyadic partners. The question of whether or not states form reputations and how reputation impacts the success or failure of deterrence has been actively debated by Huth (1988), Mercer (1996), and Press (2005). While Mercer and Huth debate the nature of reputation's effect on international politics, Press challenges the fundamental assumption that nations react to reputations at all. He concludes that past actions have little or no bearing on current foreign policy decision making. As such, the research presented here challenges this conclusion.

Like most research on learning and conflict (see especially Reiter 1996), this approach is incompatible with pure neorealist theories of world politics (Waltz 1970). States rely upon information other than relative power

[1] Raknerud and Hegre (1997) also consider the problem of contemporaneous spatial diffusion, such as war with a third country.

levels to assess their strategies in crisis situations. To develop this approach, I adopt the structure of the well-established two-stage learning→foreign policy process: (1) learning from observation and interpretation leads to updating; and (2) this updating may influence foreign policy behavior (Jervis 1976; Levy 1994, 291). The reputation information model is a model of this first stage, and it is a conceptual model of the learning process. The goal is to generate a model that uniquely captures the first stage while allowing researchers to apply it to multiple causal analyses that fit in the second. The causal link between learning and foreign policy decision making must be grounded in the type of political behavior that is being explained.

Stage One: How Do Nations Learn from Extra-dyadic Information?

Beginning with the first stage of the learning–foreign policy linkage (interpreting extra-dyadic information), three lines of research within the field of international relations stand out as particularly instructive for this project. What separates them from other studies of interstate politics is their willingness to assume that either *all* third parties can affect the dyadic international relationship and/or that this influence is not limited to wartime activity. Schrodt and Mintz (1988) develop the simple logic of how states update information about other states based on behavior outside the dyad. This research pioneered the focus on spatial interdependence in empirical research. The underlying logic of this interdependence was modeled as a function of chain reactions represented by conditional probability. Events that transpired between two states influenced events involving one of these states with additional countries. The process repeats indefinitely, but at each stage it is based on the observation of dyadic behavior.

Secondly, Goldstein and Freeman (1990) examine an explicit three-way relationship between the United States, China, and the Soviet Union. Their work is unusual in that it recognizes that states look beyond the dyad in typical political interaction, not only during times of war. The research is focused, however, on the triadic relationship of these particular nations, and the authors use an inductive approach to teasing out the complex interactions.

Thirdly, Lee, Muncaster, and Zinnes (1994, 336) introduce an important insight regarding how states may learn from the behavior of other states. Using Heider's rule, they establish a simple basis for interpreting state behavior (Harary 1959; Heider 1946):

> *The friend of my friend is my friend, the friend of my enemy is my enemy, the enemy of my enemy is my friend, the enemy of my friend is my enemy.*

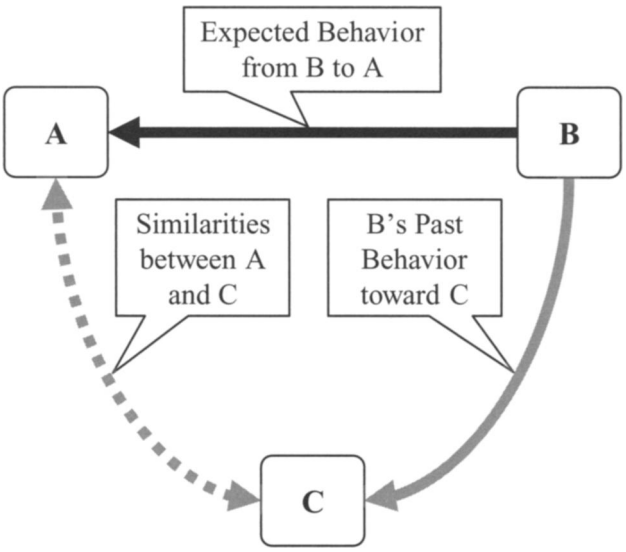
Heider's early work on attitude formation and attraction was further clarified by Harary, Norman, and Cartwright (1965) and Newcomb (1953, 1961) to form the basic logic of cognitive balance theory. Heider's rule represents a folk interpretation of the logic behind balance theory. Balance theorists were concerned with the ability of the self (Heider) or the ability of groups (Harary, Norman, and Cartwright) to reconcile relationships that were unbalanced. Using the classic logic of the *p-o-x* triad, the theory focuses on the calculations of person *P* concerning his or her relationship with some other person *O*. Both *P* and *O* have a relationship or level of attraction to object *X*.[2] *P* evaluates *O*'s relationship with *X* in light of its own relationship with *X*. If the two individuals share a consistent attraction (or lack thereof) with *X*, the *P-O* dyadic relationship is said to be balanced. If their feelings toward *X* are inconsistent, however (e.g., *P* likes baseball but *O* does not), the relationship is unbalanced and a fundamental tension results. For Heider, this tension was internal to *P*, as *P* grapples with how the inconsistency should manifest itself in the overall level of attraction within the dyad (is *O*'s dislike of baseball enough to cause them to not be friends?). The focus is on the dyadic *P-O* relationship, and Heider and Newcomb assumed that there existed a basic desire for harmony over tension. Critics of cognitive balance theory cite its myopic focus on triads as too simple to account for the complexities of group dynamics, as well as its basic qualitative assessment of relationships (+ or −) as too vague to produce accurate forecasts of social behavior.[3]

This basic logic of cognitive balance theory and the triadic interaction models found in Schrodt and Mintz (1988) and Goldstein and Freeman (1990) inform the learning model proposed here. This model captures the dynamics of these triadic interactions but then reduces this information to the state and dyad levels of analysis, because what is eventually generated is an expectation of dyadic behavior. The triadic mechanics of balance theory

[2] *X* may also be a third individual.

[3] Cognitive balance theory has taken its lumps, but primarily as a theoretical explanation for group structure within social network theory. It appears to be enjoying a bit of a renaissance (see Hummon and Doreian 2003) with a renewed focus on the internal tension (Heider) variant.

FIGURE 1 Modeling Reputation Information



represent well the basic calculations, but the assumption here is a different motivation for the actors involved. States are less concerned with the problems associated with balance and more concerned with the problems associated with perception and lack of information. Extra-dyadic information is a valuable source of information about the intentions, reputation, and credibility of one's dyadic counterpart. States use other states as proxies to get a sense of what their dyadic partner would do in situations such as a crisis. An additional difference is that states assess the information available from all the possible other states in the system, but still must remain focused on the primary dyadic relationship, so some sort of aggregation will be required.

There are two components of the learning model to represent: information about extra-dyadic *behavior* and the *relevance* of that behavior. Figure 1 illustrates the components of this information dynamic. The top arrow connecting *A* and *B* is the information *A* seeks, an expectation of behavior by *B* toward *A*. The source of this information is two-dimensional. The behavior-information component is straightforward. Given three countries, *A*, *B*, and *C*, *A* can process information about *B* by looking at how *B* has historically interacted with *C*. States weight this information from the extra-dyadic behavior of other states. That is, *A* weights this information based on how similar it is to *C*. The more similar *A* and *C* are, the more *A* is able to treat *C* as a useful proxy for information. These weights determine the *relevance* of the *BC* relationship to *A*. If there is anything tricky about this setup, it is the argument that *A* weights the historical interaction within the *BC* dyad with a relevance comparison between *A* and *C* to learn about potential future interaction within the *AB* dyad. Since state leaders are nonmyopic in their search for information, *A* looks at all of the possible *C* states in the international system when searching for good proxies. *A* then aggregates this information in some fashion to gather an overall expectation of *B*'s behavior.

For this model, I focus on foreign policy and power characteristics to represent proxy value. Foreign policy similarity is one comparison characteristic used by *A* to determine how useful *C* is as a proxy.[4] The more similar the foreign policy portfolios of *A* and *C*, the more stock *A* places in the information coming from the *BC* dyad. Dissimilarity between *A* and *C* is important too. Heider's rules stipulate that "the enemy of my enemy is my friend," so if *B* demonstrates hostility toward *C* but *C*'s foreign policy portfolio is dissimilar from *A*'s, *A* may treat this as positive information about *B*.

Relative power is another important relevance characteristic (Kadera 2001; Waltz 1979). For instance, small states learn more from the way their opponents treat other small states than they do from the way their opponents treat major powers. More generally, when *A* assesses the way its opponent *B* treats *C*, it weights *B*'s behavior based on the power similarity between *A* and *C*. Similar power characteristics between *A* and *C* inform *A* that what *B* does to *C* it can also do to *A*. Conversely, as the disparity of power between *A* and *C* increases, the *BC* dyad becomes a less useful source of information for *A*.

For simplicity, this is labeled the *Reputation Information* (*RI*) model. The use of the term "reputation" refers simply to the vicarious experiential dimension of the information being processed (i.e., there is no direct interactive history between A and B used to generate this information). Clearly, this is not the only form of reputation in world politics, but it is a form of reputation. Equation (1) formalizes this discussion:

$$RI_{abN} = \frac{\sum_{c \neq a,b}^{N} \rho_{bc}\phi_{ac}\psi_{ac}}{N-2} \qquad (1)$$

where

N is the size of the system,
ρ_{bc} is the relationship between B and C, $\rho_{bc} \in (-1, 1)$,
ϕ_{ac} is the policy similarity between A and C, $\phi_{ac} \in (-1.1)$,
Ψ_{ac} is the power similarity between A and C, $\Psi_{ac} \in (0,1)$.

The three variables in the model, ρ_{bc} and ϕ_{ac}, and Ψ_{ac} capture the extra-dyadic relationship and the qualities of

[4]For example, Bueno de Mesquita (1981) uses foreign policy similarity to help determine the expected utility of conflict.

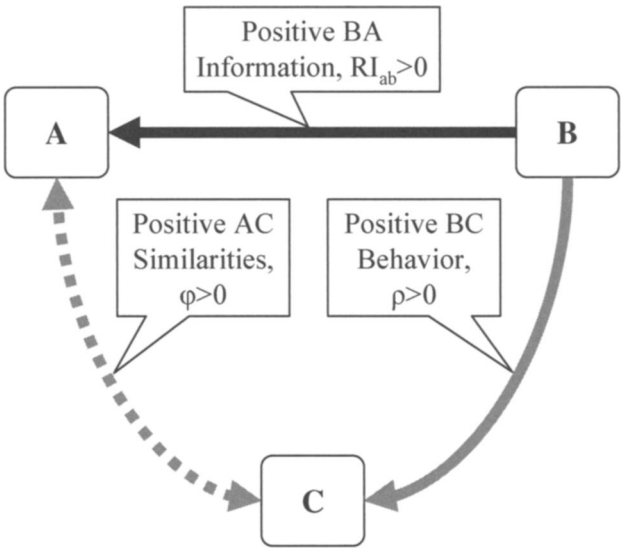
policy and power similarity, respectively. Together, their product is the weighted information that *A* seeks regarding *B*'s extra-dyadic behavior. This product is calculated for every state *C* in the international system besides *A* and *B*. The products are then aggregated and normalized for system size. $RI_{abN} \in (-1, 1)$, where one indicates *B*'s extra-dyadic behavior is perfectly compatible with *A*, and negative one indicates perfect incompatibility. Normalizing in this fashion not only brings the aggregated products within the intuitive −1 to 1 range, but it also allows us to compare scores across different system sizes. The model is set up such that zero values for any of the variables for a given *ABC* observation indicate no useful information can be gathered from that extra-dyadic interaction.[5] This simply means there is nothing to be learned from this particular interaction, but it does not mean that the aggregate score (RI_{abN}) is also zero (unless all of the *ABC* observations are zero).

The *RI* model captures the essence of learning from *B*'s ties with other states, and it reflects the core logic of Heider's rule. For example, when $\rho_{bc} > 0$ and $\phi_{ac} > 0$, the model corresponds to "the friend of my friend is my friend" (see Figure 2). When $\rho_{bc} < 0$ and $\phi_{ac} > 0$ then *A* gets information about *B* that is akin to "the friend of my enemy is my enemy" (see Figure 3). If $\rho_{bc} < 0$ and $\phi_{ac} < 0$, the model reflects "the enemy of my enemy is my friend." Similarly, $\rho_{bc} > 0$ combined with $\phi_{ac} < 0$ suggests "the enemy of my friend is my enemy."

The model is also more subtle and informative than Heider's rule and cognitive balance theory. It captures the degree of relevance for each proxy state, as well as the degree of hostility or cooperation between the proxy state and the dyadic counterpart. This ability to compare relative cooperation and conflict addresses one of the longstanding criticisms of balance theory that its qualitative formulation is too simple. The power similarity dimension adds further nuance to the learning model, allowing states to filter this information based on the capability similarity of a proxy state, regardless of its foreign policy similarity. Note also that this model is directional: RI_{abN} and RI_{baN} need not be equal.

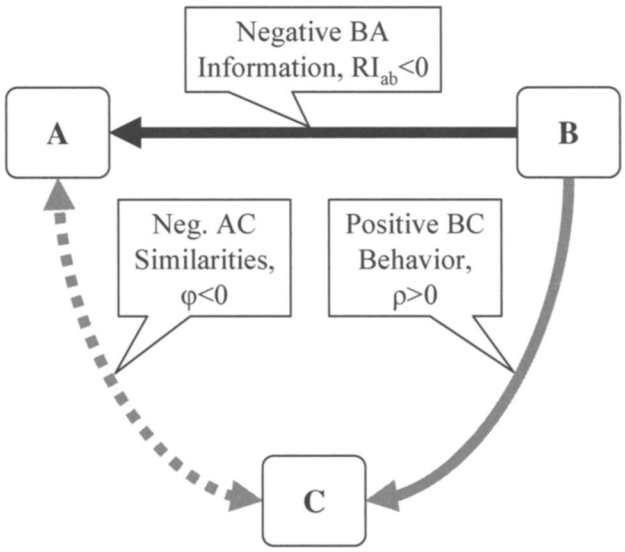
The functional form of the model is designed to emphasize the interaction of the individual components. The extreme regions of the calculation for each combination of *A*, *B*, and *C* states (−1, 1) can only be reached when all three components (ρ_{bc}, ϕ_{ac}, and ψ_{ac}) are at their extremes. Zero values for any component reduce the value of the calculation to zero. Thus, zero is designed to reflect the notion of neutrality or a lack of behavioral or relevance information.

FIGURE 2 The Friend of My Friend Is My Friend



$RI_{ab}>0$ also holds when $\rho<0$ and $\varphi<0$
(the enemy of my enemy is my friend)

FIGURE 3 The Friend of My Enemy Is My Enemy



$RI_{ab}<0$ also holds when $\rho<0$ and $\varphi>0$
(the enemy of my friend is my enemy)

[5]For example, a value of zero for ρ_{bc} indicates a neutral or nonexistent extra-dyadic relationship between *B* and *C*. A value of zero for ϕ_{ac} indicates that the foreign policy portfolios for *A* and *C* are neither similar nor dissimilar; they are simply unrelated. A zero value for ψ_{ac} indicates that *A* and *C* are completely dissimilar in terms of their power. In all three cases, the value of the information that *A* gleans from this particular *BC* relationship is zero.

The reputation information model satisfies the need to capture the behavioral and relational components of extra-dyadic learning. It reflects an explicit set of assumptions about how states learn, assumptions that are derived from previous research on learning and cognitive balance theory. Yet the model goes beyond these roots to provide a novel perspective on how we understand the process of learning from extra-dyadic activity. While it serves as a basic platform for research, it is not intended to represent the *only* form of learning for states. Certainly there are others, some complementary and some that may overlap with this representation. Ultimately, the question of how useful this model is as a representation of state learning must be answered through empirical application. In this vein, the next section provides a discussion of the causal linkage between learning and conflict, with an empirical examination that puts the *RI* model to the test.

Stage Two: The Impact of Reputation on Dispute Onset

With this first stage of the learning–foreign policy linkage in place, I now turn to the second stage of the process: the causal impact of this particular type of learning on foreign policy. Specifically, how does this reputation information affect the onset of militarized disputes at the dyadic level? The issue of how or whether reputation matters is unresolved. The classic wisdom on the matter comes from Schelling (1960, 1966), who argues that a reputation for violence, or "toughness," can deter potential enemies from using force (see also George and Smoke 1974; Huth and Russett 1984). Schelling's argument was that one's reputation for being fearsome and aggressive would give the enemy pause. This notion of using one's reputation as a signal of resolve fuels the basic deterrence argument. Not everyone buys into this idea, however. Press (2005) argues that in times of crisis leaders shed the baggage of reputation and history and focus almost exclusively on the current crisis. For Press, the question is one of whether or not reputation matters. I am concerned also with the question of *how* it matters.

Three lines of research are useful in explicating an argument for how the information gleaned from reputation affects the onset of interstate conflict. Leng (1983) provides an important theory of experiential learning in the context of direct dyadic interaction. His Experiential Learning-Realpolitik (ELR) model of crisis bargaining assumes that states learn from their experiences in prior crises. A coercive historical experience leads to an increased probability of employing more coercive bargaining tactics in the future. After careful empirical work, Leng concludes that "coercion begets coercion" (1983, 412).[6] Leng's ELR model is echoed in the study of rivalry and conflict (Diehl and Goertz 2001). Rivalry scholars do an excellent job of conceiving of a dyad as a dynamic, historically dependent entity. While the learning mechanism is not explicit, states within a rivalry dyad are constrained by the experiences of past violence when dealing with current crises. The accumulation of hostility becomes a key component to the rivalry's fundamental relationship. Once again, in rivalries conflict begets conflict. Finally, Crescenzi and Enterline (2001) present a model of the dyadic historical relationship that is experiential and cumulative. The model is in line with Leng's crisis learning patterns and rivalry theories in its assumption that conflict in the past leads to higher probabilities of conflict in the future, but it also broadens this argument to a more general treatment of the historical relationship.

The basic logic outlined in these three works may hold for vicarious experiential learning as well. It may also be true, however, that just as conflict begets conflict, cooperation begets cooperation (Crescenzi and Enterline 2001; Crescenzi, Enterline, and Long 2005). States that observe their dyadic partners as historically conflictual with similar proxy states will be more likely to resort to the use of force in times of crisis. At the same time, however, states that observe their dyadic partners as historically cooperative with proxy states will be less likely to use force.

Both arguments are fueled by the following logic. In the absence of complete information, states are forced to generate expectations about the behavior of other states. One possible learning schema for generating these expectations is to observe how other states behave in similar situations and use this observation as a precedent, or prior, for the current situation. In times of crisis, a nation will observe how its opponent has behaved in similar crises throughout history both within and outside of the dyad. This past behavior sets the stage for bargaining tactics, expectations, and ultimately the decision to use force. Rather than setting the stage for deterrence through toughness, however, a state's past behavior may signal its willingness or ability to commit to a negotiated settlement in times of crisis. Evidence of past conflict can be considered evidence of failures to navigate crisis waters peacefully. States that are unable to commit to peace in the past may be more likely to fail to do so in the future as well (Powell 2006). If this is true, then a reputation for violence will

[6] In Leng (1988) the model is referred to as REL, but the argument is consistent and even more logically robust. Leng (1993, 2000) also deals explicitly with experiential learning within the dyad, particularly for enduring rivals. He finds that while this learning can be constrained by realpolitik beliefs, it occurs regularly in enduring rivalries.

increase the probability of the onset of new violence in a crisis, as states who perceive these reputations will have a harder time compromising in settlement attempts and trusting their opponents. Similar to the arguments made in the work by Leng (1983, 1988, 1993, 2000), Diehl, and Goertz (2001), and Crescenzi and Enterline (2001), the testable conclusion from this discussion is that (reputational) violence begets violence.

These arguments are stated explicitly in the following hypothesis:

H1: The likelihood of militarized conflict between two states increases as RI_{abN} becomes more conflictual (decreases).

This hypothesis establishes the expected qualitative relationship between reputation information and conflict. The next section details the research design and analysis of the causal relationship between this extra-dyadic information and the onset of militarized conflict.

Data and Method

A semiparametric Cox event history model is used to test the above hypothesis. The focus here is on modeling the hazard rate of an event. In this case, the event, or hazard, is the onset of a militarized dispute (Jones, Bremer, and Singer 1996). As such, the dependent variable is the survival time or the accumulation of time without the onset of a militarized dispute. Event history models help us understand the factors that hasten or delay such events. The Cox model is adept at assessing rare events, such as the incidence of militarized conflict. Recently, the Cox model has emerged as the tool of choice when using event history models, due to its parsimonious demands and flexibility handling time-varying covariates (Box-Steffensmeier and Jones 1997).[7] The data contain observations from all dyad-years from 1817 to 2000, with subsets of this sample used to conduct robustness checks of the results.

The Primary Independent Variable: *RISc*

The causal variable of interest, of course, is an operationalization of the *RI* model specified in equation (1). There are three pieces of the model that can be measured using current data. The first piece, ρ_{bc}, reflects the historical relationship between states *B* and *C*. I use the *Interstate Interaction Score* (IIS_{bc}) to measure this historical relationship (Crescenzi and Enterline 2001). This score measures the behavioral history of hostility between two nations. In this study I am using a modified *IIS* measure that incorporates the change in joint IGO membership as an indication of cooperation.[8] The measure has the potential range of −1 (maximum historical hostility) to 1 (maximum historical cooperation), and an actual range of −0.94 to 0.42. The only other theoretically informed option is the categorical data on enduring rivalries (Diehl and Goertz 2001). Issues concerning research design, however, preclude the use of enduring rivalry data to inform an independent variable at the dyad-year level of analysis when conflict is the dependent variable.

For the second piece of the model, ϕ_{ac} represents the foreign policy similarity between states *A* and *C*. The Signorino and Ritter (1999) *S*-Similarity Score is a natural fit here.[9] The *S* score ranges from completely similar to completely opposite foreign policy portfolios (1 to −1).

Finally, the third piece of the model (ψ_{ac}) requires information about the power similarity between states *A* and *C*. For this piece I have adapted the standard Composite Indicator of National Capabilities (CINC) scores slightly (Singer, Bremer, and Stuckey 1972). Since I am concerned primarily with power *similarity*, I use a capability similarity score defined as $1 - |\text{CINC}_a - \text{CINC}_c|$. The measure ranges from perfectly symmetric (1) to completely asymmetric (0) power. The use of CINC scores to operationalize this piece of the model is imperfect, as alternatives such as GDP per capita can be more attractive. Because of the need to use a consistent measure across the entire time frame of the data, however, the use of the CINC scores is necessary.

Together the three components fit into the measure for the *RI* model, as specified in equation (2). To keep the

[7] Because it requires fewer assumptions than its cousins (such as Weibull models), it is a useful and robust choice when we do not have expectations of duration dependence (in this case, the notion that the hazard of dispute onset will grow larger or smaller as a function of the time since the last dispute within the dyad).

[8] See Crescenzi, Enterline, and Long (2006) for a detailed description of the modified measure. Change in joint IGO membership is adjusted for the size of each IGO such that joint membership in an IGO has a decreasing cooperative impact relative to the size of the IGO. I use the COW IGO data v. 2.1 (Pevehouse, Nordstrom, and Warnke n.d.) for this information, using only the yearly data from 1965 to 2000 (data from 1815 to 1965 are collected in five-year increments). Prior to 1965, the *IIS* measure only incorporates conflict information. As a robustness check, the analyses below were rerun using the unmodified *IIS* measure, with similar results.

[9] An alternative would be to use the τ^B measure (Bueno de Mesquita 1981). The *S* score is a mathematical improvement over the τ^B, and there is some evidence that it performs better in empirical situations as well (Bennett and Rupert 2003).

model and measure distinct, I label the measure *RISc* (or *RI* Score).

$$RISc_{abN} = \frac{\sum_{c \neq a,b}^{N} IIS_{bc} S_{ac} C_{ac}}{N-2} \quad (2)$$

where

N is the size of the system,
IIS_{bc} is the Interstate Interaction Score between B and C,
S_{ac} is the S Similarity Score between A and C,
C_{ac} is the Capability Similarity Score between A and C.

The variable is generated in the directed dyad format, which treats the $\overrightarrow{AB}$ and $\overrightarrow{BA}$ dyads as distinct. In order to use $RISc_{abN}$ in the nondirected dyad research design, I select the smaller (more negative) of the two scores to represent the most extreme information available: $RISc_{abN}(\min) = RISc_{abN}$ if $RISc_{abN} < RISc_{abN}$, and $RISc_{abN}(\min) = RISc_{abN}$ otherwise.[10]

Additional Causal Variables: Controlling for Opportunity and Willingness

In order to assess the performance of the independent variable of interest, I include a set of control variables designed to account for alternative explanations of dispute onset. That is, before we can understand the role of extra-dyadic information on dispute onset, we need to identify and control for the well-established causal factors associated with the phenomenon of militarized conflict. These control variables fall into two categories: controlling for opportunity and willingness (Most and Starr 1989). Three variables representing capability and contiguity account for the opportunity to engage in conflict. Four variables are included to account for fundamental issues of willingness: the direct historical relationship, alliance behavior, the democratic peace, and foreign policy similarity (all at the dyadic level of analysis). Clearly there are other options available for control variables (e.g., trade, institutions, power shifts, etc.), but there is also a renewed focus on limiting the number of explanatory variables in econometric models (Achen 2005; Clarke 2005; Kadera and Mitchell 2005; Ray 2005). This specification includes the fundamental alternative causal mechanisms for which we need to control. In a subsequent robustness check, additional variables using a working econometric model developed by Oneal, Russett, and Berbaum (2003) are incorporated into a second specification and test.

[10]The models below were also run with both directed dyad variables included as independent variables, producing compatible results.

Three control variables serve to capture the opportunity of states to engage in disputes. The first two variables concern the capability of a state to fight its rival given the willingness to do so. *Capability* is represented in the standard fashion, taking the log of the ratio of the CINC scores for the two states (with the larger CINC score in the numerator).[11] As such, this variable accounts for the relative ability of states to escalate crises to the militarized level, with parity being more dangerous than preponderance (Bremer 1992). In addition, I include a dummy variable for all minor-minor powers in order to control for dyads that have power parity but neither state has much absolute capacity to engage in conflict (Senese 2005).[12] The final opportunity dimension, contiguity, is represented using the *Contiguous* variable. For this dummy variable, a score of one represents any level of contiguity, while zero represents noncontiguity.[13]

Four control variables capture alternative sources of willingness to engage in disputes. The historic relationship within the dyad is measured using the Interstate Interaction Score (IIS_{ab}).[14] This variable controls for previous hostility between A and B that may overwhelm the influence of extra-dyadic information. I include this information as a control for testing Hypothesis 1 in two ways. The *IIS* score is included as an independent variable as one would expect, but I am also including an interaction term for the *IIS* and *RISc* scores. Previous research on historical relationships and rivalries suggests that the direct historical relationship between two states is crucial to their propensity to use force (Crescenzi and Enterline 2001; Diehl and Goertz 2001). While I expect reputation information to have an independent impact on conflict, I also expect this impact to be stronger when dyads have a meaningful direct behavioral history. In order to test this argument I interact the *RISc* and *IIS* variables. The interaction variable has a range of $-.01$ to 0.23. Values increase when either component variable moves away from 0, as long as the other component is not zero.

Alliance behavior is needed to control for institutional affiliations between A and B that may inhibit conflict or make it less desirable by both parties (Gibler and Sarkees 2004). It is measured with the *Alliance* variable, a

[11]Version 3.0.2 of the National Material Capabilities data set was used to generate this variable. See Singer, Bremer, and Stuckey (1972).

[12]Major/Minor powers data from COW (2005) were used to generate this variable.

[13]Version 3.0 of the Direct Contiguity data set was used to generate this variable (Stinnett and Gochman 2002). An alternate specification restricting contiguity to mean borders within 150 miles of each other produced similar results.

[14]Note this is different than the IIS_{bc} information used to calculate $RISc_{ab}$.

TABLE 1 Cox Survival Analysis of Dispute Onset

Variable	1 1817–2000	2 1817–2000	3 1817–2000
$RISc_{AB}$		−13.01***	−13.23***
		(0.82)	(1.46)
IIS_{AB}	−2.61***		−3.15***
	(0.20)		(0.22)
$RISc * IIS$			−30.62***
			(4.31)
$Contiguous_{AB}$	2.83***		2.78***
	(0.14)		(0.14)
Capability Ratio$_{AB}$ (logged)	−0.11**		−0.12***
	(0.03)		(0.03)
Minor Powers$_{AB}$	−1.33***		−1.29***
	(0.13)		(0.13)
Regime Score$_{AB}$ (weak link)	−0.004***		−0.003***
	(0.001)		(0.001)
S-Score$_{AB}$	0.30		0.21
	(0.31)		(0.31)
N (failures)	586,673	660,830	586,673
	(1, 998)	(2,386)	(1,998)
Log likelihood	−13,279	−19,665	−13,139.5
χ^2 (Wald)	2,028.4***	248.9***	2,483.6***

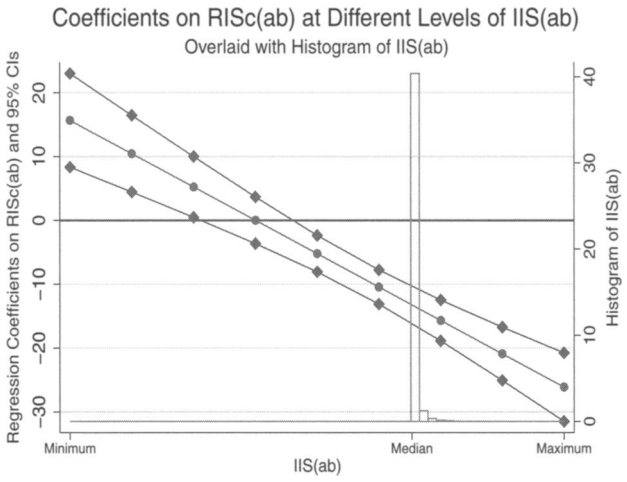
Coefficients are presented in log-relative hazard-format. Robust std. errors adjusted for clustering on dyad in (). *** = significant at the .001 level. ** = .01, * = .05., one-tailed tests.

dummy variable where 1 represents an alliance between *A* and *B*. All forms of alliances are aggregated in this measure. The *Regime Score* variable captures the dyadic democratic peace effect on conflict, using a standard "weak link" approach that reports the lowest *Polity* score for each dyad/year.[15] Finally, the *S*-score accounts for foreign policy similarity between *A* and *B*, thereby controlling for similar behavior across the dyad that may account for the expected utility of conflict (Bueno de Mesquita 1980; Signorino and Ritter 1999).

Results

The results of the initial hazard analysis are reported in Table 1. Model 1 provides a baseline null model. Model 2 simply assesses the role of reputation information on the likelihood of dispute onset across all possible dyads from 1817 to 2000. The coefficient estimate for *RISc* is negative and statistically significant, indicating that conflict is more likely when *RISc* decreases (*B* has hostile ties with countries similar to *A*) and less likely when *RISc* increases. Model 3 presents a more thorough test, as it includes the control variables in the analysis (again, all dyads, 1817–2000). Even with this inclusion of alternative explanations for the incidence of disputes, the *RISc* relationship variable has a negative, statistically significant coefficient.

FIGURE 4 Parameter Variance for *RISc* and *IIS* Interaction



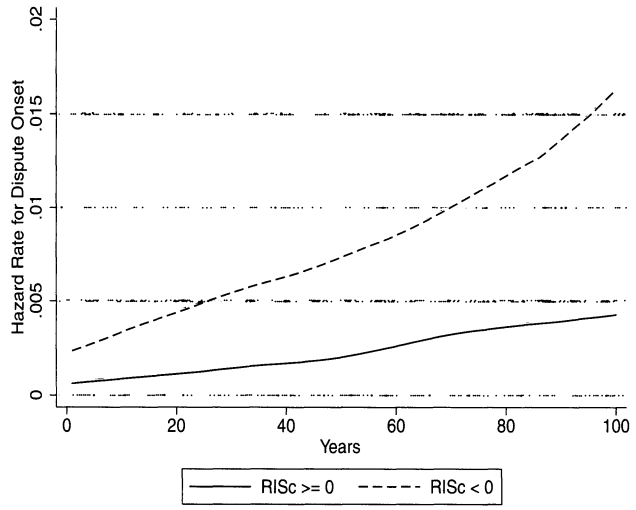
Before pushing the discussion of the *RISc* parameter results too far, however, it is important to evaluate the interaction term (*RISc* ∗ *IIS*) in conjunction with the individual parameter estimates. Braumoeller (2004) points out the dangers of ignoring the interaction term when interpreting results, and he emphasizes the need to evaluate the dynamics of the parameter estimates across the range of interaction. Using a diagnostic tool developed by Braumoeller to refocus the interpretation of the impact of reputation on dispute onset, Figure 4 informs us of the variance of the *RISc* parameter across the possible values of *IIS*. The results suggest that for the vast majority of the values of *IIS* in the sample, the correct interpretation of the *RISc* parameter is that a reputation for violence increases the likelihood of dispute onset.

Figure 5 visually demonstrates the substantive impact of the *RISc* variable on the hazard of dispute onset. The graph contains two lines consisting of the predicted hazard rate of dispute onset across the age of the dyad (in years).[16] I have created a dummy variable to split the

[15] See Bueno de Mesquita et al. (1999) and Russett and Oneal (2001) for discussions of why the democratic peace has an impact on conflict. The Polity variable from the Polity IV data set was used for this calculation (Marshall and Jaggers 2000).

[16] These graphs are produced using the coefficient estimates from Model 3 in Table 1.

FIGURE 5 Hazard Estimates by *RISc*



data into observations where the *RISc* variable is negative versus positive or zero. The idea here is to separate out the dyad-years where a conflictual reputation exists versus years where this reputation information is neutral or positive. The solid line reflects the predicted hazard for dyads when *RISc* is positive or zero. The dashed line reflects the predicted hazard for dyads when *RISc* is negative. Dyads with negative (conflictual) reputation information are consistently and considerably more vulnerable to disputes than dyads that have neutral or positive (cooperative) reputation information. The summary interpretation of Table 1 and Figure 5 is that Hypothesis 1 is supported: dyads with conflictual reputation information are at a higher risk for militarized dispute onset.

Robustness Checks

One drawback to the Cox model is that it assumes all the covariates influence the hazard of conflict consistently across time. This proportional hazards assumption is difficult to maintain over long periods of time. All of the independent variables in Model 3 of Table 1 violate this assumption (except *Alliance*). Two additional sets of analyses are used to compensate for the existence of nonproportional hazards. First, I have rerun Model 3 from with each covariate (except *Alliance*) interacted with $in(t)$ to correct for nonproportional hazards (Cleves, Gould, and Gutierrez 2002).[17] Due to the large proportion of covariates that violate the proportional hazard assumption, I have also estimated one time-interacted covariate at a time. Including all of the time-interactions at once runs the risk of imposing multicollinearity in the model. Adding one interacted variable at a time is a common procedure for coping with nonproportional hazards (Cleves, Gould, and Gutierrez 2002, see chapter 11).[18]

The addition of the time-interacted covariates has an interesting impact on the original model. Generally, the *RISc*(t), *IIS*(t), and *Contiguous*(t) covariates are statistically significant. It appears that the original model underestimates the initial impact of *RISc*, and the impacts gradually diminish over time.[19] The results also indicate that the impact of contiguity is overestimated early on in the temporal domain and underestimated later on in the temporal domain. In addition, the results indicate that the effect of the interaction term in Model 3 is overestimated early in the temporal domain and underestimated later on. Overall, the results that support Hypothesis 1 remain very stable across the two diagnostic analyses.

A second concern with this analysis lies with the large sample size used to fit the parameters of the model. Similarly, the analysis also imposes a fairly parsimonious model upon a large number of dyads in the international system, which suggests the possibility of omitted variable bias. As an initial check, Model 3 of Table 1 was reestimated using only Politically Relevant Dyads (see Maoz and Russett 1993). The model was also reestimated on a post–World War II temporal sample (with all dyads and again with only PRDs). In all cases the parameter estimates for the *RISc*, *IIS*, and *RISc* $*$ *IIS* variables were consistent with the results in Table 1.

I have further attempted to check for these problems simultaneously by running shared-frailty models on small random samples of the data (Box-Steffensmeier and Jones 2004; Hougaard 2000). The frailty models attempt to compensate for the individual risk levels of each dyad (with the idea being that some dyads are more "frail" than others, or susceptible to violence in ways that are not captured by the variables in the model). The random samples also attempt to prevent certain dyads or time periods from driving the results (e.g., World War II dyads) as well as provide a smaller sample from which to estimate the parameters. Once again, in each reestimation the parameter estimates for the *RISc*, *IIS*, and *RISc* $*$ *IIS* variables were consistent with the results in Table 1.

[17]The new variables were generated by interacting the independent variables with the natural log of time.

[18]The results are not reported completely here for space reasons. Please contact the author for this technical appendix.

[19]Very gradually. It would take over 100 years before the initial impact of *RISc* is completely diminished.

TABLE 2 MID Onset Analysis (Oneal, Russett, and Berbaum 2003)

Variable	1 All Onsets	2 All Onsets	3 Fatal MIDs	4 Fatal MIDs
RISc		−13.161***		−18.545***
		(2.523)		(2.884)
IIS		−2.015***		−2.465***
		(0.216)		(0.275)
RISc * *IIS*		−28.499***		−50.478***
		(6.822)		(8.59)
Democracy Score$_L$	−0.056***	−0.061***	−0.055**	−0.062***
	(0.011)	(0.011)	(0.021)	(0.02)
Trade-to-GDP Ratio$_L$	−54.459***	−40.166***	−104.222***	−78.713***
	(14.482)	(12.893)	(28.444)	(22.453)
Joint Memberships in IGOs	−0.125**	−0.07	−0.22**	−0.175*
	(0.05)	(0.048)	(0.09)	(0.082)
Allies	−0.373**	−0.262*	−0.402*	−0.203
	(0.149)	(0.138)	(0.249)	(0.224)
Capability Ratio (log)	−0.286***	−0.232***	−0.467***	−0.416***
	(0.05)	(0.045)	(0.079)	(0.073)
Contiguous	2.747***	2.588***	2.665***	2.412***
	(0.192)	(0.183)	(0.282)	(0.263)
Distance (log)	−0.573***	−0.543***	−0.653***	−0.608***
	(0.061)	(0.057)	(0.091)	(0.08)
Major Power Involvement	1.92***	1.722***	1.86***	1.621***
	(0.2)	(0.178)	(0.298)	(0.276)
Constant	−1.862***	−2.334***	−2.197***	−2.789***
	(0.519)	(0.483)	(0.77)	(0.659)
N	320,781	318,129	320,547	317,922
χ^2 (Wald)	2,335.46***	3,342.81***	1,130.59***	1,554.68***

*** = significant at the .001 level. ** = .01, * = .05. All tests are one-tailed. Semi-robust std. errors in (). Sample includes all dyads for the years 1885–1992.

A third concern with this analysis lies with a particular alternative explanation. That is, could this reputation result really be driven by the Cold War alliance dynamics of the NATO and Warsaw Pact alliances? To test for this possibility I reestimate Model 3 with the inclusion of dummy variables for all NATO dyads and Warsaw Pact dyads. The results are unchanged.[20]

As a final check of the robustness of the results of the original analysis, I include the *RISc*, *IIS*, and *RISc* * *IIS* variables in an alternate model specification. For this alternate model, I use Oneal, Russett, and Berbaum's analysis of the liberal peace (Oneal, Russett, and Berbaum 2003). This is a widely recognized model that is used to investigate causal influences on the onset of militarized disputes, so the reader can refer to the Oneal, Russett, and Berbaum work as well as Russett and Oneal (2001) for details regarding the data and the theory behind the model. Instead of using survival analysis, the Oneal and Russett model employs a close cousin, the generalized linear model (GLM), that is similar to logistic regression (with corrections for temporal dependence and panel weights). These alternative models use their 2003 data, which is a sample of all dyad/years from 1885 to 1992. The results of this alternative analysis are presented in Table 2.

Model 1 in Table 2 is a near replication of Oneal, Russett, and Berbaum with dispute onset as the dependent variable.[21] Model 2 incorporates the *RISc*, *IIS*, and

[20]The parameter for the NATO dummy is negative and statistically significant. The parameter for the Warsaw Pact dummy is statistically insignificant.

[21]The coefficients reported in Oneal, Russett, and Berbaum (2003) are actually averages of multiple distributed lags for each covariate. I instead report the results from a single run of the model without the distributed lags, using the data generously provided by

RISc * *IIS* variables into the original model. The coefficient for *RISc* is again highly statistically significant and negatively signed, indicating that it reduces the likelihood of dispute onset between dyads when positive, and increases this likelihood when negative. The dyad's direct behavioral history (*IIS*) has a similar impact on dispute onset, and the interactive term is consistent with its impact in the survival analysis above as well. Models 3 and 4 repeat this test using fatal *MIDs* as the dependent variable.[22] All of the other variables remain consistent with the original model (both in sign and statistical significance) with the exception of Joint Membership in *IGOs* and Allies.[23] These results show that evaluating Hypothesis 1 by including the *RISc* variable in an alternative model with a different set of control variables provides robust support.

Conclusion

At the outset, this article sought to establish a more explicit understanding of reputation in world politics. At the same time, there was a need to incorporate the causal impact of extra-dyadic information into the predominant research designs of today. Both goals have been achieved, with some interesting lessons learned along the way. Clearly, states observe extra-dyadic behavior and incorporate this information when dealing with intra-dyadic relations. Using third-party states as proxies, states look for precedent and reputation in the extra-dyadic behavior of their dyadic partners. As opponents demonstrate hostility toward these proxy states across time, the likelihood of intra-dyadic conflict increases markedly.

The approach taken here presents a complementary alternative to recent econometric work. I develop a model of one dimension of this phenomenon to help us understand how this interdependence influences dyadic behavior. Certainly there are other causal mechanisms to be explored, and this work should be seen as part of a broader agenda to uncover these processes. The learning modeled here is but one of many important processes that contribute to the many dimensions of reputation. Collective memberships, group dynamics, regional memberships, and cultural similarities are just some of the other possible sources of this information. There is much work to be done, but this research provides a solid foundation for future research.

This article demonstrates the importance of the proxy reputation model in the study of international conflict. It also demonstrates the portability of the measure derived from the model and its accessibility to scholars in the field. The development of this simple model leads to many new (and renewed) research questions concerning international conflict: Does direct experiential learning outweigh vicarious experiential learning? Do states focus only on congruent foreign policies when identifying useful proxy states to learn from, or does Heider's "the enemy of my enemy is my friend" dimension hold? Given that this vicarious experiential learning influences state decisions to engage in militarized disputes, does it affect the decision to escalate to war?

The broader empirical results suggest that the presence and relevance of spatial interdependence to the dependent variable does not necessarily indicate problems of omitted variable bias or other econometric woes. Incorporating the reputation model into standard empirical research on the onset of militarized disputes did not significantly alter the previously established roles of phenomena such as the democratic peace. Instead, the empirical research conducted here suggests that spatial interdependence is an important part of a state's decision calculus regarding conflict, but it is not the only factor. Nor does it overlap significantly with other dimensions of this calculus. Its influence on the onset of conflict is unique, and by explicitly modeling it, new progress has been made towards a full understanding of what causes conflict to occur.

the authors (see http://www.yale.edu/unsy/democ/democ1.htm). I omit the *Previous Dispute* variable, as it would be undoubtedly captured by the *IIS* variable, and two variables appear to be the inverse of what is reported in the table. I use *Contiguous* while the authors use *Not Contigous*, and *Major Power Involvement* instead of *Minor Powers*, simply because I am using the data as provided on the website. The interpretation is straightforward.

[22] A fatal *MID* is a militarized dispute with at least one recorded fatality.

[23] Both variables keep the same sign but lose statistical significance. The change in the IGO membership coefficient is not surprising, as this data is also used in the operationalization of the *IIS* variable.

References

Achen, Christopher H. 2005. "Let's Put Garbage-Can Regressionas and Garbage-Can Probits Where They Belong." *Conflict Management and Peace Science* 22 (4): 327–40.

Beck, Nathaniel, Jonathan Katz, and Richard Tucker. 1998. "Taking Time Seriously: Time-Series-Cross-Section Analysis with a Binary Dependent Variable." *American Journal of Political Science* 42 (4): 1260–88.

Beck, Nathaniel, and Jonathan N. Katz. 1995. "What to Do (and Not to Do) with Time-Series Cross-Section Data." *American Political Science Review* 89 (3): 634–47.

Bennett, D. Scott, and Matthew C. Rupert. 2003. "Comparing Measures of Political Similarity." *Journal of Conflict Resolution* 47 (3): 367–94.

Bennett, D. Scott, and Allan Stam. 2000. "EUGene: A Conceptual Manual." *International Interactions* 26: 179–204.

Box-Steffensmeier, Janet M., and Bradford S. Jones. 1997. "Time Is of the Essence: Event History Models in the Political Science." *American Journal of Political Science* 41 (4): 414–61.

Box-Steffensmeier, Janet M., and Bradford S. Jones. 2004. *Event History Modeling. A Guide for Social Scientists.* Cambridge: Cambridge University Press.

Braumoeller, Bear F. 2004. "Hypothesis Testing and Multiplicative Interaction Terms." *International Organization* 58 (4): 807–20.

Bremer, Stuart A. 1992. "Dangerous Dyads: Conditions Affecting the Likelihood of Interstate War, 1816–1965." *Journal of Conflict Resolution* 36: 309–41.

Bueno de Mesquita, Bruce. 1980. "An Expected Utility Theory of International Conflict." *American Political Science Review* 74 (4): 917–31.

Bueno de Mesquita, Bruce. 1981. *The War Trap.* New Haven: Yale University.

Bueno de Mesquita, Bruce, James D. Morrow, Randolph M. Siverson, and Alastair Smith. 1999. "An Institutional Explanation of the Democratic Peace." *American Political Science Review* 93 (4): 791–808.

Clarke, Kevin A. 2005. "The Phantom Menace: Omitted Variable Bias in Econometric Research." *Conflict Management and Peace Science* 22 (4): 341–52.

Cleves, Mario A., William W. Gould, and Roberto G. Gutierrez. 2002. *An Introduction to Survival Analysis Using STATA.* College Station, TX: STATA Press.

Correlates of War Project. 2005. "State System Membership List, v2004.1." URL: *http://correlatesofwar.org.*

Crescenzi, Mark J. C., and Andrew J. Enterline. 2001. "Time Remembered: A Dynamic Model of Interstate Interaction." *International Studies Quarterly* 4 (4): 409–31.

Crescenzi, Mark J. C., Andrew J. Enterline, and Stephen B. Long. 2006. "Bringing Cooperation Back In: A Fully Informed Dynamic Model of Interstate Interaction." Working manuscript. University of North Carolina.

Deutsch, Karl W. 1954. *Political Community at the International Level: Problems of Definition and Measurement.* Garden City, NY: Doubleday.

Diehl, Paul F., and Gary Goertz. 2001. *War and Peace in International Rivalry.* Ann Arbor: University of Michigan Press.

Dixon, William J. 1983. "Measuring Interstate Affect." *American Journal of Political Science* 27 (4): 828–51.

Farkas, Andrew. 1998. *State Learning and International Relations.* Ann Arbor: University of Michigan.

Fearon, James D. 1994. "Domestic Political Audiences and the Escalation of International Disputes." *American Political Science Review* 88 (3): 577–92.

George, Alexander, and Richard Smoke. 1974. *Deterrence in American Foreign Policy.* New York: Columbia University Press.

Gibler, Douglas M., and Meredith Sarkees. 2004. "Measuring Alliances: The Correlates of War Formal Interstate Alliance Data Set, 1816–2000." *Journal of Peace Research* 41 (2): 211–22.

Goldstein, Joshua S., and John R. Freeman. 1990. *Three-Way Street: Strategic Reciprocity in World Politics.* Chicago: University of Chicago Press.

Harary, Frank. 1959. "On the Measurement of Structural Balance." *Behavioral Science* 2 (4): 316–23.

Harary, Frank, Robert Norman, and Dorwin Cartwright. 1965. *Structural Models: An Introduction to the Theory of Directed Graphs.* New York: Wiley.

Heagerty, Patrick, Michael D. Ward, and Kristian Skrede Gleditsch. 2002. "Windows of Opportunity: Window Subseries Empirical Variance Estimators in International Relations." *Political Analysis* 10 (3): 304–17.

Heider, F. 1946. "Attitudes and Cognitive Organizations." *Journal of Psychology* 21: 107–12.

Hoff, Peter D., and Michael Ward. 2004. "Modeling Dependencies in International Relations Networks." *Political Analysis* 12 (2): 160–75.

Hougaard, Philip. 2000. *Analysis of Multivariate Survival Data.* New York: Springer-Verlag.

Houweling, Henk, and Jan Siccama. 1985. "The Epidemiology of War, 1816–1980." *Journal of Conflict Resolution* 10 (4): 641–63.

Hummon, Norman P., and Patrick Doreian. 2003. "Some Dynamics of Social Balance Processes: Bringing Heider Back into Balance Theory." *Social Networks* 25 (1): 17–49.

Huth, Paul, and Bruce Russett. 1984. "What Makes Deterrence Work? Cases from 1900 to 1980." *World Politics* 36 (4): 496–526.

Huth, Paul K. 1988. *Extended Deterrence and the Prevention of War.* New Haven and London: Yale University Press.

Jervis, Robert. 1976. *Perception and Misperception in International Politics.* Princeton: Princeton University Press.

Jones, Daniel M., Stuart A. Bremer, and J. David Singer. 1996. "Militarized Interstate Disputes, 1816–1992: Rationale, Coding Rules, and Empirical Patterns." *Conflict Management and Peace Science* 15 (2): 163–216.

Kadera, Kelly M. 1998. "Transmission, Barriers, and Constraints: A Dynamic Model of the Spread of War." *Journal of Conflict Resolution* 42 (3): 367–88.

Kadera, Kelly M. 2001. *The Power-Conflict Story: A Dynamic Model of Interstate Rivalry.* Ann Arbor: University of Michigan Press.

Kadera, Kelly M., and Sara McLaughlin Mitchell. 2005. "Introduction to CMPS Special Issue: Manna from Heaven or Forbidden Fruit? The (Ab)Use of Control Variables in Research on International Conflict." *Conflict Managment and Peace Science* 22 (4): 273–76.

Lee, Sung Chull, Robert G. Muncaster, and Dina A. Zinnes. 1994. "'The Friend of My Enemy Is My Enemy': Modeling Triadic Internation Relationships." *Synthese* 100: 333–58.

Leng, Russell J. 1983. "When Will They Ever Learn? Coercive Bargaining in Recurrent Crises." *Journal of Conflict Resolution* 27 (3): 379–419.

Leng, Russell J. 1988. "Crisis Learning Games." *American Political Science Review* 82 (1): 179–94.

Leng, Russell J. 1993. *Interstate Crisis Behavior, 1816–1980: Realism versus Reciprocity.* New York: Cambridge University Press.

Leng, Russell J. 2000. *Bargaining and Learning in Recurring Crises: The Soviet-American, Egyptian-Israeli, and Indo-Pakistani Rivalries*. Ann Arbor: University of Michigan.

Levy, Jack. 1982. "The Contagion of Great Power War Behavior: An Analysis of the Great Powers, 1495–1975." *American Journal of Political Science* 26 (3): 562–84.

Levy, Jack S. 1994. "Learning and Foreign Policy: Sweeping a Conceptual Minefield." *International Organization* 48 (2): 279–312.

Maoz, Zeev. 1990. *National Choices and International Processes*. New York: Cambridge University Press.

Maoz, Zeev. 1996. *Domestic Source of Global Change*. Ann Arbor: University of Michigan.

Maoz, Zeev, and Bruce Russett. 1993. "Normative and Structural Causes of the Democratic Peace." *American Political Science Review* 87 (3): 624–38.

Marshall, Monty G., and Keith Jaggers. 2000. "Polity IV Dataset." URL: *http://www.cidcm.umd.edu/inscr/polity/*.

Mercer, Jonathan. 1996. *Reputation and International Politics*. Ithaca, NY: Cornell University Press.

Most, Benjamin, and Harvey Starr. 1989. *Inquiry, Logic and International Politics*. Columbia: University of South Carolina Press.

Newcomb, Theodore M. 1953. "An Approach to the Study of Communicative Acts." *Psychological Review* 60 (6): 393–404.

Newcomb, Theodore M. 1961. *The Acquaintance Process*. New York: Holt, Rinehart and Winston.

Oneal, John R., Bruce Russett, and Michael L. Berbaum. 2003. "Causes of Peace: Democracy, Interdependence, and International Organizations, 1885–1992." *International Studies Quarterly* 47 (3): 371–93.

Pevehouse, Jon, Timothy Nordstrom, and Kevin Warnke. n.d. "Intergovernmental Organizations, 1815–2000: A New Correlates of War Data Set." Internet.

Powell, Robert. 2006. "War as a Commitment Problem." *International Organization* 60 (1): 169–203.

Press, Daryl G. 2005. *Calculating Credibility: How Leaders Assess Military Threats*. Ithaca, NY: Cornell University Press.

Raknerud, Arvid, and Havard Hegre. 1997. "The Hazard of War: Reassessing the Evidence for the Democratic Peace." *Journal of Peace Research* 34 (4): 385–404.

Ray, James Lee. 2005. "Constructing Multivariate Analyses (of Dangerous Dyads)." *Conflict Management and Peace Science* 22 (4): 277–92.

Reiter, Dan. 1996. *Crucible of Beliefs: Learning, Alliances, and World Wars*. Ithaca, NY: Cornell University Press.

Richardson, L. F. 1960. *Arms and Insecurity*. Chicago: Quadrangle.

Russett, Bruce M., and John R. Oneal. 2001. *Triangulating Peace: Democracy, Interdependence, and International Organizations*. New York: Norton.

Schelling, Thomas C. 1960. *The Strategy of Conflict*. Cambridge, MA: Harvard University Press.

Schelling, Thomas C. 1966. *Arms and Influence*. New Haven: Yale University Press.

Schrodt, Philip A. 1978. "The Richardson *N*-Nation Model and the Balance of Power." *American Journal of Political Science* 22 (2): 364–90.

Schrodt, Philip A., and Alex Mintz. 1988. "The Conditional Probability Analysis of International Events Data." *American Journal of Political Science* 32 (1): 217–30.

Senese, Paul D. 2005. "Territory, Contiguity, and International Conflict: Assessing a New Joint Explanation." *American Journal of Political Science* 49 (4): 769–79.

Shanker, Thom. 2002. "Aftereffects: Korea Strategy; Lessons from Iraq Include How to Scare Korean Leader." *New York Times* May 12, A17.

Signorino, Curtis S. 1999. "Strategic Interaction and the Statistical Analysis of International Conflict." *American Political Science Review* 93 (2): 279–97.

Signorino, Curtis S., and Jeffrey M. Ritter. 1999. "Tau-b or Not Tau-b: Measuring the Similarity of Foreign Policy Positions." *International Studies Quarterly* 4 (1): 115–44.

Singer, J. David, Stuart Bremer, and John Stuckey. 1972. "Capability Distribution, Uncertainty, and Major Power War, 1820–1965." In *Peace, War, and Numbers*, ed. Bruce M. Russett. Beverly Hills: Sage Publications, pp. 19–48.

Siverson, Randolph, and Harvey Starr. 1991. *The Diffusion of War: A Study of Opportunity and Willingness*. Ann Arbor: University of Michigan Press.

Snyder, Jack. 1991. *Myths of Empire: Domestic Politics and International Ambition*. Ithaca and London: Cornell University Press.

StataCorp. 2003. *Stata Statistical Software: Release* 8.0. College Station, TX: Stata Corporation.

Stinnett, Douglas M., Jaroslav Tir, Philip Schafer, Paul F. Dieh, and Charles Gochman. 2002. "The Correlates of War Project Direct Contiguity Data, Version 3." *Conflict Mangagement and Peace Science* 19 (2): 58–66.

Waltz, Kenneth. 1979. *Theory of International Politics*. New York: Random House.

Waltz, Kenneth N. 1970. "The Myth of National Interdependence." In *The Multinational Corporation*, ed. Charles P. Kindleberger. Cambridge, MA: MIT Press, pp. 205–23.

Ward, Michael D., and Kristian Skrede Gleditsch. 2002. "Location, Location, Location: An MCMC Approach to Modeling the Spatial Context of War and Peace." *Political Analysis* 10 (3): 244–60.

Zinnes, Dina A., and Robert G. Muncaster. 1997. "Prospect Theory versus Expected Utility Theory: A Dispute Sequence Appraisal." In *Decision Making on War and Peace: The Cognitive-Rational Debate*, ed. Nehemia Geva and Alex Mintz. Boulder, CO: Lynne Rienner Publishers, pp. 183–211.