ALL RIVALRIES ARE NOT CREATED EQUAL: THE INITIATION AND ESCALATION OF SPATIAL AND POSITIONAL RIVALRIES

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Abstract:

In this paper we compare the "dangerous dyad" approach to identifying conflict-prone contexts (Bremer 1992) with strategic rivalry research. In highlighting the differences and similarities between the two approaches, we specify several testable hypotheses relating to rivalry initiation and escalation. Building on previous work by Thompson (1995), we theorize that different types of rivalries will have distinct causes and effects. Conventional predictors of conflict such as contiguity and major power status, among others, are expected to have differential effects depending on whether a rivalry involves spatial or positional issues. Similarly, we expect spatial rivalries to be more likely to initiate a war, while positional rivalries will be more likely to join an ongoing war. Using discrete time event history techniques, we find considerable support for these distinct causes and effects of spatial and positional rivalries. The results illustrate the bias that may result when researchers treat all rivalries as equal.

According to Bremer (1992), contiguous dyads lacking alliance linkages and composed of less developed autocracies are more prone to war than dyads lacking these features. Less important but still significant are two other characteristics – the absence of preponderance and the presence of one or more major powers – which also contribute to dyadic war proneness. In the past decade, however, a number of scholars increasingly have turned to a new line of inquiry into the causes of war and peace. This new avenue has identified a different set of "dangerous" dyads, known as rivalries. The basic assumption in this school of thought is that most states never come into conflict. Rather, most conflict is generated by a very small number of dyads that engage in repetitive clashes. Instead of assuming that all dyads have an equal probability of friction, why not look more closely at the very small number of dyads that create far more than their share of the world's interstate conflict?

In this paper, we first view rivalries through the alternative lens of Bremer's dangerous dyads. Do the attributes found to identify war-proneness in general also inform us about which states are most likely to become rivals? This is a reasonable question to raise given some presumed overlap between rivalry initiation and war proneness. But we anticipate that there will be a number of reasons to expect that Bremer's profile of most dangerous states, while certainly highlighting important variables, will need considerable modification for use from a rivalry perspective, especially one that does not equate militarized dispute proneness with rivalry relationships.

Two significant modifications that we will pursue involve putting aside the analysis of potential covariates in a variable-to-variable additive system and, of course, assuming

that all actors are equally prone to engage in conflict. We posit instead that some states are particularly prone to conflict escalation based on the development of perceived dyadic relationships between threatening competitors. Moreover, we specify two different types of rivalries than may have distinct causes and effects. Not all dangerous characteristics will be equally associated with both spatial and positional rivalries, as past research has implicitly assumed. We hypothesize that spatial rivalries are more prone to war than positional rivalries, but that both will exhibit similar lower level conflict dynamics. Even so, both types of rivalries should be more prone to escalation than are non-rivals, even when controlling for Bremer's dangerous characteristics.

We test these arguments using various discrete time event history models. Our findings indicate that Bremer's "dangerous dyads" are of limited help in delineating which dyads initiate rivalry. Yet these findings do support a plural approach to rivalry initiation, as well as underscoring the danger of rivalries. We also find that spatial rivalries are more prone to war, but not lower level violence, than are positional rivalries, controlling for other factors. Positional rivals are more likely to end up in conflict through joining an ongoing dispute as compared to spatial rivals. Therefore, this analysis adds to an understanding of the various paths that lead to rivalry, as well as the causes of war and conflict.

Dangerous Dyads and Strategic Rivalry

In a highly cited article, Bremer (1992) set out to uncover the "dangerous dyads" in the interstate system. These are the states that have the highest probability of going to war. In the decade since this article's publication, these findings have been both influential and relatively unchallenged. One of the questions that we wish to raise is how this package for predicting dangerous dyads might be utilized for predicting which dyads develop rivalry relationships. A second question is how well information on rivalries fare in comparison to the dangerous dyad set of five variables in predicting escalation to war.

There are some similarities between Bremer's focus on dangerous dyads and rivalry analysis. For example, both locate important causes of war at the dyadic level of analysis. It is the traits that characterize the relationships between states or the relationships themselves that are hypothesized to correlate with conflict. Both approaches assume, albeit in very different ways, that some dyads are more prone to conflict than are others. Bremer's approach assumes that we can discern which combination of variables leads to the identification of general dyadic conflict probabilities while rivalry analysis begins with the assumption that the most conflict prone dyads have already been identified. Both approaches also rely on patterns of conflict – albeit in different ways - to isolate which pairs of states are most likely to come to blows. Bremer used information on conflict to assess which combinations of dyadic attributes have affected the probability of war in the past. Rivalry analysts identify pairs of states that have developed an adversarial relationship and anticipate, as a consequence, the probability of more conflict

to come. Yet, to our knowledge, the two distinctively different approaches have never been compared or used as complements. Nor have they been assessed as "rival" paths to improving our ability to identify trouble-making dyads for they do constitute distinctively different approaches. One important difference that we will pursue in this analysis is that the "dangerous dyad" approach assumes that one set of variables can predict to all forms of war-proneness while rivalry approaches are more open to the idea of there being more than one causal path to more dangerous relations.

Bremer's Dangerous Dyads

Bremer arrived at the conclusion that contiguity, alliance status, regime type, development, preponderance, and major power status were the most important attributes predicting to escalation to war by first scanning the literature for prominent generalizations, asking whether there was any direct evidence, and then measuring each of the six variables (in addition to one other, militarization, that proved to be insignificant). The bivariate and multivariate relationships with war onset were then examined as a prelude to constructing a ladder of relative impact significance. Beginning with a least war-prone dyad (characterized as consisting of noncontiguous, allied minor powers, with at least one dyad member that can be described as democratic, less militarized, and/or overwhelmingly preponderant), each factor is added step-wise before the consequent impact on the expected number of wars is calculated. The actual order of importance is 1. the presence of contiguity, 2. the absence of an alliance, 3. the absence

of a more advanced economy, 4. the absence of a democratic polity, 5. the absence of overwhelming preponderance, and 6. the presence of a major power.

How should we evaluate this information? No one would confuse the six factors with a theory about how wars erupt. Instead, they represent a number of assumptions about fairly static dyadic characteristics and war behavior. Some, but not all, are accompanied by a justification. Some, but not all, are associated with direct empirical evidence that was available by the early 1990s. Again, some, but not all, speak more generically to conflict propensities and not just war onset. Table 1 illustrates the variability on these dimensions, in addition to clarifying how each indicator is measured.

/Table 1 about here/

The dangerous traits were not initially based on a strong empirical foundation because dyadic analyses were still relatively new in the early 1990s.[1] Bremer's own analysis probably was the first to consider all seven simultaneously. Since then, the Bremer set of six variables that yielded statistically significant, postdictive contributions have been accepted without much protest, not so much as stand-alone explanations but as a standard set of controls. Controlling for these factors, do other variables add something to our explanatory power?

But are all 6-7 equally pertinent to non-war dyadic analyses, as in the case of our current interest in rivalry initiation and escalation? The answer is probably not.[2]

[1] The published references cited as direct evidence by Bremer are limited to five: Gleditsch and Singer (1975), Garnham (1976), Weede (1976), Bueno de Mesquita (1981), and Gochman (1990).
[2] This is not a critique of Bremer (1992), since this analysis was focused on dyadic wars.

Rivalries represent relationships of mistrust, suspicion, and antagonism.[3] Each side sees the other side as a threatening enemy. Yet they do not necessarily entail intensive conflict in overtly manifested fashions. They may simmer over long periods of time. Verbal and physical conflict levels may oscillate. A few rivalries will break out into war but, by no means, can one equate rivalry with war.[4]

Thus, geographical proximity seems applicable generically, although all rivalries certainly do not involve contiguous adversaries. Major-minor power status distinctions should speak equally to all sorts of conflict behavior. The presumed constraints of democratic regime types should also be useful in a wide variety of conflict circumstances, including rivalries – although democratic dyads are not particularly prone to initiating rivalries.[5] Much the same might be said about economic development and militarization levels. The least generic arguments seem linked to preponderance and alliance. While it might seem foolish for a very weak actor to attack a very strong opponent, other things being equal, the irrationality of asymmetrical disputes is less overt in non-war situations. Weak states can protest verbally against strong opponents and do. In other words, conflict can develop between the weak and the strong. So, too, can rivalries – even though it is not exactly the most common situation for rivalry initiation. Pakistan and

[3] There is no single approach taken to identifying rivalries. Some analysts specify a minimal number of militarized interstate disputes within a given interval of time to establish objective thresholds (for instance, Wayman, 1996: Bennett, 1997; Diehl and Goertz, 2000, all of whom employ different empirical criteria). This approach, often associated with the term "enduring rivalries" is somewhat similar to first identifying militarized dispute proneness and then using that information for other related questions. Another approach involves combing through historical archives and political histories to determine who decision-makers perceived to be their state's external adversaries (see, for instance, Huth, Bennett, and Gelpi, 1992; Thompson, 2001). This perceptual approach does not assume conflict proneness but it does assume the anticipation or expectation of conflict on the part of decision-makers. While both approaches share the concept of "rivalry," it should be clear that they are not asking the same question. The "enduring rivalries" approach focuses on dispute recidivism while the perceptual orientation leaves the question of dispute recidivism open-ended.

[4] At the same time, 4 of every 5 wars can be traced to roots in ongoing rivalries (Thompson, 2001).

[5] Major power, mixed regime dyads, on the other hand, have been prone to rivalry formation in the late 19th and throughout the 20th centuries.

India is one example. Cuba and the United States is another. The question is how far the antagonists are willing to push their confrontations. The logical restraints associated with preponderance thus may address the highest levels of conflict better than the middle-lower levels.

The alliance variable is something of a question mark. Whether it is applicable to non-war situations depends on why the variable is a useful predictor. Do states ally because they are threatened by a foe that is too powerful to handle alone? Do states ally because they anticipate going to war soon and wish to augment their offensive capability or safeguard a rear flank? Are states that are not allied more vulnerable to attack and, therefore, more likely to be attacked? [6] Or, does it simply reduce to the probability that allies are less likely to fight each other than are non-allies? Whatever motivations are at work, it seems unlikely that the logic would work equally well for conflict behavior short of war, as it might for war situations. Disputes, conceivably, can arise and be pursued without concern about allies as long as the disputes stop short of physical combat that might elicit external assistance as required by treaty.

Nonetheless, another problem with applying Bremer's logic directly to rivalry analysis is that there may not be just one single set of rivalry-prone characteristics. In Bremer's analysis, it is assumed that there is one dyadic syndrome that leads to war: contiguous, non-developed, and non-democratic states that are not allied, involve at least one major power, and do not involve a large capability disparity.[7] However applicable that is to

[6] See Gartner and Siverson (1996) and Rasler and Thompson (1999) on war initiations against vulnerable targets.

[7] Of course it is possible for war to break out when some or all of these traits are absent. However, it is expected that the probability of war will be greatest when all of these traits are present. The possibility that some traits will increase war propensities in certain instances while other traits may increase conflict likelihood in alternative contexts is not discussed.

conflict analysis, we doubt that it applies equally well to rivalries. By this, we mean to suggest that certain characteristics, taken together, may increase the probability of rivalry in one way, while a separate set of characteristics, could also lead to rivalry.

Thompson (1995) hypothesizes that two distinct types of rivalries may have different causes. First, two states may compete over territorial issues. These states are likely to be of near equal capability, contiguous, and non-democratic minor powers. Ecuador-Peru, Somalia-Ethiopia, and Ghana-Togo serve as examples of this type of path to rivalry. Alternatively, states may compete over prestige and bargaining power. This type of conflict can occur in either a regional theater, such as between Egypt and Syria in the Middle East, or the global theater, such as between the United States and Soviet Union during the cold war. These states are likely to be either regional or major powers, vying for position in their relative regional or global hierarchies. Either the spatial/territorial or prestige/positional issues could lead to the initiation of rivalry.

If one takes this view of rivalries, simple hypotheses linking contiguity or other factors to rivalry have little meaning. It is not that contiguity and the other factors Bremer identifies are unimportant, but the pieces are only part of the puzzle. Allowing for contiguity and other variables to have differing effects depending on the type of rivalry expected to initiate is a way of arranging the pieces to make a coherent picture of the rivalry world. Ignoring the differing causes of spatial versus positional rivalries, therefore, can lead to biased inferences and conclusions if the causal process is incorrectly assumed to be equal across all rivalry cases.

The Causes and Effects of Spatial and Positional Rivalries

But why should we think that there are different causes and effects of spatial versus positional rivalries? The positional-spatial rivalry theory that we are addressing is predicated on the interactions among distance, foreign policy ambitions, and conflict. States enter into conflict relationships with other states over a wide range of topics. Yet it is conceivable that this wide range can be reduced to two general categories: conflicts over space and conflicts over position. Spatial conflicts fundamentally are about control of territory. Two states cannot control the same territory simultaneously. Which state will control a given territory exclusively frequently has become a matter of dispute. Nevertheless, territorial conflicts can be more complicated than they seem. Why a state is motivated to control a specific territory can depend on nationalist mythologies, protection of an ethnic group, general concerns about strategic security, material interests in the exploitation of some profit potential from products that can be extracted from the ground or resident taxpayers, claims of aristocratic/royal inheritance, or simply habit. Labeling a dispute territorial or spatial does not necessarily explain the nature of the dispute. The label simply specifies a categorical focus. These disputes are about territorial control.

Even so, all disputes cannot be reduced to questions of territorial control. States quarrel about positional issues as well. Positional issues focus on questions of influence and status. One need not control a given space if it is possible instead to encourage its inhabitants to do whatever is deemed desirable without confronting the high costs of direct control. For example, imagine state X is under attack from people who use bases

located in state Y. If state X wishes to eliminate the bases in Y, there are two principal ways to achieve this goal. State X can take physical control of the areas in state Y from which the terrorists operate. Or, it can persuade state Y to eliminate the bases. Putting aside mixed strategies, the options reduce to one of coercively acquiring territorial control or exerting influence in order to persuade someone else to exercise territorial control. For the indirect route of exercising influence to be successful, state X must have sufficient resources to expend in persuading Y to accede to X's preferences. Presumably, state X will have to offer something Y desires in exchange for the base elimination or to threaten harming Y in some way if it does not carry out the base elimination.

One complication in this example might be that state Y falls within the sphere of influence of state Z. State X cannot operate coercively within Y's territory without offending state Z's sense of prerogatives. State Y may not feel that it can accede to state X's wishes without threatening its own relationship to state Z. These complications suggest a hierarchy in which states X and Z are higher in the pecking order than state Y. State Z may fear that an expansion of state X's sphere of influence will come at its own expense. State Z does not directly control Y's territory but X's activities may threaten Z's position vis-à-vis both Y and X.

Whether these concerns about relative status and influence are thought sufficiently serious to fight about will vary. Other things being equal, spatial concerns should have a higher threshold for escalating to combat than do positional concerns. But that in turn depends on geography. If state X is contiguous to state Y, X may be sorely tempted to take the direct route of territorial control as the quicker and more permanent solution to its security problem. If state X is not contiguous to state Y and/or lacks the resources

necessary to reach state Y, it may have no recourse but to try the influence path. Coercion may simply not be a possibility in this type of scenario.

Alternatively, state X may have the resources to seize portions of Y's territory but not without forcing state Z to come to the rescue of its client. Fighting state Y may be one thing. Fighting state Z is another matter altogether. The spatial issue between X and Y might then escalate to physical conflict relatively quickly if Y is much weaker than X while the positional issue between X and Z might deter action on X's part, assuming Z is much stronger than Y and roughly equal to X. An escalated conflict between X and Z might also be expected to bring in their allies and possibly other states with high status that view the conflict as an opportunity to improve their own relative position or to reduce the status of X and/or Z.

This extended example is hardly far-fetched. Up to a point it fits, for instance, Israeli activities in Lebanon since the 1970s and U.S. activities in Afghanistan immediately following the 9/11 incident. But as an illustration, it is not intended to mirror the real world as much as it is designed to show how contiguity and foreign policy ambitions might interact with spatial and positional issues.[8] If we narrow our focus even more to the creation, and escalation of, strategic rivalry relationships – dyads involving two states that regard the other member of the pair as competitive (roughly equal in power status), threatening (posing some potential for physical or military harm), and viewing one another as enemies (a social-psychological categorization implying special and specific dangers to the existence and activities of the adversary) - it is plausible to suggest that

[8] The foreign policy ambitions refer specifically to the likelihood that positional concerns will be more compelling for states that compete actively among the elites of regional and global political systems. Most states, whether by choice or the reality of limited resource endowments, possess more limited foreign policy aspirations that preclude given a high priority to positional issues.

strategic rivalries tend to be either predominately spatially-oriented, predominately positionally-oriented, or some combination of both.[9] If that is the case, there is no reason to assume that spatial and positional rivalries "work" the same way. They are likely to follow different courses, especially in terms of initial formation and conflict escalation patterns - because they are subject to different pressures, motivations and decision-making considerations.

Theoretically, we may combine our interests in contiguity, territory, and influence/status problems in the following three propositions:[10]

1. Contiguous adversaries are more likely to become involved in contests with strong spatial overtones while noncontiguous adversaries are more likely to become involved in contests with strong positional overtones.

2. In general, contests with strong positional overtones are less likely to escalate than are contests with strong spatial overtones.

3. In general, once contests with strong positional overtones do escalate, they are more likely to become multilateral contests because they will have more implications for bystanders than do spatial contests.

[9] This approach to strategic rivalry should not be confused with "enduring rivalries" that are identified by specifying that a number of militarized interstate disputes occur within a finite interval of time (for example, Diehl and Goertz, 2000). For most questions pertaining to rivalry formation and escalation, we prefer a conceptual approach, outlined in Thompson (2001) that is entirely independent of a dyad's militarized dispute history. Strategic rivalries are formed in the absence of any militarized disputes. Whether militarized disputes are involved in their escalation to higher conflict levels are separate theoretical and empirical questions.

[10] This evolution of this theory can be tracked by examining the arguments in Vasquez (1993), Thompson (1995), Vasquez (1997), and Rasler and Thompson (2000).

One test (Rasler and Thompson, 2000) of this theory found considerable encouragement in the major power subsystem. Contiguous rivals did possess an affinity for spatial contests and were more likely to be involved in spatial rivalries than were non-contiguous rivals. Noncontiguous rivals were also more likely to be found in positional contests. Escalation tendencies were difficult to test fully since major power rivalries and warfare have been biased towards noncontiguity, multilateral wars and war joining. However, some less-than-overwhelming evidence was found supporting the idea that conflicts between spatial rivals were more likely to escalate to war than were the conflicts of positional rivalries. Similarly, some weak support for the idea that spatial wars are likely to remain dyadic in structure while positional wars are more susceptible to war joining was also uncovered.

While the empirical evidence for distinct types of rivalries is supportive but not unchallengeable, the major power subsystem is the most likely place to find positional conflicts. The strong prevalence of positional rivalries among the elite nation-states suggests that arguments based on spatial considerations alone would be less than helpful in explaining major power conflict. In contrast, there are other subsystems, such as South America and West Africa, in which spatial conflicts clearly predominate. Just how accurate the spatial-positional generalizations prove to be will depend on testing them in a less biased sample. Nonetheless, the very fact that there are such biases, with different types of conflicts more predominant in some parts of the world than in others, supports the fundamental idea that rivalries can follow different trajectories based on the types of issues involved.

Thus, assuming that there may be different causes of spatial and positional rivalries, what are those causes? We expect that capability symmetry, the absence of democracy and the presence of a contiguous minor power dyad should increase the risk of spatial rivalry more severely than the risk of positional rivalry. Conflict over territory is more likely to break out between proximate states who have the ability to threaten each other. The absence of democratic institutions and accountability may also promote spatial conflicts, as peaceful mechanisms for resolution are wanting. Alternatively, militarized, major or regional power dyads are the most likely to compete over prestige stakes and thus find themselves in positional rivalry. Development may also promote positional rivalry, as economic power and reach can lead to an increase in prestige conflict. For states to even aspire to regional or global prestige and power there must be some prerequisite of military or economic power.[11]

Methods

Thompson (2001) has collected data on rivalry type[12]. The nominal categories are positional, spatial, both or neither. Using this information, we can estimate a competing risks model to predict not only the occurrence of rivalry, but the rivalry type.[13] In the

[11] We do not include alliances in either formulation because it does not seem to fit rivalry initiation particularly well. One might expect two states that share an alliance to be less likely to be rivals because they share some interest in common. Alternatively, an alliance could signal increased interactions between two states, raising the number of potentially conflict-prone issues

[12] Spatial rivalries are defined as contests over the exclusive control of territory. Postional rivalries are defined as contests over relative influence and status.

[13] There are several other potential approaches to the problem. For example, in a previous version of the paper we estimated a bivariate probit model with partial observability/ Boolean probit model (see Braumoeller 2003). This is an effective modeling strategy when no information on rivalry type is available. In this case, we were forced to categorize variables into "paths" and would be unable to conduct any tests across rivalry types. The competing risks/multinomial logit formulation below allows for a litany of more

competing risks formulation, a spell of non-rivalry can end in either spatial, positional, a combination, or neither type of rivalry. We expect that certain covariates should predict spatial rivalries, while others will map to positional rivalries. There are several benefits to the competing risks model, over and above a traditional logit model. Since information on rivalry type is available, a model with a nominal dependent variable allows us to differentiate between types in our statistical analysis. Additionally, we can conduct tests of statistical significance on the coefficients across equations in the competing risks model. If our hypotheses are wrong concerning the different causes of spatial rivalry initiation and positional rivalry initiation then coefficients will be equal across equations. We also explicitly test the independence of irrelevant alternatives assumption (iia), a known weakness of this class of models, and perform a robustness check that relaxes the iia assumption.

To set up our competing risks model we define three probabilities of interest, the probability of rivalry initiation (P_r), the probability of being on the spatial path to rivalry (P_s), and the probability of being on the positional path to rivalry (P_p). In the most general formulation of the problem,

$$P_r = f(P_s, P_r)$$

We can now specify equations relating Bremer's dangerous dyadic traits ($x_1 \ldots x_i$) to the probability of spatial rivalry and positional rivalry, as well as mixed and other types of rivalry. Specifically

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useful tests, including estimating and comparing all coefficients across rivalry initiation types. Another possibility for future research is to explore fuzzy-set and Boolean logic within each rivalry type (see Ragin 1994, 2000).

$$P_s = f(x_{1,}\ldots x_i) \text{ and } P_r \sim f(x_{1,}\ldots x_i)$$

If we now specify a logit functional form and allow the coefficients to be different across equations[14],

$$\ln\Omega_{S|N}(x_i) = \alpha_{S|N} + \beta_{1,S|N}X_1 + \ldots + \beta_{i,S|N}X_i$$

$$\ln\Omega_{P|N}(x_i) = \alpha_{P|N} + \beta_{1,P|N}X_1 + \ldots + \beta_{i,P|N}X_i$$

$$\ln\Omega_{B|N}(x_i) = \alpha_{B|N} + \beta_{1,B|N}X_1 + \ldots + \beta_{i,B|N}X_i$$

$$\ln\Omega_{A|N}(x_i) = \alpha_{A|N} + \beta_{1,A|N}X_1 + \ldots + \beta_{i,A|N}X_i$$

These equations represent the odds of a spatial rivalry (S), positional rivalry (P), mixed spatial/positional rivalry (B), or another type of rivalry (A) initiating as compared to no rivalry beginning. The system of equations represent, along with time splines, a multinomal logit discrete time competing risks model. We would expect, given our explanation of multi-path rivalry development, that the coefficients for each variable would not be the same across equations.

Bremer's seven variables are coded from the Correlates of War data, and described in table 1.[15] Our operationalizations follow this same coding scheme. However, we make

[14] We use a logit link function instead of a probit function, as above, because we are looking ahead to our empirical results. See the discussion of multinomial probit models below.

one change, by adding information on regional powers. Thompson (1995) explicitly notes that both major and regional powers may compete in positional rivalry. Therefore, we code regional powers by sorting each state by COW region (Small and Singer 1982) and capabilities (Singer 1987). The strongest 4 states in each region are coded as regional powers.[16] We then code a major/regional power variable equal to one if that dyad includes either two regional powers or two major powers.

To analyze escalation, we control for spatial and positional rivalries in two separate equations, also including Bremer's variables as independent variables. We measure lower level conflict using militarized interstate disputes (Jones, Bremer and Singer 1996), and wars using the dyadic correlates of war data updated by Maoz (1999).[17] These conflict variables are only equal to 1 in the first year of the dispute, marking conflict onset, rather than duration. Additionally, we create a dichotomous variable equal to 1 if a dyad finds itself in a war that has already been initiated, and is equal to zero otherwise. Therefore, if A and B initiate a dispute, and C joins the dispute against B, and the hostility level between B and C reaches war, B and C are coded as joiners. Additionally, if D joins against A, and the hostility level between D and A reaches war, then D and A, as well as D and C, if they also are at war, are coded as joiners. This information comes from EUGENE v2.25 (Bennett and Stam 2000), as coded in the Correlates of War MID data

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[15] See Bennett and Stam (2000). The variables are generated using the EUGENE program downloaded from www.eugenesoftware.org.

[16] The number 4 is almost entirely arbitrary. We suspect that a case might be made for the number 3 as the usual upper limit for positional contests. The ABC powers in South America, the Iran-Iraq-Saudi Arabia complex in the Gulf, and the US-USSR-China triangle in East Asia come quickly to mind as examples. But we are unaware of any systematic research on this question. It would also depend very much on how one codified the boundaries of each region (e.g., whether one decomposed the Middle East into several regional subsystems or only one). We adopt 4 (=3+1) here as an interim guesstimate. Using only the top 3 states does not affect our conclusions.

[17] We estimate discrete time event history models with a logit functional form and cubic splines to control for time dependence.

(Small and Singer 1982). Finally, we include cubic splines to control for time dependence and specify robust standard errors, clustered on the dyad, to account for heteroskasticity and within group non-independence.

Findings

Competing Risks and Rivalry Initiation Types

When we predict the type of rivalry initiated, the evidence for distinct causes of spatial and positional rivalry is strong. In the competing risks model presented in table 2, the coefficients represent the effect of a variable on a specific outcome. The coefficients for a subset of the variables are shown in figure 1. This odds ratio plot illustrates the relative magnitude of the effects across outcomes. The comparison group in each case is no rivalry. We are interested in whether certain variables, specifically contiguity, major/regional power status, militarization and non-democracy, have stronger effects on one type of rivalry initiation than another type. A scan of the coefficients and the matching odds ratio plots for the pure spatial and positional equations are suggestive. Where contiguity increases the odds of a purely spatial rivalry by a factor of 100 as opposed to avoiding rivalry, contiguity only increases the odds of purely positional rivalry, over no rivalry, by a factor of 8. The difference is statistically significant at the

.05 level.[18] This can be seen in the odds ratio plot on the top line. Contiguity has a much larger effect on spatial rivalries (S) than on positional rivalries (P).[19]

/Table 2 about here/

Other variables also show evidence of having different effects on distinct rivalry types. Major/regional power status for a dyad increases the odds of a positional rivalry by a factor of 53, while actually decreasing the odds of a purely spatial rivalry by a factor of 3.3. Again the difference is statistically significant at the .05 level (for all models). Non-democracy and militarization also had significantly different effects on spatial and positional rivalries. Non-democratic dyads significantly increased the odds of a positional rivalry (in model 1). Further, militarization increases the odds of a positional rivalry by a factor of 8 as compared to non-rivalry, while increasing the odds of spatial rivalry by only a factor of 1.6. Again, the difference between the effect of militarization on pure spatial and positional rivalries is significant at the .05 level (in all models). The other variables, alliance and capability differences did not appear to have differential effects on spatial versus positional rivalry initiation.

/Figure 1 about here/

[18] The significance level decreases to the .10 level in model 2.
[19] Development is not included in the multinomial model because of severe multicollinearity in the spatial rivalry equation. In each of the other equations identical inferences are drawn from the data when development is included.

Therefore, our analysis highlights the potential biases that result from failing to look at the distinct causes of spatial versus positional rivalries. Wald and likelihood ratio tests confirmed that none of the rivalry type categories could be combined. Categories can be combined when all of the variables across two or more equations are indistinguishable from each other. The null hypothesis to our rivalry typology logic would be that the coefficients across all four categories would be equal to each other and thus rivalry initiation could be analyzed as a dichotomous variable. Our results lead to a rejection of that simplification of rivalry initiation research. Different variables have distinct effects depending on the rivalry type. Figures 2 and 3 compare the estimated effects of contiguity and major/regional power status when no distinction between rivalry types is made (any rivalry) and when we allow the coefficients to vary across rivalry type. As would be expected, aggregating all rivalries into one initiation category understates the effect of contiguity on spatial rivalries, and overstates the effect of contiguity for positional rivalry. Likewise, an aggregated analysis suggests that being a "positional" power slightly increases the probability of rivalry. However, this mixes the rather dramatic and positive relationship between major/regional power status and positional rivalry with the small negative relationship between major/regional power status and spatial rivalry.[20]

/Figures 2 and 3 about here/

[20] The "any rivalry" results were generated by using a logit model specified in exactly the same way as was the multinomial logit/competing risks model. The Wald tests reported above supply evidence that the effects are substantively different across rivalry types.

A similar picture emerges when we analyze the rivalries that have both spatial and positional components. The effect of being a major/regional power particularly increases the risk of dyads initiating a mixed rivalry. The odds of mixed rivalry initiation is two times greater than the risk of purely positional rivalry for major/regional as compared to non-major/regional powers, holding all else constant ($p<.05$ for all models). As illustrated in the odds ratio plots, the effect of major/regional power status is significantly greater for mixed rivalries (B) than for pure positional rivalries (P) or the other types. This suggests that positional issues often become mixed with spatial ones as positional powers develop rivalries.

We also analyze those rivalries that did not involve either position or spatial issues. While these were rather rare in the data (only 10 non-spatial, non-positional rivalries in the dataset), it is illustrative that very few of the dyadic characteristics significantly affected this type of rivalry initiation. Only contiguity significantly increases the expected risk of non-spatial non-positional rivalry initiation, as compared to avoiding rivalry (at the .05 level).

We ran several diagnostic checks on the models and data. Block wald and likelihood ratio test statistics for each of the coefficients referring to a variable being equal to zero across all equations were insignificant. The only exception was the alliance variable when robust standard errors were utilized. Therefore, each of the variables included in these models, except possibly alliance linkages, significantly affects the risk of rivalry initiation.

A notorious assumption of competing risks models that use a multinomial logit formulation is that the results are independent of irrelevant alternatives (iia). For a

treatment of this problem see Hill, Axinn, and Thorton (1993). A Hausman-type test of the iia assumption can not reject the null hypothesis that the independence of irrelevant alternatives holds in this case (at the .01 level). As a further check on the stability of our results when the iia assumption is relaxed, we also estimate a seemingly unrelated bivariate probit model, predicting the pure spatial or positional rivalry types. This allows for the error correlation between the two equations to be estimated and tested. If our results differ substantially, it may be that the significant differences found previously were an artifact of the iia assumption. Instead, we find remarkably consistent results. Although non-democracy is no longer expected to significantly increase the risk of positional over spatial rivalry, all of the other significant differences between positional and spatial rivalry types remain. The effect of contiguity is significantly greater for spatial rivalry initiation than for positional rivalry initiation. Likewise, major/regional power status and militarization retain their greater effect on positional rivalry development, as compared to spatial rivalry initiation. Finally, the correlation between the error terms of the two equations is negative but insignificant.[21]

Rivalry Escalation

Having found some empirical evidence for different causes of spatial and positional rivalry, it remains to be seen whether the two types of rivalries behave differently in terms of escalation propensities. Using the distinction between types of rivalry, we

[21] Only three of the five categories are included because of the computational difficulty in estimating and identifying higher order multinomial probit models (see Hill, Axinn and Thorton 1993 pg. 247 and Keane 1992). It should be noted that the results in model 3 do not include the observations that ended in other rivalry initiation types. If these are added as censored observations the results remain substantively the same.

analyze whether the probability of escalation is affected by the presence of spatial or positional characteristics. The findings in table 4 illustrate the influence that rivalry type has on the probability of a militarized interstate dispute (MID). We find that both spatial and positional rivals are twice as likely to suffer a MID as a non-rival dyad, controlling for Bremer's factors and time dependence. Further, the difference between spatial and positional rivalries is insignificant on this dimension. This finding suggests that rivals in general are characterized by more disputes than non-rivals.

When we turn to the onset of war, the spatial/positional distinction becomes more important. The right hand columns in table 5 list the results for dyadic (the middle column) and multilateral (the far right column) war and rivalry type. We find that spatial rivalries are 11 times more likely than non-rivals to go to war, holding other factors constant. Further, positional rivals do not differ significantly from non-rival war onset dynamics, as the positional rivalry variable is insignificant.

Yet positional rivals are more likely to fight each other after joining an ongoing dispute. The positional rivalry variable is positive and significant in the third column, while the spatial rivalry variable is insignificant, controlling for other factors. Specifically, positional rivals are 4.5 times more likely than a non-rival dyad, to join an ongoing dispute against each other. Therefore, while both spatial and positional rivals are involved in more militarized disputes than non-rivals, spatial rivalries are involved in the most dyadic wars. Yet, positional rivals are far from pacific. Rivals competing over positional issues are more likely to join a war that is ongoing. Thus, we find, literally, two different paths to escalation.

In general, our analysis finds that rivalries have a dramatic substantive impact on the probability of war, especially for dyads that Bremer considered "dangerous." The probability of war for contiguous dyads with no large capability difference, which involve no alliance, at least one major power, no democracies, are non-developed and militarized is 0.007. The probability of war jumps to 0.08 when those same factors are present in a rivalry.[22] Without a doubt, rivalry information is integral to an understanding of war and conflict dynamics.

Our findings regarding the control variables support Bremer's analysis for the most part. We find that contiguity, capability parity, and the presence of at least one major power each increases the probability of war and militarized disputes, as Bremer found. Also, the evidence in table 3 suggests that alliances are not robust predictors of conflict, again more or less complementing Bremer's analysis.

Yet there are a number of important contrasts also. First, while Bremer ranked major power status as one of the least important predictors of war, we find that when rivalry is controlled, power status becomes a robust predictor of war and conflict. In fact, the presence of at least one major power in the dyad increases the odds of war by almost a factor of 30. Similarly, while Bremer found that militarization was not significant, our results suggest that militarization increases both types of conflict. Also, where Bremer placed emphasis on democracy and development, we find that these variables are only significant when predicting militarized disputes, not war.

/Table 3 about here/

[22] This finding assumes that the splines are held constant at zero.

Conclusion

We have sought to compare and combine two different approaches to identifying the most dangerous dyads in world politics. Bremer's (1992) approach developed a single set of dyadic attributes on contiguity, capabilities, status, alliances, regime type, development, and militarization that predicted to war proneness. We have contrasted this approach with an approach emphasizing interstate rivalry. One of our questions focused on whether information on rivalry relationships, even controlling for Bremer's dyadic attributes, contributed significantly to our understanding of conflict. There should be no doubt that that is the case. Both sets of information improve our explanatory capability. Combined, they present an even stronger predictive platform.

Another question that was raised is whether the selected dyadic attributes tell us something about rivalry initiation and escalation. Here, we encountered an immediate divergence in assumptions. Whereas Bremer envisioned a single set of war-prone attributes to encompass all cases, it is conceivable that different types of rivalries are associated with different sets of dyadic attributes. It is also plausible that different types of rivalries have different propensities to escalate. Therefore, we needed to modify Bremer's approach to take into account the possibility that spatial and positional rivalries are subject to different influences.

We did find evidence for distinct causes of different rivalry types. Contiguous, minor power dyads that were not asymmetrical in capabilities were most likely to follow the spatial path to conflict over territorial control. Major powers and leading regional powers

were most likely to follow the positional path to contention over relative influence and status. Both types of rivalries were prone to militarized dispute behavior but spatial rivalries were more likely to lead to dyadic warfare while positional rivals tended to join wars already in progress. We also found that Bremer's dangerous attributes were differentially useful depending on whether we examined militarized disputes, war, or war expansion. Contiguity, major power status, and militarization were significant in all three contexts. Three of the other variables were significant in one or two of the different conflict contexts. Only the alliance variable proved to have no significant predictive capability.

By introducing the possibility of distinct causes and effects of spatial versus positional rivalries, we have improved our ability to specify how conflicts come about in the first place, and how they escalate to militarized disputes, dyadic war, and multilateral war. There are at least two important and distinctive paths to conflict – one spatial and one positional. Given two paths, a single equation will simply not fit all cases of conflict equally well. We will need to make appropriate theoretical and empirical adjustments that correspond to these findings.

Of course, positional and spatial rivalries do not exist independently of each other. We have good ideas about the dyadic traits and relationships that make conflict more probable. At the same time, it should be clear that our understanding of these conflict processes cannot be dictated by either a single set of traits or even an exclusively dyadic framework. For example, large-scale wars might be most likely when a spatial rivalry breaks into open conflict with positional linkages present. As these positional rivalries are drawn into the spatial fray, the war spreads from localized conflict to regional or even

global war. While the spatial component of rivalry may explain bilateral wars, multilateral conflicts may depend on the constellation of positional rivalries and alliances that surround each territorial conflagration. Thus, analysis of rivalry systems may be needed to augment other extra-dyadic explanations of conflict. In the process, a focus on these linkages may help broaden the study of war from a dyadic to a multilateral framework.

References

Abowd, J. M. and H. S. Farber (1982). "Job Queues and the Union Status of Workers." Industrial and Labor Relations Review 35(3): 354-367.

Bennett, D. Scott (1997) "Democracy, Regime Change, and Rivalry Termination." International Interactions 27: 369-97.

Bennett, D. Scott, and Allan Stam (2000) "*EUGene*: A Conceptual Manual." International Interactions 26:179-204. Website: http://eugenesoftware.org.

Braumoeller, Bear F. (2003) "Causal Complexity and the Study of Politics." Political Analysis.

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 (1981) The War Trap. New Haven, Ct. Yale University Press.

Chan, Steve (1984) "Mirror, Mirror On the Wall … Are the Freer Countries More Pacific?" Journal of Conflict Resolution 28:617-48.

Choucri, Nazli and Robert S. North (1975) Nations in Conflict: Prelude to World War I. San Francisco, Ca.: Freeman.

Diehl, Paul F. and Gary Goertz (2000) War and Peace in International Rivalry. Ann Arbor: University of Michigan Press.

Garnham, David (1976) "Dyadic International War, 1816-1965: The Role of Power Parity and Geographical Proximity." Western Political Quarterly 29:231-42.

Gartner, Scott S. and Randolph M. Siverson (1996) "War Expansion and War Outcome." Journal of Conflict Resolution 40: 4-15.

Gleditsch, Nils Petter and J.David Singer (1975) "Distance and International War, 1816-1965." In M.R. Kahn, ed., Proceedings of the International Peace Research Association, Fifth General Conference. Oslo, Norway: International Peace Research Association.

Gochman, Charles S. (1990) "Capability-Driven Disputes," in C.S. Gochman and Alan N. Sabrosky, eds., Prisoners of War: Nation States in the Modern Era. Lexington, Ma.: Lexington Books.

Hill, Daniel H., William G. Axinn, and Arland Thorton (1993). "Competing Hazards with Shared Unmeasured Risk Factors" Sociological Methodology 23(1): 245-277.

Huth, Paul D., Scott Bennett and Christopher Gelpi (1992) “System Uncertainty, Risk Propensity and International Conflict Among the Great Powers.” Journal of Conflict Resolution 36: 478-517.

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): 163:213.

Keane, Michael (1992). “A Note on Identification of the Multinomial Probit Model.” Journal of Business and Economic Studies 10(2):193-200.

Maoz, Zeev (2000) “The Street Gangs of World Politics: Their Origins, Management and Consequences, 1816-1986,” in John Vasquez, ed., What Do We Know About War? Lanham, Md.: Rowman and Littlefield.

Maoz, Zeez (1999) “Dyadic Militarized Interstate Disputes (DYMID1.1)” spirit.tau.ac.il/poli/faculty/maoz/dyadmid.doc.

Ragin, Charles C. (1994) Constructing Social Research: The Unity and Diversity of Method. London: Pine Forge Press.

_____ (2000) “Fuzzy-Set Social Science” Chicago, Il: University of Chicago Press.

Rasler, Karen and William R. Thompson (1999) “Predatory Initiators and the Changing Landscape for War.” Journal of Conflict Resolution 43: 411-33.

_____(2000) “Explaining Rivalry Escalation to War: Space, Position, and Contiguity in the Major Power Subsystem.” International Studies Quarterly 44: 503-30.

Singer, J. David. (1987). "Reconstructing the Correlates of War Dataset on Material Capabilities of States, 1816-1985" *International Interactions*, 14: 115-32.

Small, Melvin, and J. David Singer (1982). *Resort to Arms: International and Civil Wars, 1816-1980*. Beverly Hills, Calif.: Sage Publications.

Thompson, William R. (1995) “Principal Rivalries.” Journal of Conflict Resolution 39: 195-223.

_____ (2001) “Identifying Rivalries in World Politics.” International Studies Quarterly 45: 557-86.

Vasquez, John A. (1993) The War Puzzle. Cambridge: Cambridge University Press.

_____ (1997) "Distinguishing Rivals That Go To War From Those That Do Not: A Quantitative Comparative Case Study of the Two Paths to War." International Studies Quarterly 40:531-58.

Wayman, Frank W. (1996) "Power Shifts and the Onset of War," in Jacek Kugler and Douglas Lemke, eds., Parity and War . Ann Arbor, Mi.: University of Michigan Press.

Weede, Erich (1976) "Overwhelming Preponderance as a Pacifying Condition Among Contiguous Asian Dyads, 1950-1969." Journal of Conflict Resolution 20:395-412.

Table 1: Bremer's Seven Dangerous Dyad Attributes

Variable	Explicit Rationale Advanced?	Direct Evidence Cited?	Non-war Relevance?	Measurement
Geographical Proximity	Yes	Yes	Yes	Contiguous dyad members are either proximate (adjacent land borders or separated by 150 miles of water or less) or non-proximate.
Relative Power	Yes	Yes	No	The dyadic capability ratio is either small (<3:1), medium (3-10:1), or large (>10:1), in which capability is based on the combined average of military capability (combined average shares of system-wide military expenditures), economic capability (combined average shares of system-wide iron/steel production and energy consumption), and demographic capability (combined average shares of system-wide urban and total population sizes). Dichotomously, small and medium ratios are contrasted with large.
Power Status	Yes	No	Yes	Dyads pair two major powers, a major and a minor power, or two minor powers, depending on each dyad member's qualifications on a year by basis.
Alliance	No	Yes	No	Dyad members are either members of the same formal alliance or not.
Democracy	No	No	Yes	Dyad members are either democratic or non-democratic, based on two alternative indexing approaches: a) the Chan (1984) index requiring a popularly elected chief executive and legislature plus a legislature able to constrain the executive effectively, b) the Polity II 1-10 democracy scale based on competitiveness of leader selection processes and constraints on executive authority, employing 5 as the threshold.
Development	Yes	No	Yes	Dyad members are either more advanced (system-wide share of economic capability is greater than its system-wide share of demographic capability [see Relative Power index above] or less advanced
Militarization	Yes	No	Yes	Dyad members are either more militarized (system-wide share of military capabilities is greater than its system-wide share of demographic capabilities [see Relative Power index above] or less militarized.

Table 2: Competing Risks Analysis of Rivalry Initiation Type.

	Model 1-MNL			Model 2-MNL w/Robust S.E.			Model 3-Seemingly Unrelated Bivariate Probit		
Rivalry Type:	Coef.	S.E.		Coef.	S.E.		Coef.	S.E.	
Spatial									
Contiguous	4.597	0.315	**	4.597	0.754	**	1.375	0.093	**
Capability Diff.	-2.193	0.435	**	-2.193	0.578	**	-0.664	0.129	**
Alliance	-0.169	0.341		-0.169	0.428		-0.096	0.114	
NonDemocracy	-0.197	0.287		-0.197	0.470		-0.030	0.092	
Militarized	0.472	0.350		0.472	0.423		0.142	0.115	
Positional Power	-1.193	1.015		-1.193	1.142		-0.385	0.302	
Constant	-7.286	0.352	**	-7.286	0.666	**	-3.078	0.106	**
Positional									
Contiguous	2.069	0.231	**	2.069	1.438		0.867	0.080	
Capability Diff.	-2.752	0.590	**	-2.752	0.823	**	-0.829	0.170	**
Alliance	0.166	0.249		0.166	0.632		0.145	0.087	**
NonDemocracy	0.537	0.214	*	0.537	0.362		0.163	0.078	
Militarized	2.171	0.208	**	2.171	0.570	**	0.765	0.077	*
Positional Power	3.973	0.228	**	3.973	1.338	**	1.491	0.081	**
Constant	-7.971	0.380	**	-7.971	0.347	**	-3.528	0.146	**
Both									
Contiguous	1.133	0.237	**	1.133	1.106				
Capability Diff.	-2.398	0.516	**	-2.398	0.672	**			
Alliance	-0.605	0.273	*	-0.605	0.550				
NonDemocracy	-0.172	0.225		-0.172	0.598				
Militarized	2.141	0.203	**	2.141	0.432	**			
Positional Power	4.702	0.220	**	4.702	1.134	**			
Constant	-7.331	0.319	**	-7.331	0.554	**			
Neither									
Contiguous	5.282	1.080	**	5.282	1.095	**			
Capability Diff.	-2.020	1.071		-2.020	1.099				
Alliance	0.684	0.737		0.684	0.906				
NonDemocracy	0.042	0.695		0.042	0.786				
Militarized	-0.283	1.106		-0.283	1.096				
Positional Power	0.575	1.080		0.575	0.949				
Constant	-9.648	1.105	**	-9.648	1.110	**			
N		320000			320000			319875	
Pseudo-R^2		0.355			0.355				
P								-0.519	

Note: Time splines are included in the analysis but not reported. In all cases joint significance tests for the time splines indicated time dependence in the data.

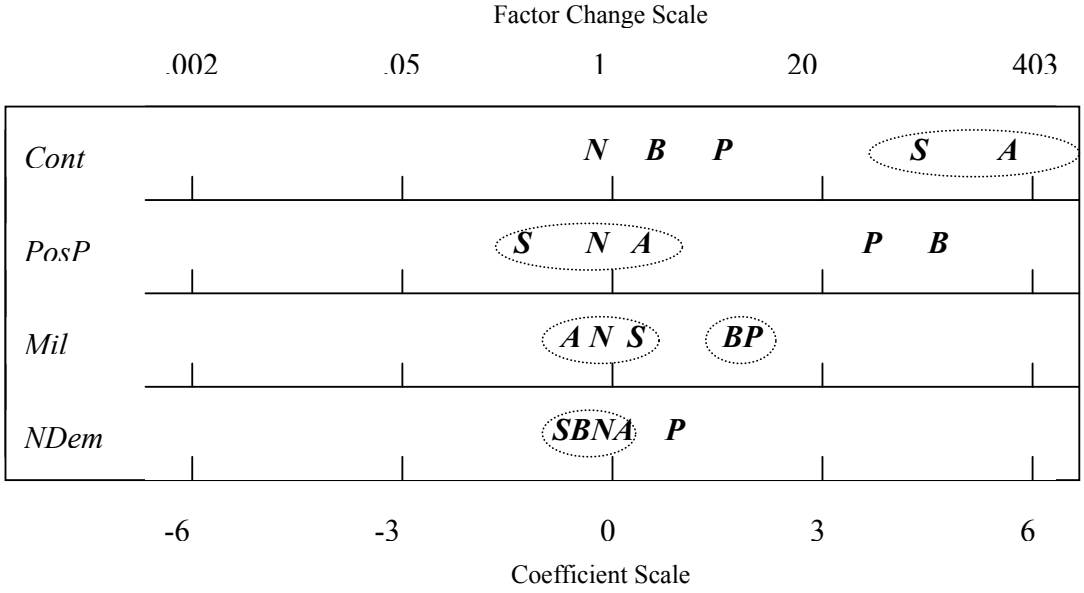
Table 3: Logit Results for Escalation

	Militarized Interstate Dispute			War			Joiner		
Variable	Odds Ratio	S.E.	Sig.	Odds Ratio	S.E.	Sig.	Odds Ratio	S.E.	Sig.
Spatial Rivalry	2.835	0.784	***	11.837	9.04	***	1.128	0.652	
Positional Rivalry	2.38	0.677	***	0.92	0.879		4.559	0.544	**
Contiguous	13.518	2.702	***	3.379	1.588	**	3.397	0.256	***
Capabilities	0.803	0.121		0.23	0.098	***	0.469	0.173	***
Major Power	4.727	0.873	***	29.093	14.391	***	17.082	0.206	***
Alliance	1.027	0.134		0.742	0.549		1.112	0.221	
Non-Democracy	1.468	0.188	**	1.487	0.778		2.291	0.197	***
Developed	0.86	0.271	*	0.837	0.738		1.360	0.259	
Militarized	1.756	0.275	***	3.154	1.322	**	2.410	0.205	***
Spline1	0.678	0.047	***	0.001	0.001	*	0.172	0.143	***
Spline2	0.994	0.006		0.472	0.181	*	0.890	0.015	***
Spline3	1.000	0.007		1.869	0.637	*	1.096	0.017	*
Spline4	1.005	0.007		0.753	0.131	*	0.965	0.017	
Spline5	0.993	0.005		1.073	0.066		1.015	0.015	
Spline6	1.006	0.003	*	1.012	0.027		0.995	0.007	
Spline7	0.998	0.001	**	0.953	0.041		1.003	0.002	
Spline8	1.000	0.001	*	1.053	0.048		0.999	0.195	*
R^2		.319			.524			.355	

N=305019

***= p<.001; **=p<.01; *=p<.05 for a one-tailed test

Figure 1: Odds Ratio Plot for Rivalry Types



Note: N= No Rivalry, S= Spatial Rivalry, P= Positional Rivalry, B= Both Spatial and Positional Rivalry/Mixed Rivalry, A= Neither Type of Rivalry. Dotted circles indicate that the coefficient estimates for each outcome are not significantly different across these equations (at the .05 level for a two-tailed test).

Figure 2: The Effect of Contiguity on Rivalry Initiation over Time, by Rivalry Type.

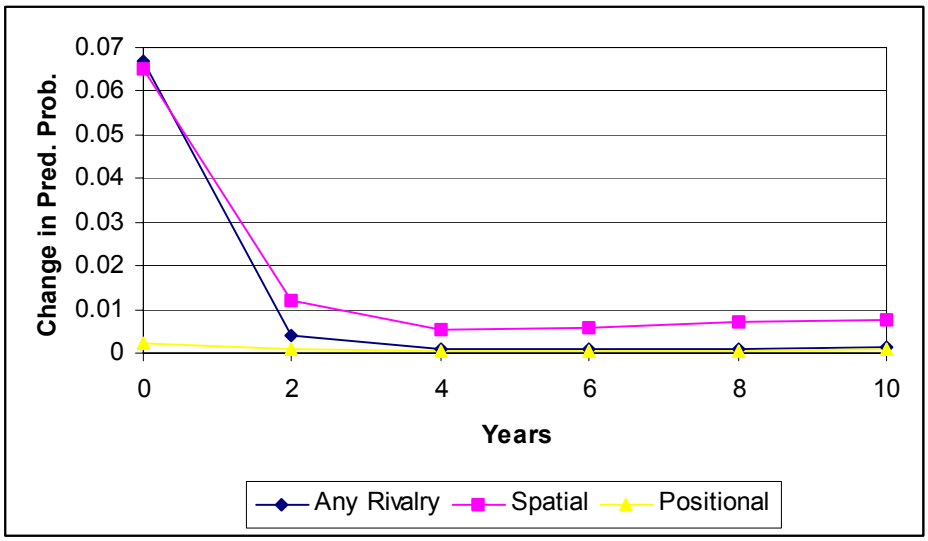


Figure 2: The Effect of Major/Regional Power Status on Rivalry Initiation over Time, by Rivalry Type.