Copping Turf: The Psychology of Territorial Claims

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Abstract: We examine territorial claims in light of the endowment effect and other implications of prospect theory. The endowment effect suggests that the state in possession of the disputed territory would perceive the status quo from a gains frame and place a higher value on the disputed territory than if it did not possess it. Conversely, the state claiming the disputed territory would perceive the status quo from a losses frame and, ceteris paribus, be willing to take risks to gain possession. From these premises, Levy (1996: 190) argues that "Each will accept larger than normal risks in order to maintain its version of the status quo." A model melding prospect theory and game theory (Butler, 2007) suggests that this argument only holds for a range of the model's parameters. In particular, the probability of winning must be in a moderate (e.g., parity) range while the expected costs must not be too high. We examine six dyads involving territorial claims from Hensel (2001) to see how the model may be tested with available data. With this small data set (N = 316 directed dyad years), we demonstrate that it is possible to test the model in a fairly direct manner, though some measurement issues remain to be resolved.

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1 Introduction

The South American state Chile has a growing economy, though it has limited energy resources. Chile imports most of its energy and has a particular need for natural gas. Chile's neighbor, Bolivia, is one of South America's poorest states, yet has South America's second largest natural gas reserve (U.S. Dept. of Energy, 2006). Bolivia does not sell natural gas to Chile. In 2003, the Bolivian government announced a plan to start selling natural gas to Chile, something it had been doing with Argentina and Brazil for years. The result was popular protests leading to the ouster of Bolivia's President Sanchez de Lozada. Why would a poor nation refuse the export of its primary commodity? In the late 19th century, during the War of the Pacific, Chile captured Bolivia's sea access (as well as a portion of Peru's territory). Bolivia has laid claim to its lost territory ever since. By 2001, the territorial claim has been attempted to be resolved peacefully thirty-five times and has led to two militarized interstate disputes (Hensel 2001).

> School children here are still taught that the nation must reclaim its ocean. For many Bolivians, the thought of giving such a big prize to Chile [i.e., natural gas], without a sea access deal in return, is unacceptable (Shultz 2003).

A 2004 Bolivian referendum states that natural gas can be used as leverage against Chile in return for sovereign access to the sea. Chile, on the other hand, has no intentions of giving up sovereign sea access to Bolivia. As far as Chile is concerned the region was theirs from decolonization. When granting independence to the two states, Spain did not clearly demarcate the nations by an agreed upon border. A recent poll of Chileans shows that seventy percent are against allowing Bolivia to gain sovereign access to the sea through Chile (Angus Reid Global Monitor 2007).

This example shows the salience and longevity of territorial disputes. It also shows how two countries claiming the same region can have different reference points. Even though Bolivia has not had sovereign control over the Antofagasta region (the province it lost in the War of the Pacific) since 1879 it continues to claim it as homeland. In this sense, Bolivia's territorial status quo includes its current agreed upon borders as well as the Antofagasta region, a situation that has not occurred in reality for 128 years. This research seeks to explore the role of prospect theory in territorial claims by examining states' varying reference points.

2 Relevant Literature and the Puzzle

Territoriality is a common feature among vertebrates as well as the use of violence as a means to maintain its territory (Valzelli 1981; see also Vasquez 1995). Humans are no exception, though one notable difference is the human conception of the state as a means for exercising collective violence in defense of its territory. Territorial issues have long been established as an important factor contributing to conflict. Territorial disputes compromise the majority of wars, at least in recent history (Vasquez and Henehan 2001). There is consistent evidence that militarized disputes ignited by territorial issues have a higher likelihood of escalation to war than expected by chance (Hensel 1996; Huth 1996; Senese 1996). Territorial disputes have a higher likelihood of war than policy or regime disputes (Vasquez and Henehan 2001) or other types of contentious issues (Hensel 1996).[1] Territorial disputes carry high risks due to several reasons varying on the issue at stake. Paul Huth (1996) found that disputes relating to territories that were strategic, habited by bordering minorities, or were required for political unification held higher probabilities for dispute initiation and escalation; though they have lower probabilities for settlement attempts.[2] Territories of economic value have a higher likelihood of dispute settlement attempts, though lower likelihood of dispute initiation or escalation (Huth 1996). Partly in contrast, Goertz and Diehl (1992) found that conflict was more likely following territorial exchanges when the territory holds economic value. They also found that conflict is more likely when the territory is considered homeland and the losing party is stronger militarily than the gaining party. Another reason that makes the territorial issues framework more important is the finding that recurrent conflict is more likely between states involved in a territorial dispute (Hensel 1996).

Territorial issues or rivalries can be said to be underlying causes of conflict (Vasquez 1995). The territorial explanation for war, as well as the rivalry framework, posits that territorial disputes, and rivalries, are a central causal factor in predicting MIDs, escalation and war. The empirical evidence appears to support this hypothesis (Hensel 1996, Sense 1996, Vasquez and Henehan 2001, Diehl and Goertz 2000). However, this causal relationship is not entirely clear. Territorial issues or rivalries cannot be said to be proximate or sufficient causes because conflict is certainly not a constant among rivaling neighbors. Throughout the duration of most territorial rivalries, peace (the absence of conflict) is the most common experience. Still, all

[1] This finding holds for most time periods and dyads, though for some exceptions apply such as minor-minor dyads involving regime disputes after World War II. See Vasquez and Henehan (2001).

[2] Target territories with minorities that are tied to the challenger's population were not significant for initiation of disputes (Huth 1996, 72).

territorial rivalries do not result in war. Many attempt negotiations and some are successful at accomplishing agreements, though the entire life of a territorial dispute or rivalry can experience a variety of "outcomes" such as peace (no conflict), settlement attempts, successful agreements, and conflict. What accounts for the variance in these manifestations of territorial disputes? How can the timing of these outcomes be explained? This research seeks to explain the temporal variance in outcomes of territorial disputes by examining these disputes through the lens of prospect theory and the endowment effect.

Based on the "endowment" effect, Levy (1996) makes the hypothesis that if one state has recently made a tangible gain at the expense of another, the gaining state will reset its reference point immediately to the new status quo while the losing state will have the old status quo as its reference point. Levy argues that the combined effect is to make conflict more likely. Butler (2007: 243-5) examines this hypothesis within the context of his coercive bargaining game and demonstrates that Levy's argument is reasonable *but only if* the game's parameters are in a supporting range. Otherwise, the game predicts no action by the losing state or a negotiated settlement in which the losing state recovers what was taken (and possibly more).

Given the collective memory of states, this logic extends to long-standing territorial claims as much as recent gains. It is merely necessary for the losing state to continue holding to the older status quo while the gaining state holds to the new status quo. In the next section, we examine Butler's model in the context of territorial claims in more detail followed by theoretical hypotheses. Section three will outline the methods, case selection, variables, and testable hypotheses. Section four will discuss results, followed by the conclusion that will discuss the implications of this research for relevant bodies of literature.

3 Theory

Butler (2007) incorporates prospect theory into a version of Fearon's (1995) rationalist model of bargaining and war. In the model, one actor chooses to make a demand or not. If a demand is made, the other actor chooses to accept it or not. If the demand is not accepted, the initiating actor chooses to resolve the issue through a (potentially costly) contest or to back down.

Within the prospect theory analysis of the bargaining model, the actors have reference points that are specific to the bargaining problem. In this paper, we assume that the relevant reference points are territorially-based versions of the status quo. Each state (challenger and target) then frames different bar-

gaining outcomes relative to its territorial reference point and is assumed to have the S-shaped value function exhibiting risk aversion in gains, risk acceptance in losses, and exhibits loss aversion as well. In addition, the actors subjectively adjust the probability of winning the contest such that small probabilities are over-weighted and moderate to large probabilities are under-weighted (Butler 2007: 232-3). Following Butler, we also assume that the actors have common knowledge regarding the parameters of the model.

When the actors have different versions of the status quo as their reference points, conflict is possible given this model, though only if the rest of the game's parameters are in supporting ranges. The costs of conflict for the actors must be small enough; loss aversion must be small enough; and the probability of winning for the state demanding a change back to the status-quo-ante must be in a supporting range that varies with the other parameters. In what follows, we discuss the implications of Butler's model that can be tested when one state has a territorial claim against another.

By examining cases of territorial claims, it is possible to nail down the "observable" parameters of the game, namely the status quo (q), the status quo ante (q_0), and the challenger's probability of winning (p). In doing so, we explicitly assume that the challenger recognizes the status quo as the de facto boundary but not as the legitimate boundary. As with other research in this vein (e.g., Bueno de Mesquita and Lalman, 1992), the costs of conflict are nearly impossible to calculate ex ante. We assume zero costs to make our predictions. While this will over predict conflict, we will show later that the over prediction is a small concern given the status-quo bias inherent in the model.

Given these conceptualizations for the observable parameters, we again rely on the fact that these are cases of territorial claims to nail down two of the prospect-theory parameters. We assume that the challenger's reference point is the status quo ante ($r_A = q_0$) while the target's reference point is the status quo ($r_B = q$). We initially assume that both actors have the average parameters as calculated from extant experimental findings.[3]

These assumptions regarding the parameters allow us to examine the critical questions from the coercive bargaining game. Does the challenger have a credible threat? If so, is the equilibrium demand a value that is mutually acceptable to both actors?

If the challenger does not have a credible threat, the maintenance of the status quo is predicted. A

[3]Thus, $\alpha = 0.65$ (Prelec, 1998: 506); $\beta = 0.88$ and $\lambda = 2.25$ (Tversky and Kahneman, 1992).

negotiated settlement is predicted when the challenger has a credible threat and the equilibrium demand is mutually acceptable. When the challenger has a credible threat but the equilibrium demand is less than satisfactory to the challenger, the model then predicts conflict over the territorial claim. That is, the challenger is in a position where the conflict is preferred over the equilibrium negotiated agreement, both of which are preferred over the status quo. Thus, the challenger is predicted to make a demand that the other actor will reject and then escalate to conflict after rejection.

Whether the challenger has a credible threat is guided by equations 8 through 10 of Butler (2007: 235). These equations calculate the "credible threat threshold", q^*, relative to the status quo. When $q < q^*$, the challenger has a credible threat. The equilibrium demand, x^*, is given by equations 11 through 13 of Butler (2007: 237). When the challenger has a credible threat *and* $q^* > x^*$, then conflict is predicted.

4 Methods and Data Selection

To test the model from the previous section, this study begins with territorial claims from the Issue Correlates of War (ICOW) data set (Hensel 2001).[4] From the ICOW data set we use an exploratory small-N subset of cases to conduct quantitative cases studies. This research design provides an initial test of Butler's (2007) bargaining model. It also provides a demonstration of how a large-N test might be conducted.

4.1 Definitions

A territorial claim is defined by the ICOW project as "an explicit contention between two or more states over the ownership of a piece of territory" where the target state occupies, administers or claims the piece of land (Hensel 2005, 1). The contention must be expressed in the form of a public statement by an official representative of at least one government in the dyad.

Territorial disputes are historically dependent in nature, thus our cases include the entire lifespan of the claim. Using historical claims allows us to select cases with distinct variants of the status quo. While the respective status quos remain constant this design allows us to explore the relevant variation on dependent and independent variables. The data is organized where the unit of analysis is the claim-year.

The cases for this study were selected by matching territorial claims (Hensel 2001) that followed territorial changes by way of conquest or annexation (Tir, et al. 1998). These cases represent situations where the

[4]The ICOW data also includes river and maritime claims. The data can be downloaded from ¡http://www.icow.org¿.

challenger seeks to regain lost territory from the target.

Table 1: Cases in the Present Study

Challenger	Target	Years	Dyad Years
Bolivia	Chile	1885-2001*	117
Ecuador	Columbia	1854-1919	66
Peru	Chile	1879-1929	52
Venezuela	Columbia	1841-1922	82

∗ This territorial dispute continues to today.

4.2 Dependent Variable

This research uses a categorical dependent variable that corresponds with the predictions from the model outlined above. The model predicts no action (0), negotiation attempt or negotiated settlement (1), or conflict (2). The data for whether or not a settlement attempt or conflict pertaining to the territorial claim occurred for each year is acquired from the ICOW data set (Hensel 2001). The ICOW project differentiates the types of agreements into three categories: functional, procedural, and substantive (either part or all).[5] Our study is solely concerned with substantive agreements where the issue of the claim is addressed. We only use militarized interstate disputes (MIDs) related to the claim (Hensel 2001) to measure conflict.[6] In each instance, this provides a harder test of the model by reducing the number of negotiation-years and the number of conflict-years.

4.3 Independent Variables

The model outlined above makes specific predictions for each year given the actors' loss aversion, reference points and A's probability of winning. Using these model components we calculate what the model predicts for each year which takes the form of a three-point categorical variable taking the values of no action, settlement, or conflict. We discuss in more detail below how the predictor variable is calculated. First, we discuss measurement of the components.

Size of the claim. This variable simply measures the size (km2) of the territory that the challenger seeks to gain or regain from the target state (Hensel 2001; icow.org). This may not be a highly reliable variable.[7]

[5] See ICOW codebook.

[6] The ICOW project only includes MIDs that are related to the claim. Therefore, we dismiss MIDs between the two states that are not explicitly connected to the territorial claim.

[7] Personal communication with Paul Hensel.

Challenger statements regarding territorial claims are usually in terms of natural boundaries rather than latitude and longitude. Therefore, historians' estimates of the area of claims varies, sometimes wildly.

Status Quos. A crucial concept from prospect theory is that actors mark value relative to a reference point. Applying prospect theory to territorial disputes, we suppose that the challenger holds the status quo ante (q_0) as its reference point and the target state holds the current status quo (q) as its reference point. Using the area of the states[8] and the measure for the size of the claim we construct measures for q_0 and q.

We measure q as the area of the challenger divided by the sum of the areas of the challenger and the target. This provides an estimate of proportion of the dyadic territory currently controlled by the challenger (i.e., the de facto border). We then measure q_0 as the sum of the area of the challenger and the challenger's claim divided by the sum of the areas of the challenger and the target. This is an estimate of the proportion of the dyadic territory that the challenger says it should control.

Capability Ratio. The capability ratio is a proxy for the challenger's probability of winning (p). Each state's capability measure comes from the Composite Index of National Capabilities (CINC) score from the Correlates of War project (COW) (Singer 1987). Our measure of p is simply $\frac{CINC_{challenger}}{CINC_{challenger}+CINC_{target}}$. We obtained the values of the CINC scores from Bennett and Stam's EUgene program (2000).

Predictor Variables. We made our initial predictions using Tversky and Kahneman's (2000) mean estimates of the prospect theory parameters regarding the value function ($\beta = 0.88$ and $\lambda = 2.25$) and Prelec's (1998) estimate of the parameter regarding his probability weighting function ($\alpha = 0.65$). Using our measures for p, q_0, and q and assuming zero costs (as a baseline), we then calculate the credible threat threshold, q^*, and the equilibrium demand that the target would accept, x^* using the equations from Butler (2007) discussed above. These values were then used to create two dummy variables. The first variable indicates whether the challenger had a credible threat, equalling 1 if $q < q^*$ and 0 otherwise. The second variable indicates whether the challenger prefers the contest over the *equilibrium* offer, such that the challenger prefers to make an offer larger than the equilibrium offer in order to force the contest and get a better deal (in expectation). This variable is 1 if $q^* > x^*$ and 0 otherwise.

These two indicator variables were then used to construct a three-point predictor variable matching the

[8] A country's area varies across the observed time period. To find country's area for any point in time we began with current area (CIA, 2007) and then worked backwards to account for changes as per the territorial changes data set (Tir, et al. 1998). Because the areas of many of these changes were estimates, our measures for a country's historical area may be less reliable than their current area estimates.

three-point scale of the dependent variable discussed above. Specifically, no action (0) is predicted if the challenger does not have a credible threat. Negotiation (1) is predicted if the challenger has a credible threat and prefers the equilibrium offer over the contest. Conflict (2) is predicted if the challenger has a credible threat and prefers the contest over the equilibrium offer. Table 2 summarizes this constriction.

Table 2: Constructing the Predictor Variable

Prefers contest over equilibrium offer?	Credible threat? No	Credible threat? Yes
No	No action (0)	Negotiation (1)
Yes	No action (0)	Conflict (2)

5 Results, Discussion, and some more Results

Using the average prospect theory parameters from the literature, the model predictions are both impressive and underwhelming. They are impressive in that 80% of the cases are correctly predicted. However, they are underwhelming because the model nearly always predicts the empirical modal category of no action. Table 3 summarizes these initial results.

Table 3: Results using Experimentally Derived Parameters

Observed Outcome	Predicted Outcome: No action	Negotiation	Conflict	Total
No action	253	2	0	255
Negotiation	52	0	0	52
Conflict	9	0	0	9
	314	2	0	316

While these results are not what we hoped for, several points are worth noting. First, most large-N studies in international relations predict *only* the modal category if the 0.50 threshold for predicted probability is applied. Their main value to the discipline is in assessing relative risk factors rather than prediction per se. Second, we have already demonstrated what we set out to do, namely show that Butler's specific prospect theory model as applied to territorial claims is testable. Several measurement and other statistical concerns remain open questions, but generating predictions is eminently feasible. Third, it is not clear that the experimentally derived parameters are necessarily the appropriate ones for international relations.

Generally, the prospect theory parameters are expected to vary from person to person and, more problematically, from situation to situation for a given person. Applying the average parameters from one setting

(individual-level experiments) to another (international conflict) provided a way to generate predictions without resorting to individual differences. In fact, on the basis of individual differences that can only be ascertained *after* a series of decisions have been made, prospect theory can be argued to be incapable of generating meaningful predictions of any particular decision. Yes, on average people are risk averse in gains and risk acceptant in losses, but not everyone is and those who are may well have different levels of risk aversion and acceptance (captured by the β parameter in this paper). If we take a ransom pair of individuals, we do not necessarily know what value function "looks like" before they interact, but this is what is necessary for predicting how these two people will behave in their particular interaction.

By assuming the experimentally derived average parameters, we are essentially saying that two average individuals are being selected to interact in a game that varies in who is more powerful (by p), how much the status quo benefits one actor over the other (by q), and how much the challenger has "previously" claimed over and above the status quo (by q_0). Resorting to parameters that also vary from case to case, without having ex ante measures, in order to fit the data better wouldn't allow for out-of-sample predictions. However, we can calculate parameters that support a conflict prediction for a conflict case and then use these parameters on the rest of the sample to see whether such parameters produce more aberrant predictions or predictions somewhat more in line with the observed outcomes.

In a preliminary investigation along these lines, we went through each of the nine observed cases of conflict using the measures of p, q, and q_0 as inputs. For simplicity, we assumed that the α parameter (from the probability weighting function) was unchanged throughout. We then used different levels of the loss-aversion parameter ($\lambda = \{1.25, 1.50, 1.75, 2.00, 2.25\}$) and calculated the the value of β that would make the challenger just barely prefer a contest over the equilibrium offer. We then applied these parameter values to generate predicted outcomes.[9] The best fitting results from this analysis are summarized in Table 4.

Table 4: Results using $\lambda = 1.75$ and $\beta = 0.612$

Observed	Predicted Outcome			
Outcome	No action	Negotiation	Conflict	Total
No action	210	25	20	255
Negotiation	52	0	0	52
Conflict	8	0	1	9
	270	25	21	316

[9]The attached appendix table presents a summary of this analysis.

These results demonstrate that such a parameter fitting exercise is possible, though we actually predict fewer cases correctly (67% versus 80% in Table 3). In the case of Table 4, we only predict the selected conflict case correctly (Ecuador vs. Colombia, 1987). For some of the others, while we predict some of the conflict cases correctly we may not correctly predict the conflict case we started with (Bolivia vs. Chile, 1978 and 1920). This is a result of the challenger not having a credible threat even though a value of β could be obtained such that it preferred a contest over the equilibrium demand.[10]

In some of the other cases, a high proportion of conflict cases is correctly predicted but at the expense of over predicting conflict while simultaneously under predicting the maintenance of the status quo. In almost all of the cases, negotiation is not predicted well at all. This is not surprising given that we start with a case of observed conflict to generate the parameters, but it is also disappointing.

A potential finding from this analysis that suggests itself for further study is that *greater* levels of loss aversion produce *fewer* predicted cases of conflict (correct or otherwise). Instead, it seems that greater risk aversion/acceptance (as indicated by lower values of β, implying greater curvature to the prospect-theoretic value function) is the important key to generating conflict predictions. However, extremely low values of β seem to over predict conflict.

The results of this research do not yet show support for the prospect theory model. However, the results are not entirely conclusive and there are several reasons to continue with this project. Most importantly, this is a small-N study. We intentionally selected our cases so that the claims arose following a loss from conflict. For that reason we expected these cases to be particularly salient cases. However, the theory does not necessitate that claims arise following conflict. Theoretically, we would expect other types of territorial claims to be handled as the model predicts. It is difficult to tell if these cases are a representative sample from the population of territorial claims.

Another issue is measurement and how our study dealt with status quo reference points. The area of the countries (over time) and claims are estimates, which is common in international relations data. This study conceptualized the status quos as an area estimate relative to the size of both countries in the dyad. Therefore, the status-quo reference points varied over time as the area of either dyad varied. However, it

[10]This implies that the challenger's preference ordering in this case is maintaining the status quo, a contest, and lastly the equilibrium demand. This preference order is largely the result of p being relatively low for the years of conflict, suppressing q^* and $x^a st$. Conflict is (incorrectly) predicted between Bolivia and Chile for the years 1934 and 1935, years in which Bolivia had dramatically increased its military (by measures of personnel and expenditures) due to its war against Paraguay.

is not clear that prospect theory would expect changes in the challenger's status quo based on changes to its area in a different region. To use the example from the introduction, would Bolivia care less about the Antofagasta region if it gained territory from Brazil or if Chile lost territory to Argentina? However, the reverse thinking does resonate: a challenger would be expected to care more about an old claim when it loses territory in another region. Bolivia again comes to mind, having lost another chuck of territory to Paraguay after the Chaco War.[11]

6 Next Steps

Our initial next next will be to subject our current small data set to further parameter fitting. We hope to estimate best-fitting values for the prospect theory parameters given all the observed outcomes, rather than selecting a conflict case as we did above. This should be possible by writing our own maximum likelihood estimator, probably modifying a multinomial logit or probit estimator. With these parameters in hand, we can then test the model on a different sample of territorial claims dyads. This will involve collecting data on the size of the states in question.

[11] Given our measures, both q and q_0—relative to Chile—decrease as a result of Bolivia's lost territory from 1935 to 1936, but the decrease in q is proportionately greater than that in q_0: 7.1% versus 0.7%.

7 References

Angus Reid Global Monitor. 2007. "Chileans Reject Granting Sea Access to Bolivia." June 30, 2007. Accessed 27 July 2007.
http://www.angus-reid.com/polls/index.cfm/fuseaction/viewItem/itemID/16321.

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

Bueno de Mesquita, Bruce, and David Lalman. 1992. *War and Reason: Domestic and International Imperatives*. New Haven: Yale University Press.

Butler, Christopher K. 2007. "Prospect Theory and Coercive Bargaining." *Journal of Conflict Resolution* 51(2): 227-250.

CIA. 2007. "The World Factbook." Accessed 22 August 2007.
https://www.cia.gov/library/publications/the-world-factbook/index.html.

Fearon, James. 1995. "Rationalist Explanations for War." *International Organization* 49(3): 379-414.

Goertz, Gary and Paul Diehl. 1992. *Territorial Changes and International Conflict*. New York: Routledge.

Hensel, Paul R. 1996. "Charting a Course to Conflict: Territorial Issues and Interstate Conflict, 1816-1992." *Conflict Management and Peace Science* 15(1):43-73.

Hensel, Paul R. 2001. "Contentious Issues and World Politics: The Management of Territorial Claims in the Americas, 1816-1992." *International Studies Quarterly* 45(1): 81-100.

Hensel, Paul. 2005. "Codebook for Territorial Claims Data: Issue Correlates of War Project."
http://www.ICOW.org.

Huth, Paul K. 1996. *Standing Your Ground: Territorial Disputes and International Conflict*. Ann Arbor, MI: University of Michigan Press.

Kahneman, Daniel, and Amos Tversky. 1979. "Prospect Theory: An Analysis of Decision under Risk." *Econometrica* 47(2): 263-91.

Levy, Jack S. 1996. "Loss aversion, framing, and bargaining: The implications of prospect theory for international conflict." *International Political Science Review* 17 (2): 179-95.

Prelec, Drazen. 1998. "The probability weighting function." *Econometrica* 66 (3): 497-527.

Senese, Paul D. 1996. "Geographic Proximity and Issue Salience: The Effects of Escalations of Militarized Conflict." *Conflict Management and Peace Science* 15(2): 133-161.

Shultz, Jim. 2003. "Behind Bolivia's Gas War." *Pacific News Service*, Oct 17, 2003.
http://news.pacificnews.org/news/view_article.html?article_id=
8e7890e37f836788252aaac364cf501d, visited August 18,2006.

Singer, J. David, Stuart Bremer, and John Stuckey. 1972. "Capability Distribution, Uncertainty, and Major Power War, 1820-1965." in Bruce Russett (ed) *Peace, War, and Numbers*. Beverly Hills: Sage, 19-48.

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

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

Tir, Jaroslav, Philip Schafer, Paul Diehl, and Gary Goertz. 1998. "Territorial Changes, 1816-1996: Procedures and Data." *Conflict Management and Peace Science* 16(1): 89-97.

Tversky, Amos, and Daniel Kahneman. 1992. "Cumulative prospect theory: An analysis of decision under uncertainty." *Journal of Risk and Uncertainty* 5:297-323.

Tversky, Amos, and Daniel Kahneman. 2000. "Advances in Prospect Theory: Cumulative Representation of Uncertainty." In *Choices, Values, and Frames*, pp. 44-65. Daniel Kahneman and Amos Tversky, eds. New York: Russell Sage Foundation.

U.S. Department of Energy. Energy Information Administration. 2006. "Country Analysis Briefs Chile. Washington: Department of Energy." Accessed 27 July 2007. `http://www.eia.doe.gov/emeu/cabs/Chile/pdf.pdf`.

Valzelli, Luigi. 1981. *Psychobiology of Aggression and Violence*. New York: Raven Press.

Vasquez, John A. 1995. "Why Do Neighbors Fight? Proximity, Interaction, or Territoriality." *Journal of Peace Research* 32(3): 277-293.

Vasquez, John A. and Marie T. Henehan. 2001. "Territorial Disputes and the Probability of War, 1816-1992." *Journal of Peace Research* 38(2): 123-138.

Xinhua News Agency. 2003. "Peru offers maritime access for Bolivian natural gas exports." October 28, 2003.

Parameter Fitting Analysis

	λ	β	SQ Correct	Nego. Correct	Conflict Correct	Total % Correct	% SQ Correct	% Nego. Correct	% Conflict Correct
BOL CHL 1978	2.25	0.461	169	1	1	54%	66%	2%	11%
	2.00	0.487	178	1	1	57%	70%	2%	11%
	1.75	0.533	192	0	1	61%	75%	0%	11%
	1.50	0.622	201	0	1	64%	79%	0%	11%
	1.25	0.837	210	0	0	66%	82%	0%	0%
ECU COL 1857	2.25	0.528	205	0	1	65%	80%	0%	11%
	2.00	0.564	209	0	1	66%	82%	0%	11%
	1.75	0.612	210	0	1	67%	82%	0%	11%
	1.50	0.685	208	0	1	66%	82%	0%	11%
	1.25	0.802	207	0	1	66%	81%	0%	11%
VEN COL 1900	2.25	0.218	58	0	6	20%	23%	0%	67%
	2.00	0.232	59	0	6	21%	23%	0%	67%
	1.75	0.251	61	0	6	21%	24%	0%	67%
	1.50	0.279	64	0	6	22%	25%	0%	67%
	1.25								
PER CHL 1879	2.25	0.246	85	0	4	28%	33%	0%	44%
	2.00	0.259	84	0	4	28%	33%	0%	44%
	1.75	0.276	85	0	3	28%	33%	0%	33%
	1.50	0.300	86	0	4	28%	34%	0%	44%
	1.25								
PER CHL 1884	2.25	0.241	81	0	5	27%	32%	0%	56%
	2.00	0.253	82	0	5	28%	32%	0%	56%
	1.75	0.270	81	0	5	27%	32%	0%	56%
	1.50								
	1.25								
PER CHL 1911	2.25	0.146	4	0	9	4%	2%	0%	100%
	2.00	0.152	4	0	9	4%	2%	0%	100%
	1.75	0.161	4	0	9	4%	2%	0%	100%
	1.50	0.173	4	0	8	4%	2%	0%	89%
	1.25	0.199	6	0	8	4%	2%	0%	89%
PER CHL 1920	2.25								
	2.00								
	1.75	0.211	32	0	8	13%	13%	0%	89%
	1.50	0.228	31	0	7	12%	12%	0%	78%
	1.25	0.260	33	0	6	12%	13%	0%	67%
PER CHL 1921	2.25								
	2.00								
	1.75	0.215	33	0	7	13%	13%	0%	78%
	1.50	0.232	33	0	7	13%	13%	0%	78%
	1.25	0.265	35	0	6	13%	14%	0%	67%
BOL CHL 1920	2.25	0.386	137	0	2	44%	54%	0%	22%
	2.00	0.409	143	0	2	46%	56%	0%	22%
	1.75	0.450	157	0	2	50%	62%	0%	22%
	1.50	0.530	185	0	1	59%	73%	0%	11%
	1.25	0.733	202	0	1	64%	79%	0%	11%

Blank rows indicate that no value of β could be found for that value of λ that would satisfy the preference condition.