Introduction

Political science as a discipline is tasked with sorting through assumptions and motivations for conflict to emerge with a clearer picture that discusses why conflict occurs. This paper has a broad goal of developing a template that can be placed on top of as many conflicts as possible to predict the longevity of a conflict based on the characteristics exhibited by the opponents in a given dispute. In pursuit of such a broad goal, group ties to territory are explored and two types of ties to territory are defined. A specific type of conflict involving groups with specific types of territorial tie is analyzed using an extensive form game tree in order to highlight the complexity of options that are available to groups in conflict. Finally, the model is represented in Bayesian normal form and, using Perfect Bayesian equilibria, is solved for a Bayesian Nash equilibrium. The identification and modeling of specific conflicts can be easily achieved using the extensive form of conflict with minor modification necessitated by conflict specific phenomena. The normal form method is used to highlight how opponents in conflict do operate without complete information. As a result, conflicts can be systematically analyzed with special attention given to territory relationship type, extent to which information is not known and the information that is used to fill the gap left by a game of incomplete information.

A Context for Territory and Conflict

Admittedly, the ambition of this paper may be quite vast. Therefore, it is imperative that the scope of the research be limited to post cold war civil conflicts that take into account various motivations for conflict. Some of these motivations include ideology, religion, and ethnicity. A sizable amount of post cold war research has focused on civil and ethnic conflict. Some ethnic and civil conflict research attempts to predict the potential for future conflict, (Gurr and Moore 1997), (Gurr and Moore 1998). While not a major point of research, Gurr and Moore do indicate
several causes for increased possibilities for conflict, not the least of which is territory disputes. On its face, it seems that territory is may be the most important factor regarding conflict. Others have begun to investigate the allure of territory in terms of its perceived value, (Goertz and Diehl 1992; Diehl 1999). Specifically, intrinsic importance and tangible/concrete value are cited as making certain territory more valuable than others. Some intrinsic value interests include natural resource base, oil reserves, market access, and agriculture production, (Goertz and Diehl 1992; Diehl 1999). I propose that these intrinsic values are a subset of *mechanistic* traits, a term which will be discussed at length later. Strategic value of territory and sovereignty, as conceptualized by Vanzo, also creates mechanistic value, (Diehl 1999). Distinct from intrinsic elements are what I propose are a subset of *organic* traits, once again to be discussed at length later. Goertz and Diehl classify ethnic composition, and linguistic and religious ties as relationally important and thus creating value in territory, (Goertz and Diehl 1992; Diehl 1999).

In sum, various perceptions of value make territory attractive to various groups. These elements of value equity are correctly hypothesized to have an impact on conflict origin, (Diehl 1999), the potential for establishing rivalry, (Diehl and Goertz 2000), and the maintenance of a rivalry should one emerge, (Diehl and Goertz 2000; Goertz, Jones et al. 2005). These macro level conflict analysis are becoming more sophisticated and better able to explain how conflicts begin and the specific role territory plays in the conflict, (Diehl 1999). Specifically, the punctuated equilibrium model (PEM), (Diehl and Goertz 2000) re-conceptualizes the way one can study conflict by refocusing on rivalry, a subset of conflict, in terms of rivalry birth, growth, development and evolution, and termination. Rather than continue to focus on individual conflicts or various conflicts between the same two entities, PEM proposes a rationale for why certain conflicts can be included or excluded from analysis, all depending on your particular
focus. Diehl and Goertz theorize that a critical juncture must take place before a rivalry can initiate. A critical juncture is some kind of shock to the current political balance. Given a shock, international actors can quickly move into a lock in period in which an enduring rivalry is begun. Once the enduring rivalry period is achieved, a period of stasis ensues to be followed by a second political shock leading to a rapid demise of the rivalry, (Diehl and Goertz 2000), (Goertz, Jones et al. 2005).

The PEM is contrasted with competing explanations of rivalry maintenance, (Goertz, Jones et al. 2005) concluding that conflict should be studied within the context of its relationship to a rivalry if any exists. Given a context for rivalry and perception of value of territory in dispute (especially in relation to intrinsic, concrete and relational values), it makes more sense why military strength disparities among challengers has little effect on decisions to enter into conflict. Rather, domestic concerns, ethnic and linguistic ties, and the people in disputed territory seem to carry more salience regarding decisions to go to war, (Diehl 1999). Given territorial conflict, a subset of conflict, severity and likelihood of violence increases, and once a conflict has stopped, it is more likely to reoccur, (Diehl 1999). It is important to note that not all disputes over territory will lead to conflict. Rather, some research indicates a relationship between perception of personal threat as a reason to flee as a refugee, (Davenport, Moore et al. 2003). Still, other research has taken an economic approach looking to explain acts of war as based on a notion that an economic gain is within reach, (Collier and Sambanis 2002). Such research may obscure opportunities for conflict. Utilizing a “window of opportunity” approach, Goertz and Diehl link the critical juncture (political shock) to the opening of the window for the potential to lock into a rivalry, (Diehl and Goertz 2000). Such logic can also be applied to conflicts that are based on the yearning for economic gain. The want for economic gain may always be present but
the window for opportunity to enter into conflict is short and fleeting, and only present during
some political shock (critical juncture). Suitable for another research agenda are the manners in
which various treatments of conflict fit well within the PEM. For the purpose of this paper, a
general overview of conflict typologies is sufficient.

Types of Conflict

Conflict can be driven by a rivalry between the two opposed groups. Rivalries emerge in
at least two manifestation: there is an isolated disagreement that subsides in a relatively short
amount of time when compared to other types of rivalry or there is an enduring rivalry in which
two groups have been at odds with one another for a long period of time, (Diehl and Goertz
2000). At the root of a rivalry may be a general yearning for political dominance in a region.
Formal models indicate that civil conflicts end when the value of the initially dominated group’s
yearning to be dominant is lower than the value of the dominant groups wish to maintain
dominance. When the value to achieve or maintain political dominance between groups is
similar, the civil conflict is “never ending”, (Gershenson 2000). Conflicts can emerge because of
a “poverty-conflict trap-like environment” meaning that recession increases the probability of an
internal conflict and, when a pre-existing external conflict emerges, recession has a greater
impact on increasing the probability of further internal conflict, (Blomberg 2002). Still, others
posit a connection between first world prosperity based on third world exploitation as leading to
conflict in general. Current hegemonic states have acquired resources by way of conflict leading
to both colonial and economic expansion, (Reuveny 2002). A “regime types” impact on conflict
has been extensively considered by the democratic peace literature. Receiving much less
attention has been the effect that regime type has on the duration of conflict, (Ireland 2001).
Taken together, a focus emerges in which conflict is studied as a rivalry that can have a varied
length. The majority of conflict length research has been studied as a consequence of some form of economic situation.

Much of the conflict literature focuses on the root cause of the majority of conflict, the distribution of resources. Economic based analyses of conflict are a good place to start looking for causal mechanisms of conflict. There is an emerging interest in conflict by economists. The hallmarks of economist based conflict research involve utilizing game theory methods that assume strategic behavior on the part of those involved in a conflict. Especially interesting are “rent seeking players” or those that wish to interact with others for the purpose of facilitating a transfer of resources in the rent seekers favor, (Sandler 2000). Economists have recently utilized a conflict success function, or CSF, to calculate the degree of success a group can expect based on “fighting efforts” put forward by the respective groups, (Hirshleifer 2000). Hirshleifer applies the CSF in terms of income, capital, and labor among other inputs that can have an impact on the expected success calculation. Others expand the static game theoretic-model and introduce “conflict dynamics” via the competition over a renewable resource that two groups find appealing. Adding to the equation is the lack of property rights that can properly protect the interests of both groups in the resource, (Reuveny 2001). These economic takes on conflict have spawned in depth looks at territory as a resource that is competed for over ethnic groups, (Carlowitz 2005), while others look at resources as a funding supply for liberation activity, (Cooper 2001). Yet, to be focused solely on economic causal mechanisms for conflict can lead to tunnel vision and may distort other factors that, at the very least, contribute to the duration of a conflict.
The Tie that Binds: Relationships with Territory

Of special note are literature that either implies or suspects that factors other than economics may have an impact on conflict emergence and duration. Reuveny looks at the Palestinian Israeli conflict and concludes that the conflict will not end until the colonial relationship between the groups end. Reuveny discusses notions of “ideology” driving the motivation for Israelis to occupy territory in dispute or, as Israelis call it, “return to homeland,” (Reuveny 2003). Connections to territory are not new in human experience but they have received little attention in political science. Does a human group’s claim to territory, from generation to generation, lead to greater propensity to mobilize, violently protest and/or rebel? For Indigenous peoples in the Americas, for example, the territories that human groups currently occupy are but small remainders of the area they once inhabited prior to European arrival. This concept of “First Nations Status” is generally applicable to many human groups that can be seen as having a historical right to the territory they once occupied and perceive their claim as legitimate in the face of more powerful modern governments, (Nations 2003). The “First Nations” concept has been explored in applied Indigenous studies research.

Past assumptions about Indigenous people have called them “enduring” meaning that, for one reason or another, they were (and in many cases are) the target of destruction by colonizing forces, (Holm, Pearson et al. 2003). The problem with assumptions of endurance is that they are established on the foundation of a philosophy inconsistent with that of Indigenous people. What often results in academia is a misinterpretation of Indigenous people’s motives. One theory posits a connection between the “four factors of peoplehood” interlinking language, sacred history, religion and land, (Holm, Pearson et al. 2003). No one element is more or less important than any other.. Such a worldview may not seem all that relevant unless it is contrasted with the
European/Western worldview. Yet, the core of conflict, I argue, can be traced to ties to territory that are reinforced by these four factors of peoplehood. The four factors of peoplehood, I also argue, can be applied to a diverse plethora of human groups in the world.

All human groups have some kind of relationship with territory. The nature of such a relationship is fundamental to the argument that human groups become rivals and conflict over territory. One type of relationship to territory is **mechanistic** and is best defined by utilizing an example. The exchange of territory between two nations such as in the Gadson purchase between the United States and Mexico in 1853 (Barraclough 1978). Mexico’s relationship to the territory was one of utility meaning that the true value of the territory was the amount of resources that could be extracted from the land. For Mexico, there was a price at which the territory was for sale and, for the U.S., there was a price they were willing to pay which is why an exchange was made and there is minimal conflict that pure negotiation could not settle. Pure mechanistic exchanges do not assume that coercion or deceit is not utilized in the transfer of autonomy, rather, all that is of concern is that a trade is conducted and a sovereign territory comes under the control of a different government. More abstractly, mechanistic relationships to territory imply that the most important aspect of a territory are the resources that can be extracted in the form of gold, oil, natural gas, i.e. a raw material. Also important are resources which can take on pure monetary terms such as the location of the territory making it attractive to consumers because of scenery, such as its ambience or its relaxing quality, or proximity to other entities of value such as raw materials. This type of relationship will be termed **mechanistic** from here forward.

Of more interest is when groups have a tie to territory that goes beyond mechanism. Holm and Thomas called this relationship **organic**, (Holm, Pearson et al. 2003). An organic relationship to territory implies a deeper relationship to said territory. When specifically looking
at the organic tie to territory, the territory can typically serve the human group with livelihood in the form of providing plentiful harvests and/or areas in which to hunt animals. Time on a territory contributes to the organic tie because memories, both good and bad, are intertwined with the territory as a backdrop for the situations encountered. Also deepening the tie is the fact that ancestors are buried on the territory and, possibly due to war or other conflict, blood of members of the given human group has been spilled on the territory. Bloodshed and defense of territory are the most unifying combination of factors contributing to this type of connection. All of these factors taken together have a cumulative effect on the tie a group has to a given territory. These factors are rarely taken into account when examining the dynamics of conflict.

Because there is no agreement in the literature on what to call or define as an organic tie, various descriptions of organic ties have proliferated. Some research calls the organic tie an awe of the environment in which human groups have been “overwhelmed” leading them to respect and worship that which gave them life, (Fixico 1989). Others have called the territory attachment a guardianship that has lasted into modern times, (Cornell and Fixico 1989). Although the literature tends to paint the picture of Indigenous people and territory in normative terms, it does not mean that these notions are wholly misguided. To the contrary, the organic relationship to territory takes on a more concrete form when looking at some of the general traits of Indigenous cultures.
Figure 1 points out the organic relationship that some human groups have with territory (place territory), ceremonial cycle, language, and sacred histories, (Holm, Pearson et al. 2003). Land, or place territory, is considered a sacred place, especially particular areas, because it is linked to a creation story (sacred histories). A creation story tells of a mythic origin for a group of people. The geographic area where the people’s origin is believed to have taken place is known to all the members of the human group because the story of origin is orally passed down from generation to generation, (Wilson 1996) (Wilson 1996). Oral tradition, therefore, reinforces the organic relationship between territory and human groups.

The specific language used to describe the significance of a particular geographic area is mixed in with the oral tradition. Such language can be a precursor to a more spiritual routine that involves only certain members of a human group, spiritual leaders. These spiritual leaders have a
specialized role in the development of a sacred history. They also have access to specific knowledge not readily available to the general public. Thus, spiritual leaders are responsible for passing down knowledge to the rest of the human group in the form of ceremonial cycles. Thus, a ceremonial cycle is also linked to the human group’s spiritual consciousness, situation specific language, creation story, and geographic region. It is because of this interlinking of characteristics, the organic land relationship quality, that relocation by force is not able to sufficiently break the tie that these people have to their ancestral homeland, (Holm, Pearson et al. 2003), (Wilson 1996), (Holm 1989).  

Being that the information regarding territorial ties is marginally available, it would be irresponsible to continue ignoring it in conflict research. Thus, this paper aims to make a case for analyzing ties human groups have to territory. This paper will present preliminary evidence that types of relationships to territory are important enough to factor into the calculation of both costs and benefits of acquiring territory. To gain insight into such phenomena, a model that assumes territorial ties need not be solely in terms of resources and their intrinsic value because such a focus would miss the importance of the organic tie to territory. Therefore, a cost and benefit should be assigned to protecting such attachment. Models, theories and paradigms should not automatically assume that the only values that are relevant need to deal with resource allocation because such an assumption leads to miscalculations in terms of overestimating payoffs for those in pursuit of acquiring territory. It also leads to underestimating the extent to which a seemingly “weak” group will fight to keep their tie to a territory alive.

Since there are at least two types of ties that groups can have to territory (organic and mechanistic), this paper explore the impact of the organic tie to territory on conflict duration.

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1 One should note that the research above is presented within the context of Indigenous culture, however, Holm and Thomas argue that the peoplehood matrix (pictured in Figure 1) can be applied to all human groups at some point during their existence (Holm et al. 2003).
Mechanistic ties to territory have been researched in isolation of organic ties. Therefore, it would be prudent to develop a theory of organic tie impact on conflict first and then apply the theory to various conflicts for the purpose of refining said theory. To that end, a signaling game will be used to exemplify a typical attraction, or mechanistic tie, that human groups have to resource rich territory. Then, value will be attributed to an organic tie to territory. The signaling game will be depicted in extensive form. The relationship to territory type will be assigned as a chance or choice of nature because groups have little choice in their inherent attachment to a given territory. Likelihood of attachment type is assigned a probability function. Understanding the relationship a group has to territory is the central concern of this paper because changes in relationship type will have a significant impact on the predicted cost and benefit of acquiring territory. A choice to acquire territory will be assigned to player 2. Player 1 will choose to cede or not cede territory to player 2. The signaling game will be used to argue that player 2 ignore, or is otherwise incapable of interpreting some information regarding the human group relationship to territory. Thus, player 2 always underestimates her costs and over estimates her payoffs when she chooses to acquire territory from a human group with an organic tie to that territory.

**Rational Choice Approaches**

A situation involving conflict between two groups is plagued by asymmetrical information leading to a dispute. Potential reasons for the asymmetrical nature of information may involve ideology, ethnocentrism, and language barrier, among other causes. For this reason information is the key to addressing the problems that lead up to territorial conflict, (Pearson 2001). Typically, these games have been used to model situations in which one player has information that is not available to the other player. Such a predicament is common to territorial conflict although the majority of conflict literature may look at asymmetrical information as a
misperception of and subsequent reaction to threat (Edleman 1971), as a product of insecurity coupled with an inability or intolerance of a salient problem (Edleman 1964) in terms of reaching agreements to end conflict based on incomplete information (Schelling 1960), and as a hurdle preventing conflict from being resolved (Gallois 2003). Most conflicts involve both actors having certain information that the other actor does not have. Seemingly unexplored are situations in which information is readily available and openly observable by both groups but is ignored due to an inability to see the opponent as an equal. It is because information is disregarded that rational choice methods may be well-suited to analyze a conflict situation with the caveat in mind that rational choice is dependant on assumptions that not all rational choice theorists agree upon, (Zey 1998).

Rational choice theory assumes that if individuals act rationally that a collective benefit will emerge, (Olson 1965), (Schelling 1960), (Zey 1998). The assumption that rationality in the action of individuals will result in a collective benefit is subject to legitimate challenge, (Green and Shapiro 1994), (Hauptmann 1996), (Riker 1982). Collective actions have been viewed as economic transactions in which individuals have several social options to exercise and, in their own interest, choose an option and, in unison, the result is assumed to be in the best interest of the collective. These several social options have costs and benefits associated with them. Humans make a decision and follow through on one social act. This act is chosen because it has the best balance between cost and benefit. Of most interest to conflict is the rational choice take on information. Without information, or without accurate information, chances for actor rationality should be less likely especially when one considers the effect of missing or inaccurate information on cost/benefit computations, (Zey 1998). Information dissemination has been subject to manipulation, (Lasswell 1977), (Lazarsfeld, Berelson et al. 1968), (Lippmann 1922)
and utilized to shape the conceptions of reality to the benefit of elites, (Gaventa 1980). Receiving little attention are instances where information is more readily available but disregarded in lieu of an appeal to ideology, (Edelman 1971), (Edelman 1964).

On the surface, it would appear that rational choice methods are appropriate for the study of ethnic conflict. However, there is a concern that the rational choice unit of analysis is the community and not the individual, (Hauptmann 1996). Even though rational choice theory suggests a direct connection between individual level decisions and collective benefit, it is claim that is shaky at best when one considers various barriers that prevent all individuals in a society from having access to all facets of said society’s institutions. More closely related are rational choice theories that take concepts of choice and how decisions can be effected or removed as an option given a situation. Choice in society could potentially be viewed under the guise of its impact on governmental policy. Choice can also be viewed as rational while being threatened by governmental institutions. This paradox is most relevant in the context of democracy, (Hauptmann, 1996, 37). The tie between choice, collective good and their impact on policy must be contrasted with methods of agenda setting because if not all choices are presented to a given public, the choices represented in collective good and policy are not true representations of all affected people. The literature makes it clear that there are various ways in which information can fail to become salient. When information is not available for decision making, it is much easier to operate under the guise of asymmetrical information appearing as complete information.

The paradox deserves inclusion here because decisions to cede or acquire territory are made by powerful individuals (leaders of states perhaps) in most cases. If rational choice is applied to these individuals, can it be assumed that leaders will look at all the information
available to them or will they ignore certain information to further their own interest? If all information is examined by persons in a position to choose between cession and non cession or acquire and not acquire, whatever the case may be, rational choice might conclude that the individual does not really have a choice. Because a choice is perceived and acted on reinforces the idea that costs of the decision may be underestimated and the benefits over estimated especially concerning decisions to acquire territory. This concept becomes more self fulfilling when the acquire decision winds up being very costly to the aggressor. Therefore, one could legitimately argue that no choice ever existed because the choice to acquire should never have been exercised due to its unexpected cost.

A final discussion on choice deserves attention as it is as far from a choice as one individual can get and must, therefore, be treated as a random act of nature that has influence on choice. It is much easier to state with confidence that humans attempt to maximize utility with certain actions but quite another to expand this notion to collective decisions and interactions. Yet, some do argue that since there are no structures that are created outside the realm of human interaction, that one can reduce all human interaction to a series of decisions meant to obtain a best case scenario self interested outcome, (Bruce 1999). Then the problem making decisions based on asymmetrical information becomes one of genuine alternatives. Once again, one must question the dissemination of information and its impact on collective decision making, policy formation and ultimate policy implementation with regard to conflict. More specifically, have all the alternatives to conflict been truly explored? What constitute a true plethora of alternatives or is the rational human forced to choose between two entirely different incomparable entities? An example of rational choice failure involving incomparable entities may be a decision to choose a religion. People do not typically choose a religion because the church one chooses to attend has
been selected because of the networking or dating prospects. When choices fail to translate into economic terms, there must be some other way to incorporate the category one finds entities a member of. The argument here is to take these decisions of nature, defined as inherent qualities that individuals have little or no control over such as ones religion or sex, and give them a value that can be recognized in economic terms. Failing to recognize the value of a non-decision based categories, such as a decision of nature, is paramount to ignoring information about the humans that rational people chose to interact with. Having no choice over a category one finds herself in can have a major influence on the decisions such individuals make. In fact, it may be the most important value to be cognizant over especially when analyzing conflict.

**Conflict, Information and Territory**

Situations in which players have private information, incomplete information or, more generally, imperfect or asymmetric information best describes a territorial conflict between two human groups, (Watson 2002). The emphasis of the game presented herein, called the “Territory Cession Game”, will assume that the groups have asymmetric information in that they have become biased against their opponent causing them to ignore valuable information available to them. These choices of bias will also be highlighted as a cause of underestimating the costs and overestimating the payoffs of attempting to acquire territory. Some examples of this phenomena include the Arab-Israeli conflict, U.S. war in Vietnam, Soviet war in Afghanistan and the Chechen rebellion.

The conflict literature mentions the extent to which symbolism can have an influence on the way events unfold concerning a potential conflict if one accepts that ideology and stereotyping could cloud the judgment of actors to engage in conflict. When a group stereotypes, generally, about another group in which a conflict could potentially evolve, it becomes more
difficult for the stereotyping group to analyze complex or ambiguous situations, (Edleman 1964). As a result, the symbols that emerge regarding complex situations are the only way that groups can adjust to an impending conflict, by way of “stereotypization, oversimplification and reassurance,” (Edleman 1964). Symbolism has been treated as a method to motivate groups toward peace, (Lewis 1979). For those motivated to create political change, the attack of symbolic entities proves to be an effective way for revolutionaries to see their plans through, (Hutchinson 1972). The characterization of symbolic as irrational posits that the equilibrium of society is disturbed by one individual acting emotionally. This individual inspires others in an act of “symbolic interaction” causing a group reaction to a common fear. Symbolic as irrational is refuted by others as being too simplistic to describe all acts of rebellion and violence however, (Brush 1996). Yet, when the literature treats a symbolic rationale as a “syndrome” (implying that the symbolic rationale is a collection of symptoms characteristic of an abnormal condition), one starts to deduce that the symbolic value of attachment to a cause is somehow not as powerful as other motives that might be involved in directing action (Arian, 1989, 611). Undeniable are notions that weaker groups fight with stronger groups to maintain control of territory for a number of reasons. To discount “symbolic” gestures as irrational oversimplifies the motives of conflict and does political science a disservice. The alternative to dismissing symbolic rationale is to accept symbolic based motives, give them value, and react to how these motives have impact on conflict duration which, to my knowledge, has not been researched.

A General Theory of Ethno-Political Rebellion

Ted Gurr and Will Moore theorizes that rebellion occurs when a group is repressed. Sensing a repressive environment, the group expresses a grievance. A group expressing a grievance would mobilize in order to respond to the repression. One response to the repression is
rebellion, (Gurr and Moore 1997). Recent applications of the Gurr and Moore model for Ethnopolitical Rebellion are concerned with assessing the risk of rebellion by a particular group, (Gurr and Moore 1998). By collecting empirical data on 264 minority groups around the world, Gurr and Moore look for characteristics that may indicate a higher propensity to rebel than other minority groups that do not exhibit these factors. A group must have the incentive for collective action because of disadvantage, resentment over historical loss of autonomy, experience with repression, and a high potential for the groups leaders to initiate collective action. Secondly, the group must have the capacity for collective action. Contributing to capacity for collective action are a strong group identity and the extent of the groups ability to militantly mobilize. Third, a group must have ample opportunity for collective action. A window of opportunity must arise such as an upheaval in dominant government control. Fourth, the regime the minority group rebels against must have a particular legacy in relation to dispelling past militant activity, (Gurr and Moore 1998).

Since the Gurr and Moore theory is general in order to incorporate many ethnopolitical minority groups residing all over the world. Refinement of the theory to fit specific situations can yield many interesting results. Preliminary analysis of the data set established a key difference between non-Indigenous and Indigenous ethnopolitical groups in the Americas, (Lerma, Driscoll et al. 2004). Based on these results, a hypothesis emerges positing two criteria that must be established in order to show a distinct difference between ethnopolitical minorities in general and Indigenous people in the Americas. First, evidence must indicate that Indigenous people of the Americas have an organic relationship with territory. Second, other non-Indigenous ethnopolitical minorities must have a mechanistic relationship with territory. If these assumptions hold then such relationships should have an impact on the actions taken by these
potentially distinct groups. The initially findings have concluded that Indigenous groups in the Americas do rebel at much greater levels than do non-Indigenous minorities. One should expect this trend to exhibit itself if the research is expanded to include the worlds ethnopolitical minorities. That is, all ethnopolitical minorities that have an organic tie to territory should be expected to mobilize at higher rates than if their tie is mechanistic.

**Research Design**

The nature of this preliminary research will be presented by the Territory Cession Game. Typically known as a signaling game, it will entail some assumptions and will be applicable to a finite amount of situations, (Spencer, find date). The game will assume that a conflict between an Indigenous group and a dominant government group has to do with territory. (Although, with minor refinement, the game can be made to fit any object over which two groups compete to control.) Another assumption is that both groups will fail to acknowledge the legitimacy of their opponent’s claim to said territory. That is a player one’s vested interest in retaining sovereignty over a given territory is viewed as morally superior in comparison with the vested interests of player two. The same is also true concerning player 2’s perception of player 1. It is a classic example of ethnocentric judgment in which one group’s evaluation of the other is clouded by rhetoric, prejudice and campaigns of misinformation among other influences. Such outside influences are key to making mistakes concerning the cost and payoff of acquiring territory.

**A Game of Ignored Information**

Typically a signaling game is used to represent two players. Both players make moves in no particular order as it has no effect on the outcome. The emblematic reason for using a signaling game is to highlight the fact that one of the players has more information than the other player. Thus, the choice that one player makes influences the payoff or cost that the other player
incurs. Therefore, the best strategy for the player with incomplete information is to take all actions that her opponent can opt for and calculate a best response based on a pooling of the costs and payoffs for all possible outcomes.

Ethnic conflict, however, is a game of asymmetrical information based on an unmodified cultural misunderstanding. Thus, the signaling game is not used here to indicate that one of the players has incomplete information. Rather, the players tend to be biased in favor of devaluing the opponent in terms of strength and motives resulting in the player’s underestimation of the logic that the opponent possesses in making a decision. The end result is that the players ignore relevant and available information thereby inaccurately determining costs and payoffs for decisions made. The signaling game presented herein is meant to highlight the information ignored while demonstrating how easily obtainable the information actually is. This exercise will also demonstrate that this ignored information, once factored in, should have a significant impact on the choices territory hungry groups make when dealing with other groups that may have a partially organic tie to territory.
Rules of the Game

In a signaling game, there is an element of chance. Another way to describe this element is to see it as a choice of nature, a decision that groups have little say in changing or the cost of changing is prohibitively high such as religion or place of residence. In any case, this element must be decided as it has a major impact on the rest of the game. In this game, choice of nature indicates player 1’s relationship to a territory that is also attractive to player 2. Thus, both players have an interest in retaining or obtaining autonomy over a single territory. The choice of a group’s relationship to territory is given over to chance or nature because it is not a conscious
choice that is made by the human groups. The two choices are organic or mechanistic. The probability of having an organic relationship to a territory is denoted by \(p\). Thus, \((1-p)\) is the probability that a human group has a mechanistic relationship with the territory.

Player 1 is a group that has the choice of ceding or not ceding territory to player 2. Regardless of the relative strengths or weaknesses of the group, a choice must be made. Values are attributed to groups with either mechanistic or organic relationships to the territory they must cede or protect. This decision by player 1 is denoted in the game by \(C\) (cede) or \(NC\) (not cede). When player 1 has an organic relationship to a territory, her decision node is indicated by \(C^0NC^0\) to indicate that the player must decide whether or not to cede territory with which she has an organic relationship. Alternatively, if player one has a mechanistic relationship with the territory, the decision will be denoted by \(C^mNC^m\). A decision must be made by player 2 to acquire territory or not acquire territory. This decision is denoted by \(A\) to acquire and \(NA\) to not acquire. Since it makes little difference concerning the motivation of the players to make their decisions, the reader should not be concerned with which player decides first and which player reacts to a given decision. For the purposes of this game, the order in which the players make decisions have no consequence on the outcome of the game. That is, if player one decides to cede before player 2 decides to acquire, the payoff and cost are still the same if player 2 attempts to acquire and player 1 decides to cede. An extensive form of this game is depicted in figure 2.

\(^2\) Lets assume, for the sake of argument that player 2 believes that player 1 will “claim” a tie to territory is organic when it is actually mechanistic. The problem with misleading the opponent is that groups will behave drastically different depending on the relationship the human group has with the territory. It would be difficult to convince an opponent that you deeply worship a territory place if you, at the same time, exploit all its resources and sell them openly. This is especially true if the exploitation degenerates the territory, i.e. strips it of its natural resources thereby leaving evidence of disrespect for the territory in terms of organic relationships.
Given that commonly cited economics literature derives a Nash Equilibrium when both parties wish to trade at high value, these values were assumed to be the highest value a party could achieve. This value was assigned the variable X. All other values were derived in relation to X. X is greater than Y and Y is greater than Z by a unit decrease in cost or C. Thus, if an X is to trade then a Y is to not trade and incur a cost of not trading. It follows that if a Y is not traded for reasons dealing with the relationship that a group has with a territory, the cost of not trading is deducted again leaving one with Z. This game begins with the baseline value of X = 2 and C = 1. Thus, Y = 1 and Z = 0. There is no real reason to start with X = 2 as it could easily have been any other number provided the cost value is proportionally substantial to make it meaningfully
different from the original X value. A final assumption is that since this paper recognizes value in protecting territory that is organically tied to a human group, that payoff must be greater than 0. As such, protecting organic territory is given a value of X with costs deducted as the territory is ceded depending on the circumstances of such an action.

**Bayesian Normal Form**

To better determine how a group might benefit from analyzing all information available to them regarding a territory dispute, the game may be better understood if it is viewed in normal form and solved for a Bayesian Nash Equilibrium. The normal form of the Territory Cession Game is depicted in figure 3 below:

![Figure 3: Bayesian Nash Equilibria w/ Prob of M=1/2](image)

In the above matrix, the probability of a given human group having an organic relationship with a territory is one half. To further highlight this assumption, the one half probability can be
expressed in figure 2 by replacing (p) with .5. Therefore, 1-p or 1-.5 becomes .5 also. That means a given group has a fifty percent chance of seeing the territory they hold autonomy over as a resource to be exploited. Given these odds, the payoffs and costs were calculated and placed in the matrix above. (See Matrix 1 in the appendix to explore how the probabilities were established.) Player one must decide whether or not to cede territory given its relationship to the territory and player two must decide to pursue territory or acquiesce because the costs will be too high.

When examining figure 4, one sees that it is not good strategy for player 2 to acquire territory because the costs are too high given that player 1 has a fifty percent chance of being organically tied to the territory in question.
Player 2 rationalizes that her payoffs are almost always greater if she plays NA rather than A. For example, note that the NC°NC°m for player 2 is 0 if she attempts to acquire territory. However, if she decides to not acquire territory, her payoff increases to 1.5. In fact, three of the four scenarios produce a greater payoff for player 2 if she does not attempt to acquire territory. The only time that this is not true is in NC°C°m in which player 2 is indifferent over whether or not to acquire territory. This is only because the payoff for either option is 1. Yet, all the other options for player 2 are greater than 1. Thus, player 2’s acquire option is dominated by her not acquire option.

Given that both players will have the information given above, they both realize that player 2’s A is dominated by NA. Thus, the rational player 1 should play NC°NC°m because this produces the best payoff for player 1. The most intriguing part of this set up is that it is assumed that the relationship that player 1 has with the territory is half the time organic and half the time mechanistic. Yet, many conflicts emerge without even looking this deeply or giving the player in a position to cede territory this much value. Typically, a player considering acquiring territory will have more information than a fifty percent probability that the group they wish to acquire from will be organically tied to a territory.

Conclusion

The purpose of this research is to highlight the problems that contribute to ethnic conflict. Since a great deal of conflict deals with misinformation, it should follow that lacking information is a problem that could result in more casualties or, generally, greater costs than one might initially anticipate. This exercise in information strategy should highlight how adding a small level of information to ones decision making could more accurately depict the costs of acquiring territory from other human groups. The reality is that if a group is in conflict with another, they
probably already know what kind of relationship their rival has with the territory they possess. 
Thus, in case by case applications, the probability of a group having a relationship with a 
territory can be more concretely determined. In the case of Indigenous people in the Americas, it 
can be safely assumed that the probability of such human groups having an organic tie to 
territory they are forced to defend will be higher than fifty percent. The reason that one cannot 
presume Indigenous human groups in the Americas to have a one-hundred percent probability of 
having strictly organic relations with their territory is because the two relationships are not 
mutually exclusive. It follows that even if a human group has a deep organic relationship to the 
territory they control, they may still opt to cede the territory to avoid the slaughtering of all their 
population should the group wishing to acquire territory threaten such force. Nonetheless, this model 
does not attempt to predict or forecast actions that groups should take when involved in a feud 
over territory. Rather, it merely states that organic ties to territory are costly as well as beneficial 
to the groups that become entangled in such predicaments.
Appendix Of Matrices

Provided to demonstrate where pooled payoffs originate from.

<table>
<thead>
<tr>
<th>Appendix 1 Matrix</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>NA</td>
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<tr>
<td>CaCm</td>
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<td>1-p, p+1</td>
</tr>
<tr>
<td>CaNc^m</td>
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<td>2-2p, 2</td>
</tr>
<tr>
<td>NcCa^m</td>
<td>2-2p, 2, -2p</td>
<td>p+1, 1</td>
</tr>
<tr>
<td>NcnCc^m</td>
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</tbody>
</table>

The above probabilities were derived in the following manner:
1. Observer assumes that territory becomes visible to a player wishing to acquire it because it is of high mechanistic value
2. Observer also assumes that the territory’s organic significance is ignored by the acquisition prone player
3. Since organic territory can potentially be traded, it became necessary to create separate matrices and pool their payoffs (See Appendix 2, 3 and 4 Matrices)
4. With the payoffs pooled between sacred and demand, the above matrix payoffs are arrived at. P is the probability that player 1 has an organic tie to a territory. Pooled payoffs appear in figure 2, 3 and 4.
Appendix 2

Matrix demonstrates how the monetary value of a territory can effect how players treat the territory. This matrix assumes that both players have a mechanistic relationship to the territory.

```
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<td>2, 0</td>
</tr>
<tr>
<td>0.2</td>
<td>0, 2</td>
<td>1, 1</td>
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Appendix 3 indicates that players can treat traded territory in much the same way one treats the monetary value of territory. This is a clue that player 1 may have an organic tie to territory.

```
<table>
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<th>Least Traded</th>
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<tr>
<td>0.2</td>
<td>0, 2</td>
<td>1, 1</td>
</tr>
</tbody>
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Appendix 4 highlights the costs and payoffs of acquiring and ceding territory based on the level of sacredness. Sacredness is attributed to the level of organic tie player 2 has with the territory.
Values Added

<table>
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<tr>
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<th>Most Sacred</th>
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<td>0, 2</td>
</tr>
<tr>
<td>Least Sacred</td>
<td>2, 0</td>
<td>2, 2</td>
</tr>
</tbody>
</table>

Sacredness

High

Low

X=2 Player 1: Acquire
C=1 Player 2: Cede
Y=1
Z=0
Bibliography


