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Abstract

The position of states in the international system has long been a topic of interest in the study of world politics. Previous studies investigating the relationship between status inconsistency and international conflict produced largely mixed results. We apply social network analysis to study the relationship between centrality, status inconsistency and conflict at the national, dyadic, and systemic level of analysis. We derive different indices of network centrality and status inconsistency using data on alliance, trade, IGO, religious, and linguistic networks. We find that centrality has some effect on national conflict involvement, but this relationship is not robust across centrality indices and network types. On the other hand, status inconsistency has a robust effect on dispute and war involvement at the national, dyadic, and systemic levels of analysis. We discuss the implications of these results.

1. Introduction

Studies of national behavior suggest three sets of factors that have a consistent effect on national conflict involvement propensity: (a) national attributes, such as military capabilities, economic power, regime structure, or ethnic diversity; (b) domestic political processes, such as processes of democratization, political instability, or economic downturns; and (c) external conditions and processes, such as the number of neighbors, the number of the state's alliances, or the political structure of the state's environment. In one form or another, each of these factors was shown to have an impact on conflict behavior of individual states (Maoz, 1993; 1996; Bremer, 2000; Bennett and Stam, 2004).

Yet another aspect of a state's decision on whether to engage in conflict concerns *the structure of its relationships* with other states in the system or in its immediate environment. Initial explorations into such issues yielded mixed results. We offer a new approach to the relationship between a state's conflict behavior and the structure of its relations with its environment. We focus on the *status* of states, as defined by the extent and nature of the relationships they have with other states in a number of different areas. This focus on national status leads us to take a new and different look at the relationship between *status inconsistency* and conflict behavior. We address the following questions.

1. How does the degree of a state's centrality on a given structural or relational attribute affect its conflict behavior?
2. Do different dimensions of relations have different effects on a state's behavior? For example, does the centrality of states in alliance networks generate a different effect on the state's behavior compared to its the centrality in trade networks?
3. How is a state's conflict behavior affected by the degree of status inconsistency it might experience? Are states experiencing sharp discrepancies between their capability-related

rank and their centrality rank on a number of relational attributes more likely to engage in conflict than states that are structurally-balanced?

A related set of questions concerns the finding of previous studies that focused on status inconsistency and conflict. These reveal a typical level-of-analysis puzzle: states that experience high status inconsistency are no more likely to engage in conflict than states that experience low levels of status inconsistency. However, as the levels of status inconsistency in the system increase, the probability of systemic conflict also tends to rise (Wallace, 1973; Midlarsky, 1975; Gochman, 1975; Ray, 1974; Vogly Mayhall, 1995; 2000). Thus,

4. Are dyads whose members experience high levels of status inconsistency more likely to fight each other than dyads whose members do not experience status inconsistency?
5. Is the level of status inconsistency in the international system related to the amount of systemic conflict?

We address the questions above through the lens of social networks analysis. This approach allows us to use measures of status and prestige that are derived from structural patterns of relations on a number of different dimensions. We start by discussing the fundamental features of social network analysis and its treatment of the concepts of centrality and prestige. We follow this by reviewing the literature on centrality, status inconsistency, and international conflict and derive from it a number of hypotheses linking the centrality of states and their status-consistency/inconsistency to conflict involvement. We then specify the research design and report the findings on the relationship between state centrality, status consistency and conflict at the monadic, dyadic, and systemic levels. Finally, we discuss the theoretical and practical implications of our study.

2. Social Networks Analysis and the Study of Centrality and Prestige

Space limitations preclude an extensive review of Social Networks Analysis (SNA). However, since this approach had very few applications in international relations (e.g., Hoff and Ward, 2004; Maoz *et al.*, 2005), a brief discussion of this approach and its treatment of the concepts of centrality and prestige is warranted. Briefly, SNA is a systematic framework, based on graph theory and on linear algebra, that offers a set of measures and methodologies for systematically studying structures of relationships among units—individuals, groups, organizations, or states. SNA has been widely used in sociology, organizational behavior, and psychology (Wasserman and Faust, 1997: 3-17; Pattison, 1993: 14-20; Watts, 1999; Burt, 1992). In political science, SNA was applied to voting in the U.S. Senate (Knoke, 1994), opinion formation in the U.S. (Huckfeldt, *et al.*, 2004) and opinion change (Gartner, 2004).

Unfortunately, the application of social networks analysis to world politics research has been scant. Early works on transaction flows in the international system (Brams, 1966, 1969) had few follow-ups. Our project represents one of several new efforts to apply SNA to different aspects of world politics (e.g., Ward, Hoff, and Lofdhall 2003, Hoff and Ward, 2005; Kinsella, 2005; Maoz *et al.*, 2005).

A social network is defined as a set of units and a rule that ties some of the units to each other. The rule that defines the ties between states could be "a formal alliance," "the dollar amount of trade," "membership in International Governmental Organizations (IGOs)," "the degree of linguistic similarity," etc. Ties can be symmetric or asymmetric.[1] Social networks can be relational or affiliational. In *Relational networks* the rule that specifies ties between reflects a specific relationship. Alliances, trade, conflict, contiguity, are examples of relational networks. *Affiliational networks* specify affiliations of units with events, organiza-

[1] By "symmetric" relations we mean that if unit *i* is tied to unit *j* then *j* must be tied to *i* in the same manner. For example if state *i* has a defense pact with state *j* then *j* must have a defense pact with *i*. On the other hand the amount of exports going from state *i* to state *j* is not the same as the amount of exports going from state *j* to state *i*. This implies asymmetry of relations.

tions, or groups. Memberships in IGOs, votes on a set of motions in the UN, percentage of the population subscribing to various religions exemplify affiliational networks (Wasserman and Faust, 1997: 36-41).[2] Maoz (2001: 148-150) distinguished between discretionary and non-discretionary networks. *Discretionary* networks are those in which units choose whether or not to form ties with each other or affiliate with certain groups (e.g., alliances, IGOs, conflict, diplomatic relations). *Non-discretionary* networks are defined by ties or affiliations that are not due to the conscious choices of units, but rather to attributes or factors beyond their control (e.g., contiguity, religious or linguistic affiliation).

The pattern of ties between units defines the structure of the network. This structure can be measured by concepts that describe the entire network, subsets of such networks, triads, dyads, or individual units (states). In the present study we focus on measures describing the position of individual units in terms of status and prestige. The status of units in social networks is considered to be a reflection of their "importance" or "*centrality*." In discretional networks, centrality reflects the extent of actors' involvement in social relations, the nature of the ties they have with other actors, and the nature of the actors with whom they are tied (Wasserman and Faust, 1997: 173-174). The centrality of actors is based on symmetric relations, that is on ties that are identical in terms of initiator and target. In contrast, prestige is based on the selection by other actors to connect to the focal actor. Thus, the prestige of an actor "increases as the actor becomes the object of more ties, but not necessarily when the actor itself initiates the ties" (Wasserman and Faust, 1997: 174). The actual conception of centrality and prestige is based not only on the extent of the number of ties that an actor sends or receives, but also of the strategic position of an actor within a given network. Moreover, sophisticated approaches to assessment of centrality and prestige take

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2 Affiliation networks can be converted into relational ones and vice versa. See Wasserman and Faust (1997).

account of the status of the units with which one is connected (Bonacich, 1987).and the nature of these ties (e.g., positive or negative, Bonacich and Lloyd, 2004).

The literature in the social sciences that employs the concepts of centrality and prestige is too vast to be considered here. Measures of centrality were developed as early as 1934 (Wasserman and Faust, 1997: 169), and were used extensively in Sociometric analysis (e.g., Strauss and Pollack, 2003; Gibbons and Olk, 2003), organizational communications and influence research, and exchange relations in organizations and social groups (Bonacich and Lloyd, 2004; Burt, 1992). Unfortunately, the use of these concepts in international relations—while conceptually well-developed, has been less than methodologically sophisticated.

The scope of reliance on different measures of centrality in various social networks resulted in the proliferation of different indices of network centrality and prestige. We define conceptually four types of centrality and prestige indices. The operational definitions of these concepts are discussed in the research design section.[3] In order to assist in the presentation of these concepts, consider the hypothetical binary network in Figure 1 below.

Figure 1 about here

1. *Degree Centrality*. This is the most straightforward measure of centrality as an indicator of a unit's status within a network. It is conceived as the number of direct ties the unit has to any other unit within a given network. The intuition here is simple. Since relational networks are a function of choices by units to establish ties with other units, the number of ties indicates the extent to which a unit is seen to be attractive to other units. States that have extensive alliance or trade ties with other states are more central in alliance networks than states that have fewer ties. In figure 1, unit A

[3] A more elaborate discussion of these and other measures of centrality and prestige is given in Wassermen and Faust (1997: 169-219; Bonacich, Oliver and Snidjers, 1998; Bonacich and Lloyd, 2002; Boncich, 1987).

has more ties to all other units (4 out of six other units) than any other units, thus getting the highest degree centrality score. Units C and D have ties to three out of six other units, getting both the second highest degree centrality score, and so forth.

2. *Closeness Centrality*. This concept of status takes into account both direct and indirect ties between states (the ally of my ally, the ally of the ally of my ally, and so forth). The relational distance between two states is defined in terms of the number of states that separate them. Thus, two states that are aligned with each other get closeness score of 1 (because there is one line separating them), the ally of my ally has a closeness score of 2, and the ally of the ally of my ally has a closeness score of 3, and so forth. A state may have many ties but these are direct ties. On the other hand, another state may have few direct ties but many indirect ties. We want the centrality scores to reflect this property as well, hence closeness centrality.

   Note in Figure 1 that while units C and D are connected directly to the same number of other units, D has closer indirect ties with the other units than C hence getting a higher closeness centrality score.

3. *Betweenness Centrality.* This concept reflects the position of a unit with respect to all other units. It makes a distinction between units that occupy a "strategic" position within a network and those that are "peripheral." A unit is considered central in this sense if it connects—or serves as a bridge between—many other units in the network. Some units may have few ties, but they occupy pivotal positions, thus they become important in the sense that the disruption of their ties with relatively few units will have a major impact on the structure of the ties in the system as a whole. Betweenness centrality reflects the extent to which a unit serves as a bridge between other units. Note that in Figure 1 unit A is in the most strategic position in the sys-

tem. This is not surprising given the number of ties it has with other units. What is less intuitive, however, is that D is in a more strategic position than all other units except A, hence its second highest betweenness centrality score.

4. *Eigenvector centrality*. Bonacich (1987) noted two problems with the above concepts as measures of status. First, they are based on symmetric relations. They reflect both the choices of the focal actor and the choices of other actors. If we want to assess prestige, however, we must examine asymmetrical relations, in particular, how and what other units "select" ties with the focal unit. Second, and more importantly, status and prestige must reflect not only how many other ties (of any kind or length) a unit has with other units, but also who are the units with which one has ties. A person who has many ties but most of these are with peripheral people would have less status or prestige then people who have ties with few, but highly central people. Thus measures of status and prestige have to take into account not only the ties of each unit but also the status and prestige of those units with which one has ties. Eigenvector centrality is a way of incorporating the centrality of the units with which one has ties into the centrality of the focal unit.

The table at the bottom of Figure 1 demonstrates that—depending on the particular measure of status and prestige one selects—units in the same network can assume different levels of status. One problem with existing measures of centrality—which we address in the methodology section—is that they are based on dichotomous (yes/no) relations and as yet do not allow to incorporate the magnitude of relationships between units.

We now turn to a discussion of centrality and status inconsistency in the study of world politics.

3. Status, Centrality, Status Inconsistency and International Conflict

International status and has long been a concern of world politics scholars. The preoccupation with national power and the fact that power—like wealth—is a relative commodity implies that states strive to acquire and maintain power for many purposes. One of these goals is to attain status in world politics. Status is believed to make for respect, respect makes for influence, and influence helps accomplishing whatever other goals a state may have. Power hierarchies are important because they are seen as the principal determinant of the structure of the international system (Mearsheimer, 2001: 44-45).

Rosenau (1966) found a correlation between a state's power-related status and its conflict and cooperation behavior. We know that a state's capabilities have a strong impact on its conflict behavior (e.g., Maoz, 1993; 2004a). This relationship applies to the dyadic level as well (Bremer, 1992; 2000). The most powerful states in the international system are consistently the most conflict prone states and members of the most conflict prone dyads, accounting for a majority of the wars and MIDs in the system (Maoz, 2004a). We know less about how other types of status—particularly those aspects that are not based on the attributes of a focal state but on how other states relate to it—affect the state's conflict behavior.

As we have seen in the discussion of status and centrality in the sociological and psychometric literature, status is not what one has, but rather how others view who one is and what one is capable of. A person may have excellent interpersonal skills but few friends. The social status of the person is not a function of the person's interpersonal skills but of who and how many other persons consider her to be their friend. Likewise, a state may have a highly developed economy but few trade ties because it is nearly autarkic. Its status as a trading state will be low and have little or nothing to do with its economic capacity.

Thus, when we discuss the status of states, we need to consider their "ascribed rank" (Galtung, 1964: 103). The attributes of states (what Galtung calls "achieved" rank) may be an

important determinant of their status and prestige, but in a discretional network, it takes two to consensually forge a tie. Thus the ordering of states in terms of their status and prestige on given relationships may have significant implications for their behavior.

What exactly can these indications be? How are these indicators expected to affect the conflict behavior of states, dyads, and how does the structure of relations in the system in terms of status affect the level of systemic conflict? Fortunately, we do not have to reinvent the wheel here. Central paradigms of world politics offer some ideas about these matters. We start with the role of status in the realist paradigm and compare it to the treatment of status and conflict in the liberal perspective.

3.1. Centrality, Status and Conflict: The Realist Perspective

In a world of realists, states are equal under international anarchy; they all confront the same challenges to their survival in a system without central authority. Yet, they are not equal in terms of their attributes, and hence they differ in how they position themselves to meet the challenges of international life. Realists assert that states possess some pecking order under a central attribute, typically considered to be national capabilities. This is why there is such a sharp distinction between major powers and minor ones (Mearsheimer, 2001).

But capability is not necessarily the same as power. In some cases there may be an inverse relationship between capabilities and power (Maoz, 1989; 1990: 219-250). One of the substantive definitions of power is *the capacity to control actors and/or outcomes* (Maoz, 1990: 219-221; Hart, 1976). This capacity must somehow be reflected in the relations one state has with others, which affect its capacity to exert influence without using force. One such relationship concerns formal alliances. The strategic status of a state is reflected by the extent to which other states depend on their alliance with it (Snyder, 1997).

How alliance-related status affects national behavior depends on the brand of realism one adopts. Defensive realism views alliances as a mechanism for balancing (against power or threats) (Walt, 1987). Alliances serve deterrent or defensive goals and are intended to prevent conflict. States that occupy a high alliance-related status—regardless how this status is operationalized—are less likely than states with low alliance centrality to solve security problems by force. The former can control outcomes merely by applying diplomatic pressure on friends or foes, and do not need to resort to force to get their wishes fulfilled.

Offensive realism (Mearsheimer, 2001), on the other hand, views alliances as a device for increasing states' power and therefore support their proactive ambitions. The prospects of winning conflicts because one has occupies a central alliance-related position is higher than when one has few allies. Concomitantly, the prospect of ally's paradox (Maoz, 1990: 196-203) or chain ganging (Christensen and Snyder, 1990) increases as one's alliance centrality increases. Central states are more likely to be drawn into unwanted conflict by their allies.

Thus, we can deduce two diametrically opposed hypotheses from realism regarding the effect of alliance-related status on the probability of conflict involvement of states.

R1. The higher the alliance-based status of states (the more central they are in terms of their alliance commitments), the less likely they are to be involved in international conflict.

R2. The higher the alliance-based status of states (the more central they are in terms of their alliance commitments), the more likely they are to be involved in international conflict.

The effect of the alliance status of states at the dyadic level must be modified by the presence or absence of a bilateral commitment. Dyads whose members are aligned with each other should have a lower probability of conflict regardless of the alliance-related centrality of its members. Thus, R1 and R2 should apply only to dyads whose members are not aligned with each other.

The focus of realism on strategic aspects of world politics suggests not only what it considers to be important, but also what it considers to be unimportant in determining states' conflict behavior. Specifically, realists dismiss or discount the importance of institutions and economic ties in determining their behavior (e.g., Mearsheimer, 1994/5). States may be prominent members of many international institutions, or they may have many economic ties with other states, but states that are institutionally or economically central are neither more nor less likely to be involved in conflict than states that are less central on those dimensions.

3.2. The Liberal Paradigm

The liberal paradigm does not challenge directly the realist (especially of the defensive realist variety) focus on the linkage between alliance-related status and conflict. It does assert, however, that alliance-related status is not the only or even the most important inhibitor of conflict involvement. The status and prestige of states must incorporate their economic position and their institutional standing.

Two other important factors that determine the status of states are expected to affect their conflict behavior: trade and IGO-related centrality. Trade centrality of states signifies their importance in the international political economy and their strategic position in the network of trade. It implies the degree to which states are—directly or indirectly—dependent on trade with the focal state. Thus trade-related centrality is said to have a pacifying effects on states both because they are less likely to become targets of their trading partners and because they are less likely to disrupt their trade flows by initiating conflict (Russett and Oneal, 2001; Oneal, Oneal, Maoz and Russett, 1996).

Second, the status of states is also reflected in their standings in international governmental organizations (IGOs). States that are centrally tied to other states through a

network of institutions take upon themselves the obligations of cooperation and information sharing that typically characterizes such institutions (Keohane and Martin, 1995; Russett, Oneal, and Berbaum, 2003; Russett and Oneal, 2001; Russett, Oneal, and Davis, 1998). The more central a role a state plays in IGO networks, the more constraints are imposed on its interactions, and therefore the less likely it is to engage in conflict. Two liberal hypotheses follow from this discussion.

L1. The higher the trade-related centrality of a state, the less likely it is to engage in international conflict.

L2. The higher the IGO-related centrality of a state, the less likely it is to engage in international conflict.

At the dyadic level, again, we must modify these propositions by taking account of the direct trade- or IGO-related interdependence between the states making up the dyad. States with low levels of overall trade and IGO status are likely to engage in conflict with each other, provided that their direct interdependence is low, but not otherwise.

3.3. Combining Realism and Liberalism: Status Inconsistency and International Conflict

An important aspect of the interest in relative position of states in the system has to do with the concept of *status inconsistency*. This concept has been widely used in psychology (e.g., Eagly and Karau, 2002), sociology (e.g., Berger, Norman, Balkwell, and Smith, 1992), and organizational behavior (e.g., Bachrach, Bamberger, and Mundell, 1993) as a predictor of deviant behavior. Galtung (1964) offered perhaps the first major articulation of the relationship between status inconsistency (or—to use his language—status disequilibrium) and international conflict. Applications of this concept to the study of international politics yielded mixed results. East (1971), Wallace (1973), Midlarsky (1975), and Volgy and Mayhall (2000, 1995) found evidence of a positive correlation between the extent of status inconsis-

tency (measured as the correlation between capability-based or GDP-based ranking of states and the diplomatic ranking of states) and the level of war in the system.

On the other hand, attempts to apply the same ideas to the national level of analysis showed no relationship between a state's level of status inconsistency and its war involvement (Ray, 1974; Gochman, 1975; 1980). Organski and Kugler's power transition theory (1980) also regarded status inconsistency as a source of national dissatisfaction with the status quo and thus a cause of war. Yet, they did not empirically examine the effect of status inconsistency on war. Later studies of power transition theory (e.g., Lemke and Kugler, 1996; Lemke and Reed, 1996) have emphasized other factors as measures of dissatisfaction with the status quo.

Four principal problems afflict research on status inconsistency and international conflict. First, measures of status inconsistency distinguish between acquired and ascribed status. Acquired status is measured by a state's capabilities. Ascribed status is usually measured by diplomatic representation. There may be, however, multiple dimensions of ascribed status, based on different types of interstate interaction. The mixed findings may be due to the fact that different aspects of status inconsistency have different effects on war behavior.

Second, diplomatic representation may not be a good indicator of ascribed status because a diplomatic mission is an inexpensive undertaking. On the other hand, alliance, trade, or IGO membership may better reflect ascribed status of states. Current measures of status inconsistency at the national and systemic level do not address this issue.

Third, from a theoretical perspective, it may be useful to think of different dimensions of ascribed status, and therefore of different dimensions of status inconsistency. Realists may consider alliance centrality as an indicator of ascribed status, because the state's alliance centrality is an indicator of how strategically important it is considered to be by oth-

ers. Liberal theorists may view trade or IGO-related centrality as better indicators of ascribed status in an interdependent world.

Fourth, the rationale that leads to a specific measure of status inconsistency is not well grounded in a theoretical framework. The specific type of ascribed rank (or status) that is most relevant to a state's conflict behavior and the nature of status inconsistency that a given theory does not immediately motivate states to engage in conflict.

This suggests that we must provide a more precise theoretical rationale for the linkage between status inconsistency and international conflict that is in line with the two paradigms we have discussed above.

States are engaged in multiple types of international interactions; hence they may be interested in establishing a balance between the rewards these pursuits generate. In particular, states wish to balance between *acquired* status and *ascribed* status. Acquired status is generated by a state's basic attributes. In international politics, the most important aspect of acquired status is the state's power. On the other hand, ascribed status is the prestige accorded to the state by other states, as indicated by its relations with these states.

By saying that states wish to balance their acquired and ascribed status, we claim specifically that powerful states want to be accorded prominent status in terms of their relations with other states. So, in essence, powerful states wish to have high centrality scores in terms of those factors that they consider either instrumental for their goals or those factors that they value as recognition of their importance. To some extent, this balance between acquired and ascribed status can be controlled by the focal state's actions or attributes, but not entirely. To accord a powerful state a high status, other states must be willing to align, trade, or participate in the same institutions with the focal state. If a state is extremely powerful but few other states are willing to align with it, or if the states willing to align with it carry little

weight in the international system, the focal state becomes status inconsistent. Such an actor may be motivated to seek ways to balance its status, so as to make the level of ascribed status as high as its level of acquired status. The opposite is not necessarily true. A very weak state with a high centrality score is also status inconsistent, but it is highly satisfied with its ascribed status, and would seek to preserve it. This has implications for the manner in which status inconsistency may be related to patterns of national conflict involvement. We will get to this below.

Galtung (1964) identifies three reasons that link status inconsistency (or rank disequilibrium, to use his terminology) to conflict behavior: (1) *Disequilibrium means different treatment*: A status inconsistent actor will get different treatment by others from the kind of treatment it thinks it deserves, thus "the objective existence of disequilibrium will cause an instability in the lifestyle of … the nation and cause … an 'unstable self-image.'" (p. 99). (2) *Disequilibrium means resources*. This implies that disequilibrium that entails high achieved and low ascribed status is more likely to lead to conflict because the state that perceives this imbalance will have the resources to alter it through conflict. (3) *Disequilibrium means self-righteousness*. It strengthens a motivation to change status because it creates a feeling that a state does not get what it deserves from others.

To this issue we may add another matter that is important in a world were most assets and values are relative—the wish to maximize relative gains. This is consistent with the realist conception of states' conception of their status (Mearsheimer, 2001: xxx; 1994/5: 9). Status inconsistent states compare their position to the position of other in the system. Because each of these positions is based on a relative ranking, a state that is high on power but low on trade or IGO-related status will envy states that occupy another type of imbalance—those that are low on acquired status (power) but high on ascribed status (trade, IGO, etc.).

The motivation to balance those relative positions is thus based on both a "rational" wish to reap the status-related fruits of one's power, and on a psychological need to rectify relative deprivation from which others enjoy but one does not.

This leads us to a discussion of the expectations derived from the two paradigms regarding the impact of status inconsistency on conflict. Here the realist paradigm offers more consistent hypotheses. Also, there is a surprising convergence between realist and liberal predictions on status inconsistency and conflict, especially when we consider such elements as trade and IGO-related status as elements of ascribed status. Realists (e.g., Gilpin, 1980) or semi-realists (e.g., Organski and Kugler, 1980; Lemke and Kugler, 1996) regard a state's dissatisfaction with the status quo as a cause of war. This must be backed up, of course, by sufficient power to render war profitable. Dissatisfaction can be reflected in the level of status inconsistency of a state—the discrepancy between its acquired rank, measured in terms of power, and its ascribed rank, measured in terms of its alliance- trade- or IGO-related status.

For liberals, the same idea holds. Liberals consider trade or IGO-related status as an indicator of a state's position in the system, but it is also a measure of normative or economic constraints on its willingness to pursue narrow and short-term interests. A state that is high on capability but low on trade- or IGO-related status has the means to carry out military adventures, but does not operate under significant economic or normative constraints. One of the first acts of Nazi Germany was to withdraw from the League of Nations, to remove normative inhibitions from pursuing its foreign policy through the threat or use of force.

Thus, from both the realist and liberal paradigms we deduce the following hypothesis.

R/L.1. Status inconsistency (a positive gap between the state's ranking on military capability and its ranking on alliance, trade, and/or IGO centrality) increases the propensity of states to engage in international conflict.

The key difference in between the realist and liberal paradigms may concern the specific variable that is used by states to measure their ascribed status. Liberals consider trade and IGO centrality to be major determinants of ascribed status. Realists may consider alliance-centrality as the key determinant of ascribed status.

One way of integrating the predictions of these two paradigms—given their identical expectations on the effect of status inconsistency on national conflict propensity—is to treat the concept of status inconsistency on multiple dimensions of ascribed status. This was suggested by Galtung (1964) who talked about multiple dimensions of rank and various types of rank disequilibrium. It was not followed, however, by those who attempted to assess empirically the relationship between status inconsistency and international conflict. Virtually all studies on these matters examined status inconsistency as a discrepancy between power and a single indicator of ascribed status. Thus, an integrative hypothesis may be the following:

R/L2. Status inconsistency (a positive gap between a state's ranking on military capability and its *combined* ranking on alliance, trade, and IGO centrality) increases its propensity to engage in international conflict.

Since status inconsistency is expected to affect national conflict propensity, this may well spill over to the dyadic level. Dyads, the members of which are status inconsistent should be more likely to fight than those that are not characterized by a high shared level of status inconsistency. This leads us to the following hypothesis.

R/L3. The higher the level of status inconsistency of members of a dyad, the more likely they are to fight each other.

We now turn to the systemic level. The studies on status inconsistency and systemic conflict all hypothesize that as the pecking order of states in the system in terms of capabilities diverges from the pecking order of state in terms of ascribed status, the magnitude and frequency of conflict in the system increases. We adopt the same hypothesis. Thus,

R/L4. The higher the degree of status inconsistency in the system, the more conflict the system would experience.

Note that both paradigms envision a consistency in the relationship between status inconsistency and conflict across levels of analysis. Thus status inconsistency is expected to affect the propensity of states to engage in conflict, the probability of dyadic conflict, and the amount and severity of systemic conflict. This is an important aspect of our study because it now suggests that a relationship between status inconsistency and conflict at one level of analysis may not be sufficient as evidence supporting either of the two paradigms. On the contrary, the relationship between status inconsistency and conflict must be robust across different levels of analysis.

We now turn to the research design used to test these hypotheses.

4. Research Design

Our analyses are performed at three levels of aggregation. At the national level, the empirical domain consists of all independent states in the system over the 1816-2001 period. The unit of analysis is the nation-year. At the dyadic level the empirical domain includes all politically relevant dyads over the same period. A politically relevant dyad (Maoz and Russett, 1993) consists of states that are either (a) directly or indirectly contiguous (share a border, a colonial border, or are separated by a body of water less than 150 nautical miles), or (b) one of which is either a global power with a global reach capacity or a regional power

with a regional reach capacity (Maoz, 1996: 139). Our unit of analysis is the dyad-year. At the system level our unit of analysis is the year, over the 1816-2001 period.

a. *Data and Sources*

The following datasets were employed in this study.

(1) *Dyadic Militarized Interstate Dispute (MID) dataset, version 3.02* (Maoz, 1999). These data cover all MIDs over the 1816-2001 period.

(2) *Alliance Dataset* (Gibler and Sarkees, 2004). Covers the 1816-2000 alliances.

(3) *Trade Dataset* (Barbieri, 2002; Barbieri, Khesk, and Pollins, 2003). Covers the 1870-1996 period for most states.

(4) *IGO Dataset* (Pevehouse, Nordstrom, and Warnke, 2004). Covers the 1815-2000 period and lists all state memberships in IGOs during this period.

(5) *Capability Dataset* (Singer, 1990). Covers the 1816-2001 period.[4] We used the Singer, Bremer, and Stuckey (1972) Composite Index of National Capabilities (CINC).

(6) *Regime Characteristics of States* (Jaggers and Gurr, 1995). POLITY IV dataset, available at: http://www.cidcm.umd.edu/inscr/polity. Covers the 1800-2002 period.

b. *Measurement of Variables*

The dependent variables are various measures of conflict behavior. Several alternative measures are used. We report here only one measure. Results are fundamentally similar across all measures.

(1) *Dichotomous MID/No MID*. An observation is coded as one if the state was involved in at least one MID during the year and zero otherwise. For the dyadic level we code this variable as one if the dyad experienced at least one MID during a year and zero otherwise.

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4 For actual dataset see http://cow2.la.psu.edu/.

(2) *Dichotomous War/No War*. An observation is coded as one if the state/dyad was involved in at least one interstates war during the year, and zero otherwise.

(3) *No. MIDs/Wars*. The number of dyadic MIDs or wars the state was involved in during a given year. These variables are aggregated over all dyadic MIDs/Wars for each year for the systemic level of analysis.

(4) *Escalation*. A variable was coded as one if a state/dyad was involved in a war during the year, zero if a state/dyad was involved in a dispute, but not in a war, and missing otherwise. This variable allows testing the impact of both the independent and control variables on the propensity of dispute escalation.

(5) *Dyad-Days of MID*. The duration of conflict in the system is measured by aggregating across dyadic MID durations for the systemic analyses.

In order to discuss our measures of centrality and status inconsistency, we first explain the structure of the network datasets we have compiled.

(1) *Centrality Measures for Network Data*. All network data have been discussed elsewhere (Maoz *et al*, 2005). In general, we derive centrality measures from three networks: alliance, trade, and IGO networks. For each year, a network is created for each of these variables. Each of these networks is represented by a $n \times n$ matrix where n is the number of independent states for that year. Since each of the networks is treated differently, we discuss the structure of each in a separate form.

Alliance networks. We generate an alliance matrix ($A_{n\times n}$) for each year. Each entry, a_{ij} in the matrix gets a score of 1 if states i and j had a formal alliance, and zero otherwise.

Trade networks. We generate a row-standardized trade matrix ($T_{n\times n}$) for each year. Each entry t_{ij} is state's i trade with state j as a proportion of the total trade of state i. Note that,

in contrast to the alliance network that is based on binary data, trade networks are made up of valued data.

IGO networks. IGO data also form a set of $n \times k$ affiliation matrices. Each matrix is measured once every five years over the 1815-1965 period and annually afterwards. The rows of each matrix represent states and the columns represent different IGOs. Each entry in an IGO affiliation matrix ($OA_{n\times k}$), oa_{jk} gets a score of 1 if state j was a member of IGO k, and zero otherwise. In order to measure centrality, we convert the affiliation matrix into an adjacency matrix by multiplying it by its transpose (Wasserman and Faust, 1997: 307-309), thus for each year we generate an IGO adjacency matrix $O_{n\times n} = OA \times OA'$. Each entry in of the O adjacency matrix o_{ij} is the number of joint IGO memberships of states i and j. Diagonal entries o_{ii} reflect the number of IGOs of which state i is a member. The matrix we use is a diagonally-normalized matrix in which each entry o

Centrality measures for each matrix and each year have been generated for each of the three networks using UCINET 6.0 (Borgatti, Everett, and Freeman, 2002). For IGO centrality scores, centrality scores have been extrapolated from the half centrality figures over the period 1816-1965.[5]

D*egree Centrality*. As noted, degree centrality is a normalized number of direct ties that a unit in the network has to any other unit. This is given by the following formula for binary data:

$$C_D^i = \frac{\sum_{j=1}^{n} a_{ij}}{n-1} \tag{1.1}$$

Where a_{ij} is one if states i and j have a relationship on the given property (have an alliance, trade with one another, exchange diplomatic missions, etc.), and zero otherwise, and

[5] Separate analyses were run with the non-extrapolated figures. Results were nearly identical to the analyses performed on extrapolated IGO data.

n is the number of members (states) in the system. For valued data, we employ the following formula (illustrated with trade network data).

$$C_D^i = \frac{\sum_{j=1}^{n} t_{ij} - t_{ii}}{n - \sum_{i=1}^{n} t_{ii}} \tag{1.2}$$

Where t_{ij} is a standardized trade figure for dyad *ij* and t_{ii} is the proportion of state's *i* GDP that is not due to trade.

C*loseness Centrality*. Reflects the relational distance between two states is defined in terms of the number of lines (geodesics) separating them. Thus, two states that are aligned with each other get closeness score of 1 (because there is one line separating them), the ally of my ally has a closeness score of 2, and the ally of the ally of my ally has a closeness score of 3, and so forth. The closer a given state to any other states in the system, the more central the state. Here too, we normalize the closeness centrality by the maximum possible closeness score to obtain standardized measures. Accordingly, closeness centrality for binary data is given by.

$$C_c^i = \frac{n-1}{\sum_{j \neq i}^{n} d_{ij}} \tag{1.3}$$

Where d_{ij} is the distance between state *i* and state *j*. An important drawback of the standard analysis of this measure (Wasserman and Faust, 1997: 185) is that it is defined only for members of the system that have a tie with at least one other member. For unconnected members, this measure is undefined (because the denominator is zero). We correct for this problem by substituting zero entries by *n* (the number of states). The reason for that is that the distance between any two states can be 1…*n-1*. Thus a state that is directly connected to all other states will have a closeness centrality score of $C_c = (n\text{-}1)/(n\text{-}1)=1$. On the other hand a state that is connected to at least one state only indirectly will have a closeness centrality

score of $C_c = (n-1)/k$, where $k > n-1$. For a completely unconnected state the closeness centrality score will be $C_c = 1/n$. This also defines the range of the revised closeness centrality score to $1/n \leq C_c \leq 1$.

$$C_c^i = \frac{n}{\sum_{j=1}^{n} d_{ij}} \tag{1.4}$$

This index varies from 1/n when the network is empty (each state is tied only to itself) to 1 (when the network is complete—that is, each state has a first-order tie with each other state). To generate a closeness centrality index for valued data, we generate a reachability matrix R defined as:

$$R = \sum_{i=1}^{n-1} X^i \tag{1.5}$$

Where X is a specific adjacency matrix. The entries r_{ij} of the reachability matrix represent the sum of direct and indirect ties between states i and j. Direct ties are given in the first order adjacency matrix X^1 (for example A^1 is the matrix of all direct alliances in the system). Squaring the first order adjacency matrix $X^2 = X^1 \times X^1$ provides all second-order ties (all cases that represent the "ally of my ally"), the cubed adjacency matrix X^3 represents the ally-of-the-ally-of-my-ally ties in the system and so forth. For valued matrices (such as trade and IGOs), higher order matrices discount relationships by distance. Thus if state j accounts for 10% of state's i trade, and state k accounts for 20% of state j's trade, then the trading partner of i's trading partner accounts for 2% of i's trade. If k accounts for an additional 15% of i's trade in direct trade then the total (direct and indirect) trade between i and k (for the purpose of measuring closeness centrality) is 15% (direct) + 2% (indirect through j) = 17%.

A third concept of centrality examines the significance of a given state as a bridge between other states in terms of a given relationship. This is *Betweenness Centrality*. An actor is considered central in this sense if it connects many other actors in the system. For example, in Figure 1, the United Kingdom seems to be a central member of the alliance and trade system not only because it is connected to many other states, but also because it serves as a bridge between quite a few other states that are otherwise not connected. Betweenness centrality (normalized) is defined as the proportion of states for which the focal state serves as a bridge, divided by the maximum possible bridging relationship for a system with *n* states. This is given by,

$$C_C^i = \frac{2\sum_{j<k} g_{jk}(s_i)/g_{jk}}{(n-1)(n-2)} \tag{1.6}$$

Where $g_{jk}(s_i)$ is any path between states *j* and *k* that goes through state *i*, and g_{ik} is the total number of paths connecting states *j* and *k*. This magnitude is normalized by the possible number of paths for which state *i* can serve as a bridge (given by *(n-1)(n-2)/2*). This measure, like the standardized degree centrality index, takes on values between zero and one.

A number of measures of centrality attempt to tap the centrality of a given state not only in terms of the number of other states it is connected to but also in terms of the centrality of those states to which it is connected. One such measure is the concept of *Eigenvector Centrality*. It is measured by,

$$C_E^i = \frac{\alpha\sum_{j=1}^{n-1} a_{ij} C_D^j}{(n-1)^2} \tag{1.7}$$

Where α is a parameter (the reciprocal of the Eigenvalue of the matrix), a_{ij} is an adjacency score of the relationship between *i* and *j*, and gets a score of one if the two states are

tied, and zero otherwise, and C_D^j is the degree centrality of state *j*. Clearly the more ties a given states has to "central" states, the more central the state is.[6]

On the basis of this discussion we can talk about the expected relationship between a state's centrality in different networks and its conflict behavior. We can also deduce hypotheses on the relationship between status inconsistency and its behavior.

(2) *Status Inconsistency Indices*. We noted the problems with existing status inconsistency indices. Accordingly we use several alternative measures of status inconsistency. We start with a simple measure that taps the proportional discrepancy between capability-related rank and individual centrality scores. This measure is defined as:

$$SI_X^i = \frac{r_{cap}^i - r(C_X^i)}{n-1} \qquad (1.8)$$

Where r_{cap}^i is the CINC rank of state *i*, and $r(C_X^i)$ is the state's centrality score using the measure *x* (x=Degree, Closeness, Betweenness, and Eigenvector Centrality). This status inconsistency score is computed for each of the centrality indices and for each of the networks. We also calculate an integrated status inconsistency score per network as follows.

$$SI_{INT}^i = \frac{r_{cap}^i - \frac{1}{k}\sum_{k=1}^{m} r(C_{Xk}^i)}{(n-1)} \qquad (1.9)$$

Where *k* indexes the networks used in our study (trade, alliances, IGOs, language, religion). Again, this index varies from 1 to -1, with greater numbers indicating greater levels of status inconsistency (negative values may indicate status satisfaction).

Dyadic status inconsistency is measured via the weak link approach as the lowest of the national status inconsistency scores of the members of the dyad.

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6 Other network centrality indices include information centrality, influence centrality, and power centrality (Wasserman and Faust, 1997: 194-198, 203-205; Mizruchi and Bunting, 1981). We use these measures in a different study.

Other Independent Variables. National and dyadic conflict behavior is affected by a complex set of factors beyond their network centrality or by their status inconsistency. Other factors were shown to have a significant effect on their conflict-related decisions and actions. Rather than addressing these factors as control variables, as many of the current studies of conflict seem to suggest, we prefer to treat these variables as additional "causes" of conflict behavior. For the monadic analyses we include the following variables:

(3) *Number of states in the focal state's Politically Relevant International Environment (PRIE).* The PRIE of a state (Maoz, 1996) indicates the state's strategic reference group. It is composed of all states that are contiguous to the focal state, of all regional powers in the state's region that possess regional force projection capacity, and all global powers with global reach capacity. The larger number of states in one's PRIE, the more threats and opportunities exist for the focal state, hence the more likely it is to engage in conflict.

(4) *The Regime Score of the focal state*. Following a large body of research on the democratic peace proposition, the findings on the effect of a state's regime on national conflict behavior are decidedly mixed. However, a recent study (Maoz, 2001) suggests that, in combination of another factor—the average regime in the state's PRIE—it has a significant negative impact on the probability of conflict involvement. The measurement of regime score follows Maoz (1996).[7]

(5) *The political stability of the state*. The stability of the state's political system measured as the number of years of the current regime (Maoz, 1998).[8]

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7 Note that the Maoz-Russett (1993) regime score is obtained by REG=(DEMOC-AUTOC)×CONCEN, where DEMOC is the POLITY IV Democracy score, AUTOC is the autocracy score, and CONCEN is the power concentration score of the state. Since there is no power concentration score in the POLITY IV dataset, it was generated using the POLITY II coding scheme on the POLITY IV regime characteristics.

8 Our measure of political stability differs from the one used by Bennett and Stam (2004) as an indicator of democratization. We believe that their measure is not a valid predictor of democratization because it does not distinguish between movement from an autocratic to an anocratic regime and

(6) *Regime Score in the State's PRIE*. Following Maoz (1996, 2001), the political structure of the state's environment is said to have a significant effect on its behavior. Democratic PRIEs tend to dampen the state's propensity for conflict. Hence this variable is measured as the average regime score of the state's PRIE (Maoz, 2001).

(7) Capability Ratio. The capability ratio of the state to PRIE was found to affect a state's conflict propensity. This variable is measured as the COW military capability score of the state divided by the sum of the capability scores of the states making up the focal state's PRIE. It is used only in the analyses in which centrality scores are applied as independent variables but is not included in the analyses that include status inconsistency measures.

Dyadic Control Variables

We include the traditional variables of joint democracy (lowest of the respective democracy scores in the dyad), and contiguity (where contiguity is coded as one if members of the dyad were directly contiguous, and zero if they were not directly contiguous but one of them was a major or a regional power). Other control variables (capability ratios, trade, IGO memberships) are incorporated into our status inconsistency variables.

Systemic Measures of Conflict and Status Inconsistency.

We used several measures of conflict, following pervious analyses that tested network hypotheses on system level status inconsistency and war (Volgy and Mayhall, 2000, 1995; Wallace, 1973; Ray, 1974; Midlarsky, 1975). We examined the raw number of MIDs and Wars in the system, the normalized number of MIDs/Wars (divided by the number of states), and the nation-months of MIDs/Wars.

Status inconsistency was measured in the following manner. For each year, we computed a correlation between measures of acquired and ascribed status. First, we used the

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movement from an anocratic to a democratic regime. See the arguments by Maoz (1998) vis-à-vis Mansfield and Snyder (1995, 1996) on this matter.

correlation between the average relative ranking of states on alliance, trade, linguistic, religious, and IGO degree centrality, on the one hand, and their CINC scores, on the other. The second was a correlation between the average relative ranking of states on alliance, trade, and IGO eigenvector centrality and their CINC scores. These correlations measured the degree of status consistency in the system. High positive correlations imply that states' degree centrality scores matched their CINC scores; negative correlations imply high levels of status inconsistency in the system.

For the systemic analyses we used a number of control variables (e.g., Maoz *et al.*, 2004; Maoz, 2004b). These include: the number of major powers in the system and the number of states in democratic networks (Maoz, 2001).

c. Estimation Methods

For the monadic and dyadic analyses, we perform two sets of estimation procedures, based on the structure of the dependent variables. First, for count variables we ran cross sectional time-series regression with a negative binomial link. For dichotomous occurrence variables we ran cross sectional time-series regressions with a logit link, both sets of regressions were done with a first-order autoregressive correlation structure. Second, we ran the regressions with dichotomous dependent variables using a simple logit model, employing the BTSCS procedure that applies cubic splines (Beck, Katz, and Tucker, 1998).

For the systemic analyses we applied an autoregressive Poisson event-count model for the count variables (no. MIDs/Wars in the system) and a straightforward time-series regression with Cochran-Orcutt correction for autocorrelation for the duration variable.

5. Empirical Results

We start by examining the relationships among the various measures of centrality. This is given in Table 1 below.

Table 1 about here

To facilitate interpretation of the results, we highlighted the correlations that were larger than |0.5|. The correlations among different measures of centrality derived from the same network are not high; many of them are extremely low and some are even negative. The large N renders even small correlations statistically significant, but the strength of associations among different measures of centrality is generally weak. This suggests that different measures of centrality tap different aspects of the concept.[9] Second, by and large, the correlations between centrality indices derived from different networks are also not very high, and those that are above (or below) |0.5| do not suggest any systematic associations. This suggests that the relative position of states varies substantially across substantive domains. States that are central on one network are not necessarily central on other networks. Thus, we can examine the additive effect of different centrality indicators without dealing with multicolinearity in the multivariate analyses.

We start our inquiry into the relationship network between centrality and conflict by presenting an analysis linking different measures of centrality to conflict, and controlling for a number of variables. This is given in Table 2.[10]

Table 2 about here

The results in Table 2 suggest that the linkage between the various centrality measures and national conflict behavior is not robust across indices and across dependent variables. Nevertheless, some relatively consistent relationships do exist between various

9 See Bolland (1988) for a discussion of differences among the various centrality measures on the basis of actual and simulated data.

10 We have conducted similar analyses for war frequencies and dichotomous measures of MID and war involvement. In addition, we ran the tests with dichotomous dependent variables using the Beck *et al.* (1998) BTSCS procedure using splines of years of peace. The results are largely similar to the ones reported in Table 2.

centrality indices and conflict behavior. Trade centrality seems to have a consistently negative effect on MID and war involvement. As a state's trade centrality goes up, the likelihood of its conflict involvement declines significantly. This also applies to the analysis of MID escalation to war that is not reported here. Religious centrality also appears to be inversely associated with the probability of MID and war involvement, although in some cases (e.g., closeness religious centrality) its effect on MID involvement is positive. The negative effects of trade and religious centrality on conflict appear to be in line with the hypotheses of the liberal and constructivist paradigm, but the support for these propositions is not robust. IGO betweenness and eigenvector centrality have a negative effect on MID participation. This is in line with the liberal hypothesis. Yet, IGO closeness centrality has a positive effect on MID participation and IGO eigenvector centrality has a positive effect on war participation, in stark contrast to the liberal expectation.

Most noteworthy is the almost general lack of relationship between alliance network centrality and conflict behavior. Neither of the two contradictory realist hypotheses about the effect of alliance centrality on conflict is supported by the data. The only case where one of the realist hypotheses (RH1) receives some support was in the equation testing the effect of eigenvector centrality on MIDs.

We now turn to an analysis of the impact of status inconsistency on national conflict involvement patterns. This is done in Table 3.

Table 3 about here

Table 3 shows that capability-trade inconsistency has the most robust effect on national conflict involvement and conflict escalation. Alliance- and religion-based status inconsistency indices have a positive impact on the probability of MID involvement, but not on the probability of war involvement or on the probability of conflict escalation. However,

integrated centrality scores[11] appear to have a significant impact on both the probability of MID involvement, war involvement, and on the probability of MID escalation to war.

Taken together, these results suggest that status inconsistency has a significant impact on the propensity of states to engage in conflict and to escalate low-level conflicts to war. This is perhaps the first study that connects status inconsistency to international conflict at the national level of analysis. Table 4 reports the relationship between status inconsistency and dyadic conflict.

Table 4 about here

The results of this analysis suggest that status inconsistency has a robust impact on the probability of dyadic conflict. As the level of status inconsistency in the dyad increases, the probability of dyadic MIDs and war increases. This effect obtains regardless of the specific measure of ascribed status that serves as a basis for the calculation of status inconsistency, and regardless of the measure of network centrality used to develop this index. This implies that the effect of status inconsistency on conflict can be extended from the monadic to the dyadic level of analysis. We now turn to a system-level analysis of status inconsistency and conflict.

Table 5 about here

Table 5 suggests again that status inconsistency at the system level has a significant impact on levels of systemic conflict.[12] This relationship is robust, but not across all measures of status inconsistency. The only measure of status inconsistency that has a robust

[11] We used only the cooperative indices (alliances, trade, and IGO) here, but the same applies to a general index of centrality that average across all five network centrality measures.

[12] Negative correlations between status inconsistency measures and conflict measures are in line with the hypotheses. This is so because the independent variables are measured as correlations between centrality and CINC rankings of states per year. This means that the higher the correlation between a centrality measure and CINC the more "status consistent" the system.

negative impact on the dependent conflict variables is the alliance-CINC inconsistency. The IGO-CINC inconsistency index—though not as robust as the alliance-CINC inconsistency index—supports the hypotheses in some cases. However, in the 19th century, this index is positively correlated with MID and war frequency, and with conflict duration, in contrast to the hypothesis.

The integrated status inconsistency indices have a generally significant negative impact on the dependent variables, but this is based strictly on the data for the 20th century; for the 19th century the effect of status inconsistency on conflict is not statistically significant.

The control variables do not appear to have a consistent effect on the dependent variables, with the exception of the democratic cliques variables which—for the most part, but particularly in the 20th century—is inversely related to the frequency and duration of international conflict and war.

6. Conclusion

Status and status inconsistency have been important topics of inquiry in international politics. However, the empirical analyses of the effects of these concepts on conflict have been both conceptually and empirically inconsistent. This study applied the concept of network centrality in order to examine the extent to which a nation's status in the system affected its conflict behavior, and—more importantly—to provide a renewed exploration into the relationship between status inconsistency and international conflict. We examined these relationships between centrality, status inconsistency and conflict at the national, dyadic, and systemic levels of analysis. The principal findings suggest the following points:

1. Trade centrality is the only type of status indicator that has a relatively robust negative effect on national conflict behavior. Alliance centrality does not have a robust effect on national conflict behavior. IGO, religious, and linguistic centrality indices likewise

do not exhibit a significant relationship to national conflict behavior. We can tentatively conclude that none of the hypotheses linking national status to conflict has received robust and unequivocal support.

2. The liberal hypotheses suggesting an inverse relationship between cooperative centrality and conflict received some support, but this is sensitive to the type of network from which centrality indices are derived and the specific type of centrality index. Neither the realist hypotheses, nor the cultural/constructivist ones were supported by the analysis linking centrality to conflict behavior.
3. The level of status inconsistency appears to have a significant positive effect on the conflict propensity of states. This is particularly the case with respect to status inconsistency measured as the gap between capability-rank and trade centrality rank, but it also applies to some extent to status inconsistency based on capability-alliance centrality and capability-religious centrality versions. More importantly, a weighted status inconsistency index that takes into account the centrality of states in different network seems to have a robust effect on its conflict behavior. As the level of status inconsistency of a state increases, the likelihood that it would engage in conflict goes up.
4. In contrast to the level-of-analysis puzzle that has characterized previous investigations on this matter, we find that the effect of status inconsistency on conflict is generalizable across levels of analysis. The same relationship between status inconsistency and conflict is found at the monadic, dyadic and systemic levels of analysis.
5. The effect of the control variables on conflict behavior corroborates previous investigations on the correlates of conflict involvement of states, of dyadic conflict and of systemic conflict: A state's regime score does not have a significant impact on its conflict involvement. On the other hand, the regime structure of the states in the focal

nation's PRIE does appear to have a consistently dampening effect on its conflict involvement propensity. Capability ratios of states-to-PRIE have a consistent effect on state's conflict involvement. The cumulative number of past MIDs has a consistent positive effect on the probability of present conflict.

Joint democracy reduces the probability of dyadic conflict, and direct contiguity increases that probability. Finally, at the system level, the proportion of states in democratic cliques reduces the probability of conflict in the system, while the number of major power does not have a robust and consistent effect on the frequency of conflict in the system.

This is one of the first studies that suggests a consistent cross-level link between status inconsistency and conflict involvement As such, it provides support to the proposition that when states that are unhappy about their position in the system, and feel deprived because their capabilities far exceed their ascribed status, they tend to deal with this feeling of deprivation through the use of violent means. Moreover, as the correlation between the capability-based pecking order and the ascribed status pecking order of states declines, the frequency and magnitude of conflict in the system rises.

We started out with the assertion that network positions are important not only in and of themselves, but also as symbols of ascribed status. They indicate the structural importance of states in different networks. International relations scholars long felt that the arguments linking individual level status inconsistency to various deviant behaviors may well apply to the international arena. However, past investigations of this subjects generated inconclusive and non-generalizable results. The difference between our study and previous investigations on these matters is due primarily to the network analytic approach we employed. Social network analysis provided us with a new perspective on the concept of

ascribed status. Consequently, we were able to develop new measures of status inconsistency which, in our view, better capture the essence of this concept in international politics. More importantly, we relied on different conceptualizations of ascribed status based on different measures of network centrality. These conceptualizations allowed us to address a broader range of status-related indices than has been attempted in the past.

Our findings, although tentative, are suggestive of the effect of structural position of states on their behavior. This opens up an interesting array of questions for further research. For example, what are the factors that affect states' structural position in international networks? Given that structural network position affects a state's conflict propensity, is it possible that a state's conflict behavior would have an effect on its structural position in certain networks? Second, how can we translate states' structural positions in various networks into system-level measures of status inconsistency? Are these levels of status inconsistency related to system-wide conflict patterns? The current study suggests that the relationship between national position in various networks, various forms status inconsistency, and national level conflict behavior is sufficiently suggestive to warrant additional research on this matter in a broader context of a network analysis of international politics.

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Table 1: Correlations between measures of network centrality, 1816-2000

	TRD-DEG	TRD-CLO	TRD-BET	TRD-EGV	ALY-DEG	ALY-CLO	ALY-BET	ALY-EGV	LNG-DEG	LNG-CLO	LNG-BET	LNG-EGV	IGO-DEG	IGO-BET	IGO-CLO	IGO-EGV
TRDCLO	0.148															
TRDBET	0.349	0.151														
TRDEGV	**0.590**	0.171	0.460													
N	10,241	8,933	10,241													
ALYDEG	0.194	-0.057	0.033	0.022												
ALYCLO	0.016	0.127	0.116	0.216	0.416											
ALYBET	0.198	0.036	0.093	0.078	0.279	0.125										
ALYEGV	0.047	-0.08	0.021	0.010	**0.563**	0.219	0.076									
N	10,238	9,292	9,292	10,238	13,502	13,502	13,502									
LNGDEG	-0.285	-0.028	-0.105	-0.125	0.305	0.341	-0.031	0.228								
LNGCLO	**-0.520**	0.005	-0.044	-0.197	0.062	**0.659**	-0.084	0.011	**0.559**							
LNGBET	-0.058	-0.016	0.006	-0.004	0.083	0.133	0.064	0.051	0.239	0.224						
LNGEGV	-0.170	-0.040	0.010	0.065	0.275	0.243	0.034	0.176	0.005	0.127	0.159					
N	8,426	7,747	8,420	8,426	10,603	10,603	10,603	10,602	10,602	10,647	10,647					
RELDEG	-0.015	0.067	0.126	0.091	0.072	0.106	0.017	0.063	0.362	0.188	0.088	-0.146	-0.097	0.312	0.016	0.144
RELCLO	0.219	-0.239	-0.081	-0.110	0.052	-0.498	-0.006	0.007	-0.244	-0.349	-0.027	0.064	-0.178	**0.587**	0.017	-0.256
RELBET	-0.054	-0.046	-0.039	-0.063	0.025	-0.003	-0.009	-0.006	-0.029	0.031	0.035	0.058	0.087	-0.075	-0.014	-0.029
RELEGV	0.006	0.003	0.114	0.097	0.109	0.065	0.002	0.116	0.311	-0. 069	0.031	-0.214	0.144	-0.256	-0.029	0.161
N	9,178	8,351	9,391	9,391	11,545	11,545	11,545	11,544	10,242	6,923	10,242	10,242	11,562	11,562	11,486	11,486
IGODEG	0.320	-0.098	-0.014	0.061	0.017	**-0.518**	0.039	-0.036	-0.275	**-0.624**	-0.159	-0.273				
IGOCLO	0.395	0.091	-0.120	-0.093	0.053	**-0.544**	0.053	-0.026	-0.358	**0.524**	-0.092	-0.012	**0.707**			
IGOBET	-0.045	0.101	0.270	0.267	-0.029	0.082	-0.004	-0.035	-0.004	0.087	-0.022	-0.011	-0.038	-0.116		
IGOEGV	-0.147	0.091	0.231	0.231	0.005	0.197	0.023	0.020	0.067	0.139	-0.033	-0.129	-0.029	-0237	0.242	
N	10,233	8,890	10,233	10,233	12,898	12,898	12,898	12,897	10,419	6,985	10,419	10,419	11,486	11,486	11,486	

Table 2: The effect of centrality and status inconsistency on conflict behavior, 1816-2000—Cross Sectional Time Series Analysis

Centrality Indicator	MIDs				Wars			
	Degree Centrality	**Closeness Centrality**	**Betweenness Centrality**	**Eigenvector Centrality**	**Degree Centrality**	**Closeness Centrality**	**Betweenness Centrality**	**Eigenvector Centrality**
Regime Score	-0.002	-0.005*	-0.003*	-0.002	0.001	-0.001	-0.001	-0.001
	(0.001)	(0.002)	(0.001)	(0.001)	(0.003)	(0.004)	(0.002)	(0.003)
Regime in PRIE	-0.006*	-0.005	-0.008**	-0.007*	-0.007	-0.001	-0.011*	-0.007
	(0.003)	(0.005)	(0.003)	(0.003)	(0.005)	(0.008)	(0.006)	(0.005)
Rel. Mil. Cap.	5.763**	6.468**	7.252**	6.590**	4.384**	4.211**	6.294**	5.049**
	(1.319)	(1.646)	(1.674)	(1.419)	(3.111)	(0.972)	(1.565)	(0.971)
Cumulative No. of past MIDs	0.013**	0.012**	0.012**	0.013**	0.005**	0.007**	0.002	0.004**
	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)
Trade Centrality	**-0.005***	**-0.017****	**-0.023**	**-0.009****	**-0.013****	**-0.012**	**0.011**	**-0.004**
	(0.002)	**(0.006)**	**(0.013)**	**(0.003)**	**(0.004)**	**(0.008)**	**(0.032)**	**(0.009)**
Alliance Centrality	**-0.001**	**0.105**	**0.021**	**-0.006****	**0.006**	**0.110**	**0.014**	**0.003**
	(0.006)	**(0.074)**	**(0.045)**	**(0.002)**	**(0.011)**	**(0.197)**	**(0.030)**	**(0.003)**
Linguistic Centrality	**-0.001**	**0.161***	**-0.066**	**-0.003**	**-0.017**	**-0.149**	**0.032**	**0.007**
	(0.006)	**(0.082)**	**(0.125)**	**(0.002)**	**(0.010)**	**(0.137)**	**(0.170)**	**(0.006)**
Religious Centrality	**-0.009****	**-0.001**	**0.035**	**0.012***	**-0.016****	**-0.025***	**-0.004**	**-0.016**
	(0.002)	**(0.003)**	**(0.044)**	**(0.005)**	**(0.006)**	**(0.011)**	**(0.075)**	**(0.010)**
IGO Centrality	**0.004**	**0.008****	**-1.453****	**-0.022***	**-0.002**	**0.004**	**-2.619***	**0.035***
	(0.003)	**(0.002)**	**(0.527)**	**(0.011)**	**(0.003)**	**(0.006)**	**(1.319)**	**(0.015)**
Constant	-0.827**	-1.829**	-0.993**	-0.480*	-1.806**	-2.767**	-2.931**	-3.419**
	(0.333)	(0.339)	(0.095)	(0.206)	(0.294)	(0.724)	(0.189)	(0.340)
Model Statistics	N=7,403	N=4,292	N=7,392	N=7,391	N=7,403	N=4,292	N=7,392	N=7,391
	States=128	States=87	States=128	States=128	States=128	States=87	States=128	States=128
	χ^2=221.04**	χ^2=120.20**	χ^2=175.76**	χ^2=179.24**	χ^2=101.55**	χ^2=202.11**	χ^2=119.65**	χ^2=89.06**

* p<.01; ** p<.05

Table 3: Status Inconsistency and National Conflict Involvement, 1816-2000 Cross Sectional Time Series Analysis

Centrality Indicator	MIDs		Wars		Escalation	
	Different Networks	**Average Status Incons.**	**Different Net-works**	**Average Status Incons.**	**Different Net-works**	**Average Status Incons.**
Regime Score	-0.001	-0.002	0.003	-0.001	0.001	-0.001
	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)
Regime in PRIE	-0.009**	-0.009**	-0.014**	-0.013**	-0.006	-0.005
	(0.003)	(0.003)	(0.004)	(0.005)	(0.005)	(0.005)
Cumulative No. of past MIDs	0.012**	0.012**	0.004**	0.002	0.001	0.001
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Cap-Alliance Status Incons.	**0.439***	**—**	**0.487**	**—**	**0.129**	**—**
	(0.200)		**(0.546)**		**(0.444)**	
Cap-Trade Status Incons.	**1.097****	**—**	**2.495****	**—**	**1.585***	**—**
	(0.271)		**(0.673)**		**(0.655)**	
Cap-IGO Status Incons.	**0.196**	**—**	**0.008**	**—**	**0.022**	**—**
	(0.194)		**(0.340)**		**(0.320)**	
Cap-Language Status Incons.	**-0.365**	**—**	**0.351**	**—**	**0.402**	**—**
	(0.200)		**(0.487)**		**(0.420)**	
Cap-Religion Status Inc.	**0.509***	**—**	**0.008**	**—**	**-0.235**	**—**
	(0.230)		**(0.470)**		**(0.426)**	
Cap-Coop Cent. Incons.	**—**	**1.498****	**—**	**2.487****	**—**	**1.393****
		(0.267)		**(0.461)**		**(0.447)**
Constant	-0.905**	-0.981**	-3.127**	-3.066**	-1.906**	-1.837**
	(0.089)	(0.089)	(0.164)	(0.145)	(0.183)	(0.163)
Model Statistics	N=7,456	N=7,441	N=7,456	N=7,441	N=2,631	N=2,631
	States=129	States=129	States=129	States=129	States=120	States=120
	χ^2=175.50**	χ^2=144.74**	χ^2=96.95**	χ^2=81.21**	χ^2=18.17*	χ^2=13.51**

* p<.01; ** p<.05

Table 4: Status Inconsistency and Dyadic Conflict Involvement: A Time-Series Cross-Sectional Analysis of Politically-Relevant Dyads, 1816-2001

Independent Variable	MID				War			
	Degree	Closeness	Between	Eigenvect.	Degree	Closeness	Between	Eigenvect.
Minimum Regime Score	-0.009**	-0.008**	-0.008**	-0.007**	-0.010**	-0.013**	-0.013**	-0.013**
in Dyad	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)
Contiguity	0.221**	0.226**	0.225**	0.221**	-0.074*	-0.092*	0.086*	0.083*
	(0.018)	(0.022)	(0.022)	(0.022)	(0.002)	(0.043)	(0.043)	(0.043)
Degree Centrality Status	0.015**	—	—	—	0.021**	—	—	—
Inconsistency	(0.001)				(0.002)			
Closeness Centrality	—	0.014**	—	—	—	0.014**	—	—
Status Inconsistency		(0.002)				(0.003)		
Betweenness Centrality	—	—	0.012**	—	—	—	0.008**	—
Status Inconsistency			(0.002)				(0.003)	
Eigenvector Centrality	—	—	—	0.013**	—	—	—	0.011**
Status Inconsistency				(0.002)				(0.003)
Model Statistics	N=66,159	N=66,159	N=66,159	N=66,159	N=59,553	N=59,542	N=59,542	N=59,542
	D=1,395	D=1,395	D=1,395	D=1,395	D=1,273	D=1,273	D=1,273	D=1,273
	χ^2=196.7**	χ^2=212.6**	χ^2=199.7**	χ^2=200.6**	χ^2=48.10**	χ^2=48.12**	χ^2=40.1**	χ^2=42.04**

Table 5: Status Inconsistency and International Conflict in the International System, 1816-2001

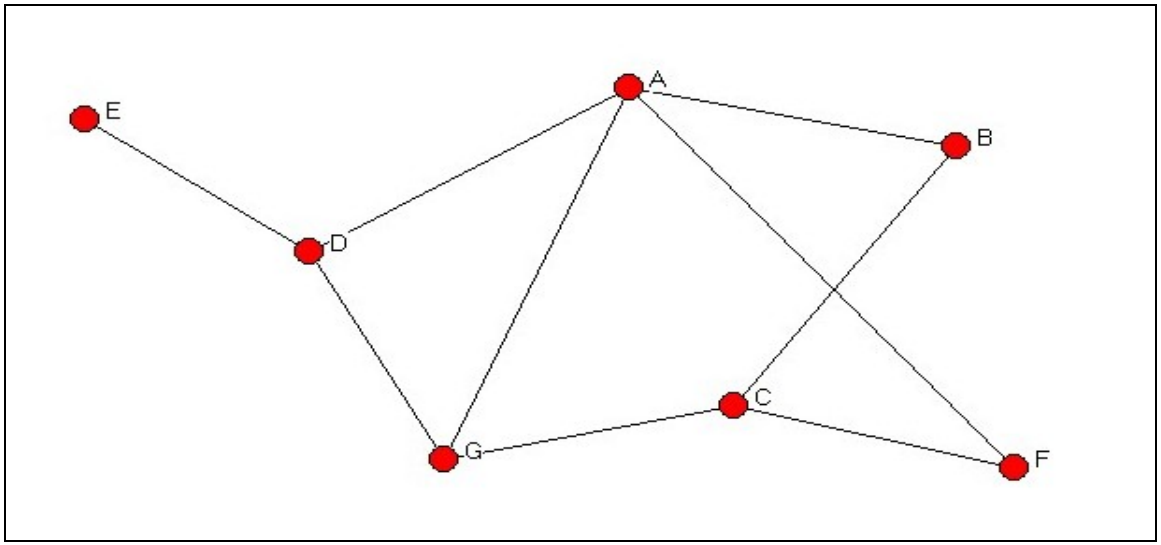
Independent Variable	No. MIDs			No. Wars			Dyad-Days Duration		
	Entire Period	19th Century	20th Century	Entire Period	19th Century	20th Century	Entire Period	19th Century	20th Century
No. Major Powers	0.137*	-0.060	0.110^{+}	0.312*	-0.572	0.240*	0.150	-0.306*	0.129
	(0.069)	(0.145)	(0.065)	(0.151)	(0.400)	(0.120)	(0.113)	(0.134)	(0.956)
Prop. Democratic	-0.404	1.762	-1.959**	-4.538**	5.225	-8.185**	-2.120^{+}	3.382**	-4.551**
Cliques	(0.715)	(1.235)	(0.700)	(1.359)	(3.598)	(1.288)	(1.168)	(1.149)	(1.036)
Alliance-CINC Status	-2.481**	-0.992	-1.937**	-2.357**	-7.160**	-1.129*	-2.729**	-3.015**	-1.742**
Inconsistency	(0.298)	(0.708)	(0.271)	(0.723)	(2.485)	(0.548)	(0.494)	(1.149)	(0.406)
Trade-CINC Status	-1.331^{+}	—$^{\infty}$	-0.943	-0.841	—$^{\infty}$	0.717	0.143	—	0.225
Inconsistency	(0.769)		(0.701)	(1.658)		(1.346)	(1.287)		(1.068)
IGO-CINC Status Inconsistency	-1.186**	1.862**	-0.714*	-1.586*	10.098**	-0.621	-1.999**	3.989**	-1.209*
	(0.355)	(0.580)	(0.354)	(0.756)	(3.487)	(0.655)	(0.586)	(0.694)	(0.530)
AR(1)	0.531**	-0.002	0.622**	0.554**	0.518**	0.717**	0.588**	0.424**	0.745**
	(0.066)	(0.117)	(0.077)	(0.058)	(0.098)	(0.078)	(0.054)	(0.106)	(0.062)
Constant	5.315**	0.772*	0.622**	4.353**	-3.646	4.700**	11.175**	5.726**	11.975**
	(0.772)	(0.387)	(0.077)	(1.530)	(2.815)	(1.151)	(1.256)	(0.707)	(1.003)
Model Statistics	N=124	N=82	N=96	N=124	N=82	N=96	N=124	N=96	N=96
	$\overline{R^2}$ =0.630	$\overline{R^2}$ =0.154	$\overline{R^2}$ =0.630	$\overline{R^2}$ =0.519	$\overline{R^2}$ =0.299	$\overline{R^2}$ =0.654	$\overline{R^2}$ =0.581	$\overline{R^2}$ =0.475	$\overline{R^2}$ =0.660
No. Major Powers	-0.021	-0.188	0.058	0.139	-0.691	0.285**	-0.049	-0.427**	0.079
	(0.057)	(0.149)	(0.039)	(0.155)	(0.462)	(0.103)	(0.077)	(0.124)	(0.060)
Prop. Democratic	4.122**	0.040	-0.181	2.543*	1.508	-6.735**	3.907**	1.717	-2.737**
Cliques	(0.449)	(1.288)	(0.500)	(1.013)	(4.082)	(1.311)	(0.575)	(1.087)	(0.747)
Mean Centrality-CINC	-0.574*	0.811	-1.100**	-0.744	-0.423	-1.900**	-0.616^{+}	0.012	-1.489**
Inconsistency	(0.234)	(0.604)	(0.193)	(0.617)	(1.907)	(0.486)	(0.347)	(0.520)	(0.286)
AR(1)	0.745	0.141	0.839**	0.525**	0.532**	0.606**	0.704**	0.702**	0.831**
	(0.046)	(0.116)	(0.052)	(0.055)	(0.125)	(0.066)	(0.044)	(0.084)	(0.051)

Independent Variable	No. MIDs			No. Wars			Dyad-Days Duration		
	Entire Period	19th Century	20th Century	Entire Period	19th Century	20th Century	Entire Period	19th Century	20th Century
Constant	1.443**	2.050**	3.994**	-0.162	2.155	4.548**	7.528**	7.780**	11.055**
	(0.277)	(0.579)	(0.307)	(0.647)	(1.779)	(0.700)	(0.417)	(0.497)	(0.439)
Model Statistics	N=179	N=83	N=96	N=179	N=83	N=96	N=179	N=83	N=96
	$\overline{R^2}$ =0.630	$\overline{R^2}$ =0.080	$\overline{R^2}$ =0.771	$\overline{R^2}$ =0.365	$\overline{R^2}$ =0.169	$\overline{R^2}$ =0.651	$\overline{R^2}$ =0.674	$\overline{R^2}$ =0.534	$\overline{R^2}$ =0.776

Notes: ** p<.01; * p<.05 $^{+}$ p<.10

$\propto$ No trade-CINC inconsistency was applied for 19 century analysis; trade is available only from 1870 on. This is also why the number of years in the 19th and 20th century does not add up to the total period N.

Figure 1: A Hypothetical Network



Unit	Degree Centrality	Closeness Centrality	Betweeness Centrality	Eigenvector Centrality
A	66.67	75.00	36.67	73.68
B	33.33	54.55	2.22	44.95
C	50.00	60.00	10.00	54.22
D	50.00	66.67	33.33	55.36
E	16.67	42.86	0.00	19.46
F	33.33	54.55	2.22	44.95
G	50.00	66.67	15.56	64.40