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Intergovernmental Organizations and the Kantian Peace

A Network Perspective

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The authors use network analysis to argue that the main contribution of intergovernmental organizations (IGOs) to international stability is not necessarily their direct and individual impact, because generally IGOs are institutionally weak. Rather, membership of IGOs creates network ties between states, allowing them, either individually or collectively, to intervene more effectively in latent conflicts. The IGO network also provides direct and indirect communication channels, where indirect links can act as partial substitutes for direct diplomatic ties. Empirically, the authors apply these ideas to the extensive network of international linkages created in the post–World War II period. They demonstrate that indirect links do indeed matter and that they substitute for more direct diplomatic ties. Furthermore, these effects are not limited to ties created by IGOs with specific security functions.

Keywords: *network analysis; intergovernmental organizations; interstate conflict; pooled cross-sectional time-series models*

The idea that intergovernmental organizations (IGOs) are an important—possibly even the most important—pacifying force in the international system has a long tradition (Hinsley 1963, 33). Yet (neo)realists have argued consistently that IGOs have only a minor impact on interstate conflict since they do not fundamentally alter the anarchic nature of the international system and reflect the interests of hegemonic powers (Waltz 1979; Mearsheimer 1994-1995). They see the power of international organizations as deriving from their most significant members. A unanimous decision of the UN Security Council carries considerable weight, but the authority of the United Nations dissipates as soon as the major powers are deadlocked. Admittedly, IGOs are

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weak compared to most states, but they may still matter. Their main contribution to international stability is not necessarily the immediate impact of specific organizations. Rather, IGOs link states in a network that allows for direct and indirect transmission of information about interests, intentions, and resolve. The network may thus enable states to intervene more effectively in latent conflicts.

Joint membership of any IGO creates a link between two states, because their representatives will encounter each other through the meetings and the working practices of the organization. The recent literature has examined whether such comembership in an IGO indeed promotes peace (Russett and Oneal 2001). But from a network perspective, this is to ignore indirect links by way of third parties. For instance, if *a* and *b* are both linked to *c*, *a* can put pressure on *b* through *c*, or *c* can pressure *a* and *b* to settle. We argue that strong network ties encourage third parties to mediate and to do so more effectively. They are likely to hold relevant information and to be able better to convey it to the parties. Information may flow not only through third-party links but also through longer chains in the network. Similarly, mediation may involve more than one state. States should be less likely to actually use force if there are greater possibilities for communication, allowing for all possible chains, and more opportunities for mediation. Accordingly, the IGO network embodies social capital that can be brought to bear on states, particularly if they are central to the network (Ward 2006). Given a normative predisposition against war as a form of conflict resolution, other states will attempt to use this social capital to exert influence. Finally, indirect links can act as (generally imperfect) substitutes for direct links, and the network effects are therefore likely to be stronger when parties to a potential conflict do not have strong diplomatic ties.

The empirical evidence for the idea that IGOs promote peace is mixed. Early research by Wallace and Singer (1970) found no evidence that the total number of IGOs in the international system reduced the probability of interstate war. Instead, they found that the ending of a major interstate war correlated with a rapid growth in the number of IGOs. More recently, Russett and Oneal (2001) find that IGO comembership reduces the probability of war, but this result seems far less robust than those for democracy and trade, the other legs of the Kantian tripod. Boehmer, Gartzke, and Nordstrom (2004); Hafner-Burton and Montgomery (2006); and Dorussen (2006) all find that comembership of IGOs is either insignificant or may even increase the likelihood of conflict once data are corrected for length of time since a previous conflict in the dyad.[1] Taking account of indirect links, we find that IGO network measures typically have a negative impact on conflict in the period after World War II, especially for dyads with weak or absent diplomatic ties.

Liberals, and more recently constructivists, present a long list of reasons why IGOs promote peace: they are able to coerce norm breakers, to mediate between conflicting parties, to reduce uncertainty by conveying information, to assist in problem solving through altering members' perceptions and beliefs, to socialize members and shape norms, and to generate a sense of mutual identity. IGOs may also promote trade and

democracy and thus indirectly encourage states to solve conflicts peacefully (Russett, Oneal, and Davis 1998, 444-47; Russett and Oneal 2001, 161-67). However, these arguments are plausible only for IGOs that are willing and able to play an active role in conflict resolution, suggesting that only well-institutionalized IGOs with a clear security mandate should matter (Boehmer, Gartzke, and Nordstrom 2004). We do not find that network effects are stronger when we confine our attention to IGOs with a security function, suggesting that all IGOs potentially play a role because of the way they create network links.

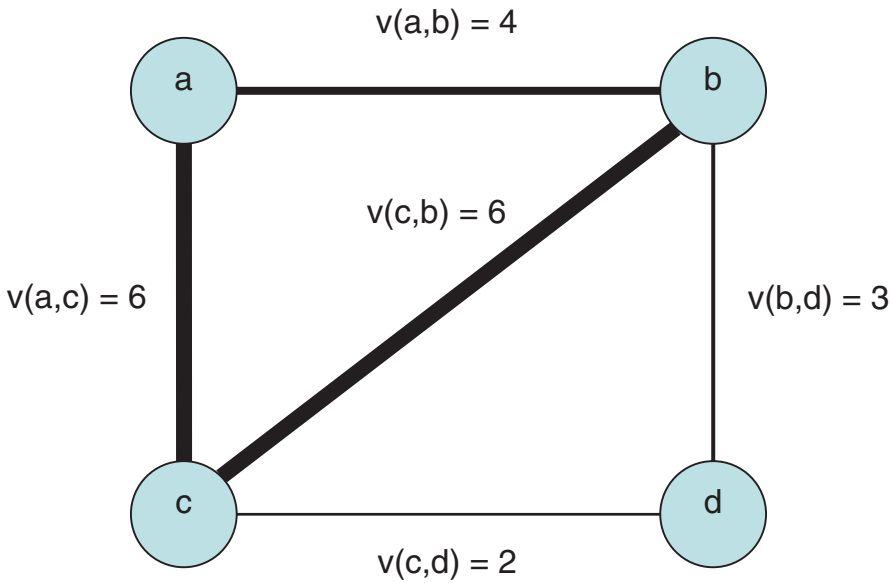
Informal talk of an international organization network and analysis of its growth and membership patterns using descriptive statistics is a long-standing feature of the international relations literature (Deutsch et al. 1968; Jacobson 1984). Formal network analysis remains an underutilized tool in the study of international organizations. Important early exceptions are the studies by Brams (1966) on transaction flows and Alger and Brams (1967) on diplomatic representation. More recently, Maoz et al. (2004), Hafner-Burton and Montgomery (2006), and Ward, Siversen, and Cao (2007) apply social network theory to the study of peace and conflict. We show how a network approach can be further integrated into the Kantian Peace literature and how ideas about mediation, communication, and international social capital can be operationalized using the Correlates of War project IGO data (Pevehouse, Nordstrom, and Warnke 2003).

IGOs, International Networks, and the Kantian Peace

Following Russett, Oneal, and Davis (1998) and Russett and Oneal (2001), it has become commonplace to test Kant's theory that a league of republics promotes peace by counting the number of co-affiliations—the number of IGOs both members of a dyad belong to. Russett and Oneal (2001, 157-58) interpret Kant's proposal as concerning international law and argue that in the contemporary world, international law is often "expressed in international organization." An active role for IGOs in promoting peace is envisaged, even though Kant appeared to place less emphasis on such a role for the league (Hinsley 1963, 79). While it is possible for IGOs to play an active role, Bercovitch and Schneider (2000, 156) show that typically states, rather than IGOs, mediated conflicts in the period from 1950 to 1990. Since most IGOs have little independent coercive capacity (Beardsley 2005, 10), more attention should be paid to the way that IGOs link states in a network and on the way this network aids intervention by other states.

In the hypothetical example of Figure 1, an edge joins two states that are members of at least one IGO. The value of the edge, $v(i, j)$, gives the number of comemberships. In such a network, states may be linked via intermediaries. For instance, while a and d have no co-affiliations in common, both are moderately strongly linked to c. Because of this, c could mediate between them and might also act as a more passive channel of communication.

Figure 1
An Example of an Intergovernmental Organization Network



Note: v = value of the edge, number of IGO comemberships.

Effective third-party mediation is more likely if the third party is strongly linked to both sides involved in a dispute. For formal mediation to occur, both parties have to agree to it, and the mediator must be willing to act. The idea that a mediator who is primarily in contact with one side will not be acceptable to the other side has received some empirical support (Bercovitch and Schneider 2000, 160). Consequently, we expect that mediation is more likely to be accepted, as well as supplied, if the third party has strong links with both sides engaged in conflict. In Figure 1, *a* is more likely to be an acceptable mediator between *b* and *c* than *d*, since *a* is relatively strongly linked to *b* and *c*, while *d* has weaker links.

IGOs are institutions in which information is exchanged and where people come to appreciate others' points of view (Russett and Oneal 2001, 164). While membership of IGOs comes at a cost (Mansfield and Pevehouse, 2008 [this issue]), the fringe benefits in terms of general networking are significant. In just the same way that social-network theorists study the ties between families created by marriages to understand social cohesion, one must examine the ties that IGOs create to understand their impact on interstate conflict. Networks both reflect and promote similarity of interest and mutual understanding. Indirect ties also matter because third

parties may draw together states with poor direct communication. In their dynamic network analysis, Lee, Muncaster, and Zinnes (1994) show that given strong positive ties between *a* and *c*, and *b* and *c*, there will be a move toward structural balance, with a growth in positive ties between *a* and *b*.

Diplomatic efforts to avert military escalation in the Kashmir crisis in the margins of the 2002 regional Conference for Interaction and Confidence Building Measures in Asia (CICA) meeting can serve to illustrate the exchange of information and mediation *outside* the formal context of the IGO business at the time. CICA's first summit meeting became a venue for intensive international mediation in Indian–Pakistani relations, even though CICA is relatively weakly institutionalized and India's Prime Minister Vajpayee and Pakistan's President Musharraf refused to engage in direct dialogue at the meetings. There were, however, significant bilateral talks between China and Russia on one hand and India and Pakistan on the other (Keesing's 2002, 44841). Significantly, CICA was not the main mediator, but it nevertheless had a clear latent function in relation to the conflict.

Unless there are issue indivisibilities or problems of precommitment, it is widely argued that war is only possible between states in conditions of incomplete information. If states were fully informed about each other's preferences, they could always strike a bargain corresponding to the eventual outcome of the war without incurring the collective losses associated with violent conflict (Fearon 1995). From a rationalist perspective, conflict resolution depends on credible and truthful transmission of information. Arguably, indirect communication from *a* to *b* via *c* is more likely if *c* has strong links with both sides. Strong links may indicate similarity of interests supporting truthful transmission of information at each stage (Austen-Smith 1992; Boehmer, Gartzke, and Nordstrom 2004, 14-15). Besides operating as a communication channel, mediators have private information about parties in conflict. Kydd (2006) argues that other things equal, *c* is more likely to convey its private information about whether the parties will stick to an agreed settlement if its preferences over the settlement are intermediate between those of *a* and *b*. If it is biased to one side, depending on the power distribution, it may favor conflict; otherwise, it may have no incentive to convey accurately what it knows.

The theory of infinitely repeated games further suggests that information transfer is more plausible if the two sides regularly and repeatedly interact in various forums, for then loss of reputation becomes a punishment for lying, and trust is built up if the parties are found to be truthful (Kydd 2006). Multiple network ties are one way of generating continuous interaction. Thus, there are good theoretical grounds for suggesting that *c* will be more effective as a medium for transfer of information between *a* and *b* if it is well networked to both sides.

Depending on its own interests, as well as conveying information, *c* might try to change the incentive structure to go to war of *a* or *b* (or both).[2] Terris and Maoz (2005) show that the versatility of the original game matters: in other words, how difficult it is for a mediator to change the conflict environment. Holding versatility

and *c*'s motives constant, *c* is more likely to be successful the greater its links with both *a* and *b*, because it has more forms of valued contact from which it can threaten to withdraw. State *c* will also be in a better position to pressure the parties to the conflict to reveal information if it has greater resources at its disposal. Summing up the various arguments,

> *Hypothesis 1:* The greater the number of indirect links via a third party between states in a dyad, the less likely it is that they will experience a conflict.

In Figure 1, information can travel from *a* to *b* by passing from *a* to *c*, *c* to *d*, and *d* to *b*, albeit with greater possibilities for distortion. Similarly, while *c* can exert pressure on *b* not to conflict with *a*, it could also prevail on *d* to put pressure on *b*, and so on. Generalizing the argument about third parties, as long as each link in the chain of information transfer or indirect influence involves the interaction of a dyad, it will work more successfully if that dyad is strongly linked by IGO comembership. A greater potential for information flow from *a* to *b* through the overall system should reduce the likelihood of conflict between them. As regards information, it is not just the properties of the part of the international system around *a* and *b* that matter but also the way that they link up with the system as a whole.[3]

Putnam (2000, 19-21) argues that greater social capital exists in a community for solving collective economic and political dilemmas when many of its members belong to bowling leagues or choral societies because of the latent function such civic associations play in building trust, imparting norms of reciprocity, and building dense networks of reciprocal relations and mutual obligation while simultaneously promoting generalized reciprocity. We argue that social capital also exists in networks generated by links through IGOs (Ward 2006). To the extent to which states are embedded in the system, having dense network ties with other states, they are exposed to norms of reaching agreement though bargaining rather than fighting and are expected to reciprocate concessions made by others rather than seeking asymmetric advantage gained through coercive means. If other states are frequently encountered in many domains, it is easier to appreciate their points of view and more likely that domestic audiences will punish you for failing to do so, for they are also likely to be better informed. It is worth it for a well-networked country to cultivate a reputation for trust because its interests lead it to operate in many domains of international life, and it is a highly visible member of the international community.

Just as Putnam's (2000) civic associations do not need to have any apparent economic or political functions yet may still promote growth and good governance, it is not just security-related IGOs that are relevant here. Security-relevant information is often exchanged outside the apparent domain of security politics. For instance, there has been increasing concern with the security dimension of climate

change as part of the negotiations around the Kyoto Protocol and the preparation of reports on human impact by the Intergovernmental Panel on Climate Change, leading up to a highly contentious debate in the UN Security Council in May 2007. Socialization into norms of reasonable behavior can happen in many international forums, as can informal exchanges of information between middle-level bureaucrats that may filter through to leaders.

War between a pair of states generates external effects on the system of states. These can be as diverse as reducing trade, eroding belief in international institutions, and generating tensions between other states. To the extent that the international system embodies dense links between states, it embodies social capital that could be brought to bear to help prevent such externalities. Coalitions of states could intervene using the social capital inherent in the system, as in the case of joint action through the UN Security Council. Countries will be more subject to such pressure if they are more central to the international network because central states have more links through which they can be persuaded and are more subject to the threat that links will be broken.

Thus, we argue that possibilities for communication between members of a dyad through longer chains of communication matter and that the more the members of the dyad are exposed to the social capital inherent in the international system—the more embedded they are in it—the less likely they are to go to war. As we show below, embeddedness can be captured by a state's centrality in international networks. In particular, what matters is the centrality of the least central nation in a conflicting dyad—the weakest link in this respect. On the IGO network, our measure of potential communication flows, *Maxflow*, is governed by the centrality of the least embedded member of the dyad, so *Maxflow* captures both the social capital and the information aspects of our argument about the wider network.[4] Hence,

> *Hypothesis 2:* The greater the total capacity of information transmission (i.e., the greater the number of direct and indirect links between the members of the dyad), or equivalently, the more embedded the least central state in a dyad, the less likely it is that the dyad will experience conflict.

Even though indirect links can act as substitutes for more direct links, this does not imply that indirect links are perfect substitutes. In particular, the information exchange function of diplomatic relations may easily be compromised if more actors are involved in the transmission of information.[5] The final hypothesis is therefore that indirect links are imperfect substitutes for (the absence of) more direct links.

> *Hypothesis 3:* An increasing number of indirect links, of any length, between the states in a dyad has a stronger effect if there are no or limited direct links in the dyad.

Measuring Network Effects

In network analysis, Russett and Oneal's (2001) measure of number of comemberships equals the value of the edge in the graph that directly connects two countries; for example, the value on the edge linking a and b in Figure 1 is $v(a, b) = 4$. This variable is called *Number IGO comemberships.* The test of hypothesis 2 requires measures of connection through all chains in the network, including longer ones. A relevant measure of the connectedness of members of a dyad is the maximum flow of information (per unit time) that can occur between them, taking into account both direct and indirect connections. Each edge of the graph is considered to have a capacity directly proportional to its value, that is, directly proportional to the amount of contact of the dyad members through IGOs. A flow between i and j is a function such that the flow along any edge is less than or equal to its capacity, and the flow entering a node along the edges is equal to the flow leaving it along all other edges incident on it. Thus, the maximum flow between i and j, maxflow(i, j), is the largest flow that satisfies these conditions and in addition that the flow leaving i is the flow entering j (Ford and Fulkerson 1956).

On the IGO network, *Maxflow* is governed by the ties of the dyad member least embedded in the system—the "weakest link." In Figure 1, d is poorly linked with the rest of the system compared to a; that is, it is less central in network-theoretic terms. It is the low capacity of d's connections that constrains communication between a and d, for there is ample capacity in the remainder of the network. For example, any communication hurdles between the United States and North Korea are largely determined by the isolated position of North Korea, given the central position of the United States. In the Web Appendix (http://jcr.sagepub.com/supplemental), we show that as long as $r \leq (n-2)^{1/2}$, where n is the number of countries and r is the ratio of the largest edge value in the graph to the smallest edge value, maxflow$(i, j) = \min(\text{degree}(i), \text{degree}(j))$, where

$$\text{degree}(i) = \sum_{\forall i \neq j} v(i, j).$$

This condition is likely to be approximated if nodes of the network are linked directly by several ties, as is almost always the case on the IGO network. The degree centrality of a country measures the number of network ties it has to other countries, and thus the degree to which social capital inherent in the network can be brought to bear on it. Hence, *Maxflow,* or equivalently the degree of the weakest link, operationalizes both the information transfer and social capital components of hypothesis 2.[6] Applying UCINET6 to the IGO affiliation network, we calculated the maximum flow between all dyads at five-year intervals from 1940 until 2000 and interpolated for missing years (Borgatti, Everett, and Freeman 2002). To avoid very small coefficients, we divide *Maxflow* by 100, denoted by *Maxflow*/100.

We are, however, well aware that states can misperceive messages. *Maxflow* counts flows of information through long chains of intermediaries, but the most empirically plausible paths in given the possibility of such distortion are short ones using just one intermediary: a asks c to use its influence on b to prevent a war between a and b; or it uses the diplomatic good offices of c to pass on a message to b. Suppose that we consider links from i to j via k and $v(i,k) > v(k,j)$. Would the capacity of $v(k,j)$ restrict any flow of information or influence? If so, in Figure 1, $v(c,d) = 2$ would determine the ability of c to act as an intermediary between a and d, while the large value of $v(a,c) = 6$ would not matter at all. The calculation of *Maxflow* in fact implies that there are no possibilities for substitution in the production of messages, such that a stronger link between i and k can partially substitute for a weaker link between k and j, or vice versa. But such substitution is quite plausible: if i is strongly linked to k, it is more likely to accurately communicate i's messages to j, even if its links to j are weaker. One way of allowing for substitution while requiring both that i is linked to k and k to j is the multiplicative production function, $v(i,k) \cdot v(k,j)$. Considering all third-party links, our linkages statistic becomes

$$links3(i,\, j) = \ln\left(1 + \sum_{k \neq i,\, j} v(i,\, k)v(k,\, j)\right).$$

We add 1 to the summed product of the values of pairs of edges to avoid the possibility of taking the log of 0. The rationale for taking the natural log is that there are likely to be decreasing returns with respect to reducing conflict between i and j arising from increased third-party links. Using the data for co-affiliation to IGOs, we calculated the links3 statistic (*Third-party links*) at five-year intervals from 1940 until 2000 and interpolated for missing years.[7] We use *Third-party links* to test hypothesis 1.

In constructing the network measures discussed so far, each IGO is considered to create a tie of equal significance. Whether this is a valid assumption has become a question of some consequence. Recognizing that IGOs are not all equal, Russett and Oneal (2001, 170) nevertheless observe a lack of theory "to guide us in assigning greater importance to different types of IGOs or in differentiating effective from ineffective institutions within particular categories." In contrast, Boehmer, Gartzke, and Nordstrom (2004) distinguish between IGOs on the basis of their institutional capacity to mediate conflicts and on the level of agreement among members. Pevehouse and Russett (2006) show that IGOs promote peace only if they mostly comprise democratic states. Hansen, Mitchell, and Nemeth (2008 [this issue]) find that whether an agreement between states resolves an issue claim depends on whether the IGOs linking them are institutionalized, whether their members have similar preferences, and how democratic they are. Finally, they present convincing arguments for regional organizations to be more effective, too.

These results apply mainly to direct IGO involvement in conflict resolution, but we have argued that the latent functions of IGOs in creating network ties matter and even those outside the security domain operate in this way, for example, as a low-cost forum for general exchange of information. The debate on the properties of IGOs is thus less relevant to our main argument. Regardless, to test for the possibility that some IGOs are more relevant for network effects, we recalculated network measures using only security-related IGOs and treaties. Hensel's Multilateral Treaties of Pacific Settlement database (Hensel 2003) covers some thirty IGOs and treaties that are directly relevant. Again, the co-affiliation to such IGOs and treaties creates a valued network between states. We calculated maximum flow of information (*Maxflow*(*security*)) and our third-party linkage variable (*Third-party links* (*security*)) on this network at five-year intervals from 1940 to 2000 and linearly interpolated intervening years.

Furthermore, we split the sample based on the degree of diplomatic links between members of a dyad to asses whether the network operates as a substitute for such links, as proposed in hypothesis 3. The measures of diplomatic links are based on diplomatic exchange data. These data record for every five-year period whether a country receives a chargé d'affaires, "minister," or ambassador from a specific other country. The presence of a *Mission* is coded when at least one country in the dyad receives a diplomatic mission from the other country in the dyad. *Embassy* indicates when at least one such mission is at the ambassadorial level. We interpolate *Mission* and *Embassy* data over five-year periods and extrapolate them from 1995 onward.[8]

Research Design and Data Issues

We use the now-standard research design employing pooled cross-sectional time-series data on state dyad-years. The temporal domain is from 1948 until 2000 because the characteristics and norms of the network of international interactions need not be constant over time. The current international system established after World War II under U.S. hegemony embodies relatively strong norms on the use of force as a last resort and state sovereignty and at the same time encourages third-party mediation. We use a peace-years variable and cubic-splines to correct for temporal dependency (Beck, Katz, and Tucker 1998).

Dependent Variable

The source of the data on militarized interstate disputes (MIDs) is the Correlates of War project, using the Maoz correction for the pre-1992 period. We include information on new as well as ongoing MIDs. The variable *MID* takes on the value 1 for each year in which there is a militarized interstate dispute between members of a

dyad in which force is threatened or actually used. The dependent variable is actually *MID*_y1, which takes on the value of *MID* in the following year to the one in question. This helps with the problem of establishing causality, as the analysis is equivalent to lagging all the independent variables one year.[9]

Control Variables

The model includes standard realist and liberal controls. *Noncontiguity* is a dummy variable indicating all country dyads whose borders are separated by more than 150 miles of water. *Ln distance* is the natural log of the shortest direct distance between the capitals of the countries in the dyad. *Minorpowers* is a dummy variable indicating that both countries have minor power status. For the period of our study, the United States, USSR/Russia, China, Great Britain, and France had major power status. *Ln capability ratio* is a composite index of relative (military) capabilities developed by the Correlates of War project to measure the balance of power. The index contains information on population (total as well as urban), energy consumption, iron and steel production, military manpower, and military expenditures. These six elements are weighted equally, and the power ratio is the natural log of the ratio of the stronger country's capability index to that of the weaker country (Singer, Bremer, and Stuckey 1972; Russett and Oneal 2001, 103). As a further control for military capability, we also include the absolute capability of the strongest country in the dyad measured as the natural log of CINC score ($Ln\ CINC_H$).[10] The Correlates of War project also includes information on allies. *Allies* measures the existence of a mutual defense treaty, a neutrality pact, or an entente between the members of a dyad in a particular year.

The information on democracy is from Polity IV (Jaggers and Gurr 1995) and makes use of the full twenty-one-point scale from full autocracy (–10) to full democracy (+10). We make the weakest-link assumption that in a dyad, the level of democracy of the least democratic country matters, measured by $Polity_L$. The dyadic trade-to-GDP ratio uses trade aggregates based on information compiled by Gleditsch (2002). Following Russett and Oneal (2001), we analyze the trade-to-GDP ratio for the country with the lower dependence score ($Dependency_L$). Finally, the models include openness. Openness measures a country's trade with all trade partners relative to its GDP. We include the openness of the least open state in the dyad ($Openness_L$).[11]

Results

As Table 1 shows, the correlation between some of the network measures is quite high; in particular, note that the *Maxflow/100* and *Third-party links* measures correlate more than .7 with each other and with the Russett and Oneal (2001) co-affiliation measure (*Number IGO comemberships*). Clearly, we need to be careful when including more than one network measure in our models simultaneously.

Table 1
Pairwise Correlation of Intergovernmental Organization (IGO) Network Variables

	Number IGO Comemberships	Number Security IGO Comemberships	*Maxflow*/100	*Maxflow*/100 (Security)	Third-Party Links
Number security IGO comemberships	.55 (.00)				
Maxflow/100	.77 (.00)	.23 (.00)			
Maxflow/100 (security)	.59 (.00)	.58 (.00)	.72 (.00)		
Third-party links	.64 (.00)	.28 (.00)	.76 (.00)	.66 (.00)	
Third-party security links	.45 (.00)	.54 (.00)	.46 (.00)	.80 (.00)	.56 (.00)

Note: Pairwise deletion of missing case; significance in parentheses.

Table 2 presents the results for third-party links. In the second, third, and fourth models in Table 2, the coefficient of the *Third-party links* variable is negative and significant in two of the three models.[12] This supports the first hypothesis: an increasing number of (short) indirect links via the IGO network reduces the likelihood of conflict in a dyad. In models 3 and 4, the cases are split based on whether the countries have direct diplomatic exchange. Indirect links via IGOs indeed substitute for the lack of direct diplomatic links. In model 3 (the cases where neither country in the dyad receives a diplomatic mission), the coefficient of *Third-party links* is strongly negative. However, if at least one country receives an ambassador (model 4), *Third-party links* is no longer significant. In other words, indirect links appear to function as substitutes for direct diplomatic links, as suggested by hypothesis 3.[13]

In relation to control variables, the findings are largely unsurprising. Conflict is less likely as the power disparity within the dyad increases. Conflict is also less likely if the states are more distant and no major power is involved. In addition, the probability of conflict increases if the dominant state in the dyad becomes more powerful (*Ln* $CINC_H$ increases). If the least democratic state becomes more democratic, the probability of conflict goes down. Additional dyadic trade also makes conflict less likely. This effect applies regardless of whether increased trade is dyad specific ($Dependency_L$) or more general ($Openness_L$). The longer a particular dyad has been in peace, the less likely it is that a conflict will erupt. The findings are less conclusive for allies, since allies are not always significantly less likely to fight each other. Regarding the number of joint IGO memberships (*Number IGO comemberships*), Tables 2 through 4 confirm that if we use splines to control for temporal dependency

Table 2
Intergovernmental Organization (IGO) Co-affiliation, Third-Country Linkages, and Militarized Interstate Disputes, 1948 through 2000, Logistic Regression

	MID_y1			
	Model 1: All Cases	Model 2: All Cases	Model 3: No Diplomatic Mission	Model 4: Embassy
Number IGO comemberships	0.017	0.024	0.047	0.018
	(0.003)**	(0.004)**	(0.009)**	(0.008)*
Third-party links		−0.155	−0.254	−0.139
		(0.026)**	(0.031)**	(0.114)
Allies	−0.026	−0.150	−0.367	0.006
	(0.098)	(0.102)	(0.278)	(0.134)
Ln $CINC_H$	0.609	0.587	0.823	0.358
	(0.029)**	(0.029)**	(0.048)**	(0.057)**
Ln capability ratio	−0.527	−0.512	−0.738	−0.345
	(0.030)**	(0.031)**	(0.051)**	(0.057)**
Ln distance	−0.588	−0.591	−0.738	−0.362
	(0.037)**	(0.038)**	(0.067)**	(0.064)**
Noncontiguity	−1.857	−1.575	−1.675	−1.420
	(0.099)**	(0.104)**	(0.204)**	(0.161)**
Minorpowers	−1.089	−0.994	−1.616	−0.682
	(0.104)**	(0.107)**	(0.223)**	(0.168)**
$Dependency_L$	−69.362	−70.860	−72.857	−34.870
	(21.105)**	(21.943)**	(35.965)*	(20.973)
$Openness_L$	−0.056	−0.062	−0.111	−0.041
	(0.013)**	(0.014)**	(0.025)**	(0.020)*
$Polity_L$	−0.073	−0.056	−0.028	−0.053
	(0.007)**	(0.008)**	(0.013)*	(0.011)**
Peace years	−0.619	−0.671	−0.798	−0.600
	(0.024)**	(0.024)**	(0.049)**	(0.035)**
Spline1	−0.004	−0.005	−0.007	−0.004
	(0.0003)**	(0.0003)**	(0.001)**	(0.0004)**
Spline2	0.003	0.003	0.004	0.002
	(0.0002)**	(0.0002)**	(0.0004)**	(0.0003)**
Spline3	−0.001	−0.001	−0.001	−0.0003
	(0.0001)**	(0.0001)**	(0.0002)**	(0.0001)**
Constant	7.406	9.009	13.269	5.853
	(0.312)**	(0.371)**	(0.580)**	(1.266)**
Observations	469517	448407	296131	114251
Wald χ^2	9342.90**	9680.95**	3393.25**	4087.79**
Pseudo R^2	.47	.49	.59	.44

Note: Robust standard errors are in parentheses.
*Significant at 5 percent. **Significant at 1 percent.

Table 3
Intergovernmental Organization (IGO) Embeddedness and Militarized Interstate Disputes, 1948 through 2000, Logistic Regression

	MID_y1				
	Model 5: All Cases	Model 6: No Diplomatic Mission	Model 7: Embassy	Model 8: Less than 1 Standard Deviation of Third-party Links	Model 9: Greater than 1 Standard Deviation of Third-party Links
Number IGO comemberships	0.013	0.049	0.010	−0.035	−0.017
	(0.005)**	(0.013)**	(0.008)	(0.029)	(0.023)
Maxflow/100	−0.001	−0.038	0.000	−0.091	0.068
	(0.004)	(0.009)**	(0.007)	(0.035)**	(0.023)**
Allies	0.065	−0.092	0.082	−0.684	1.264
	(0.105)	(0.285)	(0.135)	(0.430)	(0.462)**
Ln $CINC_H$	0.606	0.792	0.350	0.597	0.179
	(0.032)**	(0.050)**	(0.058)**	(0.073)**	(0.139)
Ln capability ratio	−0.497	−0.665	−0.346	−0.655	−0.004
	(0.032)**	(0.054)**	(0.057)**	(0.065)**	(0.107)
Ln distance	−0.577	−0.671	−0.355	−0.773	−0.694
	(0.039)**	(0.065)**	(0.064)**	(0.095)**	(0.183)**
Noncontiguity	−1.730	−2.059	−1.392	−1.493	−2.852
	(0.103)**	(0.185)**	(0.163)**	(0.247)**	(0.436)**
Minorpowers	−0.992	−1.446	−0.661	−1.746	−1.113
	(0.110)**	(0.200)**	(0.169)**	(0.300)**	(0.513)*
$Dependency_L$	−51.268	−112.805	−29.954	−128.882	−145.742
	(18.797)**	(49.637)*	(20.066)	(70.006)	(50.245)**
$Openness_L$	−0.054	−0.080	−0.039	−0.082	0.095
	(0.013)**	(0.025)**	(0.020)	(0.026)**	(0.039)*
$Polity_L$	−0.074	−0.101	−0.052	0.043	−0.033
	(0.007)**	(0.013)**	(0.011)**	(0.021)*	(0.025)
Peace years	−0.612	−0.669	−0.586	−0.756	−0.893
	(0.024)**	(0.047)**	(0.035)**	(0.064)**	(0.168)**
Spline1	−0.004	−0.005	−0.003	−0.007	−0.008
	(0.0003)**	(0.001)**	(0.0004)**	(0.001)**	(0.002)**
Spline2	0.002	0.003	0.002	0.004	0.005
	(0.0002)**	(0.0004)**	(0.0003)**	(0.001)**	(0.001)**
Spline3	−0.001	−0.001	−0.0003	−0.001	−0.001
	(0.0001)**	(0.0002)**	(0.0001)**	(0.0004)**	(0.0003)*
Constant	7.301	9.753	4.424	11.825	2.542
	(0.330)**	(0.554)**	(0.665)**	(0.826)**	(1.650)
Observations	435250	285793	112950	34695	35750
Wald χ^2	8966.72**	3185.49**	4141.69**	1355.54**	635.06**
Pseudo R^2	.48	.55	.44	.55	.54

Note: Robust standard errors are in parentheses.
*Significant at 5 percent. **Significant at 1 percent.

Table 4
Linkages in Multilateral Security Organizations and Militarized Interstate Disputes, 1948 through 2000, Logistic Regression

	MID_y1				
	Model 10: All Cases	Model 11: No Diplomatic Mission	Model 12: All Cases	Model 13: Less than Mean of Third-party Security Links	Model 14: Greater than Mean of Third-party Security Links
Number security IGO comemberships	0.091 (0.020)**	0.208 (0.056)**	0.051 (0.023)*	0.175 (0.095)	0.022 (0.025)
Third-party security links	−0.014 (0.018)	−0.089 (0.030)**			
Maxflow/100 (security)			0.063 (0.030)*	−0.328 (0.120)**	0.139 (0.049)**
Allies	−0.191 (0.109)	−0.141 (0.264)	−0.134 (0.108)	−0.652 (0.264)*	0.060 (0.122)
Ln $CINC_H$	0.632 (0.030)**	0.856 (0.050)**	0.643 (0.030)**	0.631 (0.050)**	0.575 (0.043)**
Ln capability ratio	−0.554 (0.031)**	−0.785 (0.050)**	−0.562 (0.031)**	−0.660 (0.047)**	−0.447 (0.041)**
Ln distance	−0.608 (0.038)**	−0.747 (0.066)**	−0.608 (0.038)**	−0.655 (0.060)**	−0.593 (0.050)**
Noncontiguity	−1.562 (0.104)**	−1.693 (0.205)**	−1.553 (0.104)**	−1.455 (0.158)**	−1.611 (0.143)**
Minorpowers	−0.933 (0.110)**	−1.651 (0.226)**	−0.952 (0.110)**	−1.345 (0.180)**	−0.775 (0.149)**
$Dependency_L$	−59.721 (20.947)**	−73.619 (40.054)	−57.908 (20.695)**	−127.380 (49.375)**	−45.256 (20.708)*
$Openness_L$	−0.064 (0.014)**	−0.122 (0.026)**	−0.068 (0.014)**	−0.083 (0.018)**	−0.041 (0.024)
$Polity_L$	−0.050 (0.007)**	−0.019 (0.011)	−0.051 (0.007)**	−0.049 (0.013)**	−0.057 (0.009)**
Peace years	−0.678 (0.025)**	−0.809 (0.048)**	−0.684 (0.025)**	−0.669 (0.043)**	−0.698 (0.031)**
Spline1	−0.005 (0.0003)**	−0.007 (0.001)**	−0.005 (0.0003)**	−0.006 (0.001)**	−0.005 (0.0003)**
Spline2	0.003 (0.0002)**	0.004 (0.0004)**	0.003 (0.0002)**	0.004 (0.001)**	0.003 (0.0002)**
Spline3	−0.001 (0.0001)**	−0.001 (0.0002)**	−0.001 (0.0001)**	−0.001 (0.0002)**	−0.001 (0.0001)**
Constant	8.185 (0.316)**	12.050 (0.526)**	8.127 (0.314)**	9.088 (0.493)**	7.126 (0.446)**
Observations	448407	296131	448407	80828	367579
Wald χ^2	9665.89**	3285.07**	9784.40**	2673.03**	7268.42**
Pseudo R^2	.49	.58	.49	.49	.49

Note: Robust standard errors are in parentheses. IGO = intergovernmental organization.
*Significant at 5 percent. **Significant at 1 percent.

in the data, *Number IGO comemberships* is generally significant and positively related to the likelihood of dyadic conflict within a dyad (Boehmer, Gartzke, and Nordstrom 2004; Hafner-Burton and Montgomery 2006; Dorussen 2006).[14]

In Table 3, the coefficients of *Maxflow* are generally negative but not always significant. This provides some mixed support for our second hypothesis about longer chains of communication and embeddedness. The findings become somewhat stronger if we look into the effect of *Maxflow* in more detail. *Maxflow* considers all chains of information transmission, whereas *Third-party links* considers chains only by way of one intermediary. Models 6 through 9 compare the effect of *Maxflow* (long chains/social capital) controlling for the presence (or absence) of direct and short indirect links. As in Table 2, the indirect links (here *Maxflow*) are significant only if states do not have an exchange of diplomatic missions (compare models 6 and 7). Moreover, models 8 and 9 compare subsamples with very low and very high third-party links. Again, *Maxflow* is significant and negative given low third-party links (model 8). Long indirect chains can thus substitute for the absence of direct or short indirect links. In the case of a high number of third-party links (model 9), *Maxflow* is even positive.[15]

At the same time, we recognize that the effect of *Maxflow* is less robust than the effect of *Third-party links.* Limiting the analysis to politically relevant dyads, *Maxflow* is generally no longer significant. The severe reduction in the number of cases in models 6 through 9 when we limit the analysis to politically relevant dyads may explain this finding. Moreover, politically relevant dyads are much more likely to experience conflict, and the effect of joint IGO-membership, *Third-party links,* and *Maxflow* is reduced. In our opinion, the most convincing explanation for these findings is that indirect links only partly substitute for direct links. Politically relevant dyads have a relatively high number of direct diplomatic links and also tend to score high on *Third-party links.* Consequently, it becomes more difficult to demonstrate any effect of more diffuse indirect links/social capital.[16]

Table 4 considers linkages only via IGOs with an explicit security function. The results for the more generally defined IGO network hold up for the security IGO network, but if anything, they are somewhat weaker. In models 10 and 11, third-party links via the security network have a pacifying effect, but the effect is significant only for countries that lack direct diplomatic exchange. In model 12, the effect of *Maxflow(security)* is unexpectedly positive and significant at the 5 percent level. However, as before, the effect of *Maxflow(security)* varies across specific subsamples. If countries have only weak third-party links, longer chains of information transmission have a pacifying effect (model 13). However, if countries have relatively strong third-party links, long chains actually increase the probability of conflict in the dyad (model 14).

Table 5 reports the substantive importance of the various network measures, which also allows for a comparison across the various models. Generally, the effects of the IGO network are comparable to (albeit somewhat weaker than) the

Table 5
Linkages by Way of International Organizations and Trade and Percentage Change in Risk for Conflict, 1948 through 2000

All Variables at Baseline Values[a] Except	%	Model	*Pr(MID)*
Number IGO comemberships increased by 1 standard deviation	+26	2	.002
Third-party links increased by 1 standard deviation, all cases	–16	2	.002
Third-party links increased by 1 standard deviation, cases with no diplomatic mission	–28	3	.001
Maxflow/100 increased by 1 standard deviation, all cases	–0	5	.002
Maxflow/100 increased by 1 standard deviation, cases less than 1 standard deviation of *Third-party links*	–31	8	.003
Maxflow/100 increased by 1 standard deviation, cases greater than 1 standard deviation of *Third-party links*	+38	9	.003
Number security IGO comemberships increased by 1 standard deviation	+16	10	.002
Third-party security links increased by 1 standard deviation, all cases	–2	10	.002
Third-party security links increased by 1 standard deviation, cases with no diplomatic mission	–15	11	.001
Maxflow/100 (security) increased by 1 standard deviation, all cases	+9	12	.002
Maxflow/100 (security) increased by 1 standard deviation, cases less than mean of *Third-party links*	–27	13	.003
Maxflow/100 (security) increased by 1 standard deviation, cases greater than mean of *Third-party links*	+13	14	.002
$Dependency_L$ increased by 1 standard deviation	–13	2	.002
$Polity_L$ increased by 1 standard deviation	–30	2	.002

Note: Simulations with CLARIFY 2.1 under Stata 9 (Tomz, Wittenberg, and King 2003). IGO = intergovernmental organization.
a. Baseline values are defined as means except for *allies* (0), *noncontiguity* (0), and *minorpowers* (1).

other elements of the Kantian tripod (democracy and trade dependency). Shorter links generally have a stronger impact compared with more indirect links, but the effect of co-affiliation (*Number IGO comemberships*) is positive. The negative (i.e., pacifying) effect of *Third-party links* (a short chain of links) is stronger than for *Maxflow* (longer chain of linkages/social capital). There is support for partial substitution because the effect of (longer) indirect links increases if shorter/direct links are absent. The effect of *Third-party links* is much more pronounced for the cases without diplomatic missions, and the effect of *Maxflow* is stronger if there is a relative lack of third-party links. *Maxflow* can actually substitute for relative lack

of *Third-party links* (both are about 30 percent). We do not find evidence that functional specialization of IGOs matters. The pacifying effects of the broadly defined IGO network are comparable to the effects of the security IGO network. If anything, they are somewhat stronger in the former.

Other Approaches to International Networks and Conflict

Our arguments emphasize the way social networks promote communication, understanding, and trust, a perspective also supported by von Stein's (2008 [this issue]) finding that states' centrality in the IGO network positively correlates with whether they ratified the Framework Convention on Climate Change. In contrast, some other recent contributions have focused more on power and the way networks divide states into distinct groups, an emphasis that has also been prominent in social-network theory in other domains (Maoz et al. 2004, 2006, 2007; Hafner-Burton and Montgomery 2006, 2008 [this issue]).

In the literature using structural equivalence, the core contention is that states' relative position in international networks conditions their conflict behavior. Maoz et al. (2007) use a measure of structural equivalence based on the correlation between patterns of connections with other states to measure the affinity between members of the dyad. They consider alliance, trade, and ethnic affinity networks and find that generally the higher the equivalence between states in the affinity networks, the lower is their chances of conflict. Hafner-Burton and Montgomery (2006) use clusters to assess structural equivalence. They distinguish three aspects of the social network: comembership of the same cluster, the size of the cluster, and difference in centrality in the general network. Members of the same cluster are relatively close to each other and are expected to behave less aggressively toward each other because members of "in-groups" share "common material and ideational traits that will cause them to act in similar ways" (p. 8). They find that the probability of a militarized conflict is reduced if states belong to the same cluster, although the effect is weakened as clusters get larger. Hafner-Burton and Montgomery (2008) show that countries with similar patterns of links via preferential trading arrangements, thus belonging to the same cluster, are more likely to use economic sanctions against each other for political, including security, purposes. They suggest that this is linked to the way that preferential trading arrangements place states in positions of power over others.

Centrality is commonly associated with network power, which contrasts with our argument that other states can use their social capital from the IGO network to constrain central states. Maoz et al. (2006) apply degree centrality, as well as several other centrality measures, to alliance, trade, and ethnic networks. In a monadic research design, they find that inconsistency between states' positions in different networks increases the likelihood that they will be involved in conflict, and they argue this is due to states' seeking status consistency across different domains. Hafner-Burton and Montgomery

(2006) also take degree centrality in the IGO network as a measure of a country's power or prestige. They find that countries with similar centrality scores are less likely to go to war agreeing with general arguments about power similarity and conflict. Hafner-Burton and Montgomery (2008) show that prestigious states, central to the network generated by preferential trade agreements, are more likely to use sanctions within their own cluster of states.

Arguably, all these contributions are nearer to the realist end of the theoretical spectrum. For example, Hafner-Burton and Montgomery (2008) want to "recognize that IGOs are vehicles for power politics that often create conflict-producing rather than peace-making incentives." They suggest that nations close in trade–politics networks may actually be more subject to conflict because they have more to disagree about and that network clusters reduce conflict only if nations forming them are already inclined to agree. In contrast, our approach is closer to liberal and constructivist positions, although we emphasize the latent role of IGOs over their direct role. While we find that the IGO network on balance promotes peace, more research is needed to refine our understanding of which particular subnetworks of the IGO network promote peace. Moreover, our approach is not logically incompatible with a realist perspective on networks. It is possible that network ties have countervailing effects. They may generate conflict issues and concerns about power, while at the same time spawning countertendencies in terms of enhanced information about others' capabilities and understanding of their concerns, along with increased potential for mediation by third parties or even pressure from the international community in general.

Conclusions

We have argued for the fruitfulness of applying network-theoretic ideas and measures to the study of the Kantian peace. The starting point of our inquiry is the puzzling finding that comembership of international organizations does not clearly promote peace. Theoretically, there are good reasons to expect that it would be a particularly strong element of the Kantian tripod. In empirical research, however, the variable is often either insignificant or even wrongly signed. Our intuition was that these surprising findings could be the result of the purely dyadic nature of the co-affiliation measure. Moreover, standard arguments on the importance of international organization may put too much emphasis on the (in)ability of specific organizations to intervene in latent conflicts. This is to ignore the way that the network of IGOs enhances the transmission of information between states and thus allows them to avoid conflict as well as encourages third parties to act as intermediaries and to do so more effectively. Consequently, we introduced the network-theoretic measure *Maxflow* and developed a specific measure *Third-party links.*

The main contribution of our research is to demonstrate that the effect of IGOs derives not only from direct but also from indirect links. Indirect links significantly reduce the probability of conflict. Shorter (*Third-party links*) are generally more effective than longer chains of information transmission/social capital (*Maxflow*). Furthermore, indirect links through the IGO network are particularly important when direct diplomatic ties are weak, suggesting that longer links can make up for any lack (or possibly interruption) of shorter links.

Even if the IGOs involved have no overt security-related function, they still generate valuable possibilities for information flow, mediation, and the application of pressure. Similarly, Ingram, Robinson, and Busch (2005) find that trade between pairs of states is promoted by their position in general international networks, even though these networks may have no overt trade function; Ward (2006) finds that states act in a more sustainable way if they are central to general international networks. Admittedly, endogeneity problems may hamper all attempts to identify the effects of IGOs on conflict, including network effects, because states could develop IGOs to prevent the escalation of latent conflicts.[17] The strong results for the general IGO network, however, suggest that this source of endogeneity is less likely to be a worry. It does not seem particularly plausible that states develop IGOs related to cultural, environmental, or sectoral economic domains with conflict prevention in mind. Of course, they may well be aware that important economic organizations such as the World Trade Organization can have effects on conflict, and they may seek to develop the security functions of regional economic IGOs. Alternatively, endogeneity could result from states' refusing to join IGOs of which their adversaries are members. However, states only rarely resign from IGOs when they become more threatened. Moreover, the network measures should be less susceptible to such endogeneity. It is fairly plausible that a state *a* might avoid joining an IGO of which its adversary *b* is a member. It is, however, less plausible that *a* avoids joining an IGO with *c* (a neutral state) because *c* happens to be a member of a different IGO that includes *b*. Ultimately, more modeling of states' motives for joining different types of IGOs is needed to settle the issue.

Linkages can be established in all kinds of ways: trade flows, diplomatic exchanges, travel, and so forth. In Dorussen and Ward (2007), we explore the pacifying effects of trade networks. The work of Maoz et al. (2006, 2007) points to the need to analyze a number of networks alongside the IGO network. Combined with the insights of several studies in this issue, our findings even suggest additional comparisons of IGO effects. Future research may want to simultaneously model the direct effects of well-institutionalized and security-relevant IGOs on conflict alongside the indirect effects of IGO and other networks (Hansen, Mitchell, and Nemeth 2008). Finally, IGOs and interstate networks could well have different effects on crisis onset, escalation, or peaceful settlement.

Notes

1. Russett and Oneal (2001) use the generalized equation estimator with an AR(1) correction. Oneal, Russett, and Berbaum (2003), using a distributed lag model, also find that a higher number of shared memberships relative to the total number of co-affiliations decreases the probability of conflict within a dyad. The other studies mentioned all make use of splines to correct for temporal dependence; see Beck, Katz, and Tucker (1998).

2. Boehmer, Gartzke, and Nordstrom (2004) point out that if c changes the incentives of b, a may up its demand. Also, while states more tightly linked to the parties at conflict have more resources to transform the game, this might prevent the parties from accepting them as mediators, because of anticipated costs (Beardsley 2005).

3. Russett and Oneal (2001, 182-84) recognize the possibility that the density of the whole international network matters. However, this is not equivalent to saying the way a particular dyad relates to the rest of the system matters.

4. In the Web Appendix (http://jcr.sagepub.com/supplemental), we formally prove that on the intergovernmental organization network, the weakest-link assumption on degree centrality is equivalent to the capacity of information flow between the members of a dyad. In other words, information-flow and social-capital arguments are operationally indistinguishable. This is further discussed in the Measuring Network Effects section.

5. The children's party game Chinese Whispers (or the Telephone Game) exploits the fallibility of information transmission.

6. Other measures of centrality also fail to discriminate between the information flow and social capital arguments on intergovernmental organization data. Because almost all dyads are directly connected, closeness and betweenness (Freeman 1979), relying on counting shortest paths between nodes, give very similar scores to all countries. Bonacich's (1987) eigenvector measure correlates with degree centrality, greater than 0.9. Flowbetweenness measures centrality by the reduction in total information flow in the system if a node did not exist (Freeman, Borgatti, and White 1991). It correlates with degree centrality only at around 0.5 but fails to capture how prone a country is to influence attempts by others.

7. Let A be the co-affiliation matrix where for $j \neq 1$ the cell (i,j) or cell (j,i) gives $v(i,j)$ and $\text{cell}(i,i) = 0\ \forall i$. Then $L = ln(I + AA))$ gives $link3(i,j)$, where I is the identity matrix and ln(.) applies the natural log transform to each cell of a matrix.

8. Data are from an ongoing project of the Correlates of War project and kindly made available by Reşat Bayer; see Alger and Brams (1967) for an early example of examining the network of diplomatic ties between capitals and by means of intergovernmental organizations.

9. We used logistic and rare-events logistic analysis and found only minor differences. The results from rare-events logistic analysis and further robustness test are available at http://jcr.sagepub.com/supplemental.

10. Several reviewers suggested the inclusion of the (strongest-link) military capabilities because this variable has a demonstrable impact on the general triangulating peace model. We find $Ln\ CINC_H$ to be generally significant but with only a minor impact on the rest of our estimates.

11. Apart from the network and trade variables, variables were implemented using EUGene (Bennett and Stam 2003).

12. In a separate model, we specified third-party links by way of the major powers (defined as the permanent members of the Security Council). We found only minor differences between this and our original variable.

13. The effect of third-party links remains significant analyzing politically relevant dyads only.

14. Boehmer, Gartzke, and Nordstrom (2004) allow for a weak-link assumption on the total number of diplomatic exchanges. We also find that including this variable renders *Number IGO comemberships* negative, but we see no theoretical reason to apply the weak-link assumption. Instead, we control for *dyadic* diplomatic exchanges.

15. Since models 8 and 9 rely on relatively small subsamples, it is not surprising that some coefficients behave somewhat erratically. The positive and marginally significant effect of democracy is notable. It is, however, important to be aware that democracies are generally well connected and that thus only few democracies are represented in the subsample of model 8; the mean of $Polity_L$ in model 8 equals –6, compared to –1 in model 9.

16. Apart from considering politically relevant dyads, we also analyzed the robustness of our models controlling for preference similarity, using Signorino and Ritter's (1999) s-statistic for alliance similarity and Gartzke and Jo's (2002) measure of similarity of voting behavior in the United Nations. Including the s-statistic has no impact on our analyses. The impact of the Gartzke and Jo measure appears to be due to the loss of degrees of freedom. Finally, we do not necessarily agree that there is a theoretical case for including extant measures for preference similarity in models of conflict behavior. Alliance behavior (also as it is expressed by voting behavior in the United Nations) is likely to be endogenous to conflict behavior. The robustness tests are available on request

17. However, the findings of Mansfield and Pevehouse (2008) suggest that states involved in more disputes join intergovernmental organizations at a slower rate.

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