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Looking in the Mirror: Comparing INGO networks

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Looking in the Mirror: Comparing INGO Networks Across Issue Areas*

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Abstract

International Relations scholarship has begun to focus a great deal of attention on social networks and their influence on political outcomes. In this paper, we contribute to this effort by examining INGO network relations across four issues areas: the environment, health, human rights, and development. Using original data on over 4000 INGOs, we find that the characteristics of network relations across the four areas are in fact quite different. Further, we find that these differences are driven in part by the nature of the INGOs - including whether they are narrowly or broadly focused, located in the global North or South, and their ties to intergovernmental organizations. Finally, we explore the manner in which differences in INGO networks influence political and behavioral outcomes and organizational effectiveness.

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1 Introduction

Coordination and collaboration among international non-governmental organizations (hereafter *INGOs*) has been highlighted as an important key to social or political change (Keck and Sikkink 1998; Boli and Thomas 1999; Anheier and Katz 2004; Ahmed and Potter 2006). The creation of the International Criminal Court, for example, occurred after INGOs coordinated their efforts through the Coalition for the International Criminal Court (Simmons 1998; Glasius 2002, 2006). Similarly, many contend that the banning of landmines came about as a result of INGO and civil society coordination: INGOs on the ground gathering information were tied to other organizations with specialized governmental and media connections (Rutherford 2000; Warkentin 2001; Price 2003*b*,*a*). Likewise, many environmental INGOs joined forces to push for the end of chlorofluorocarbon use in the 1980s and 1990s (Raustiala 1997; Breitmeier and Rittberger 2000). Even in humanitarian relief, INGO coordination is important. For example, to help Indian Ocean tsunami victims effectively in 2004, development and health INGOs coordinated with each other, intergovernmental organizations, and aid foundations (Kamran 2009). The United States Agency for International Development (U.S. AID) sees cooperation and connections between non-state actors as critical for "coordination, knowledge sharing, and policy advocacy" in poverty relief (Abelson 2003).

At the most basic level, INGOs are argued to work not only as individual organizations, but as part of a larger *network* of INGOs, intergovernmental organizations (hereafter IGOs), states, and concerned citizens. This is outlined in the canonical transnational advocacy network framework (Keck and Sikkink 1998). However, there are many examples, both in the practitioner and scholarly literatures, of INGOs refusing or failing to collaborate or coordinate their efforts, often with very harmful overall effects (Covey 1995; Edwards and Hulme 1996; Hulme and Edwards 1997; Cooley and Ron 2002; Hamdani 2006). Cooley and Ron (2002), for example, outlines numerous instances of "inter-INGO competition," where the market of aid donations undermines the desires of INGOs to coordinate for political or

social outcomes (14). Smith (2002) and others have attested to divisions between INGOs in the global "North" and "South" limiting coordination of the total social movement.[1] A lack of collaboration with outside INGOs may also limit within-INGO organizational learning (Ebrahim 2005). Thus, although INGO networking and coordination appears to be important for achieving their often lofty mission objectives, a lack of coordination may severely limit the impact of INGOs.

Despite the theoretical importance of INGO coordination, very few studies have empirically examined what INGO coordination (sometimes referred to as the *INGO network*) looks like.[2] Moreover, consistent with what the majority of organization theory and network analysis studies demonstrate, simply being connected or networked does not automatically result in influence; the nature and structure of the overall network matters for overall efficacy, efficiency, and information transmission (Krackhardt 1994; Wasserman and Faust 1994; DeCanio, Dibble and Amir-Atefi 2000; Watts 2004*a*; Newman, Barabasi and Watts 2006; Siegel 2009). By examining network characteristics of INGOs, therefore, we gain valuable information into their potential efficacy.

This paper makes three important contributions to the study of INGO networks. First by directly measuring, describing and comparing the characteristics of INGO networks in and across four issue areas - environment, health, human rights and sustainable development, we answer the question "are there fundamental differences in the characteristics of INGO networks?" Given the overwhelming focus on advocacy INGOs, such as human rights and environmental INGOs, in comparison to service INGOs, such as health or sustainable development INGOs, within the extant international relations literature, we feel attention to differences across these various mission foci is theoretically important. Second we assess how

[1] For further discussion of the North/South divide in relation to INGOs, see Fowler (1992); James (1994); Dieng (2001)

[2] This paper, to our knowledge, represents the first attempt to compare across both advocacy and service INGOs. We want to stress, however, that there exists other network analysis and network theory projects on subsets of INGOs. These cross-disciplinary papers make many contributions to overall scholarship. See, for example,Caniglia 2001; Anheier and Katz 2004; Katz 2006; Murdie, Brewington and Davis 2009; Wong 2008; Lake and Wong 2009.

the characteristics of INGOs themselves, such as permanent office location and connections to major IGOs, contribute to differences in network forms. Finally, we examine how differences in INGO networks condition their effectiveness in achieving their goals. Our central argument is very simple. *INGOs differ in their focus and capacity. These differences have important consequences for how INGOs relate to or interact with each other.* [3]

This paper proceeds as follows. First, we detail the new INGO network data and present both statistical and visual representations of INGO networks in these four substantive areas of interest. Second, we discuss the sources of heterogeneity within INGOs and develop hypotheses about how heterogeneity influences network structure. Third, the research design and empirical results are outlined in detail. Finally, the paper concludes by addressing the implications of these findings for cross-disciplinary INGO theory and examining the policy and practical implications of this research for INGOs themselves.

2 INGOs - Measuring Network Characteristics

Scholars and practitioners have long recognized that INGOs work both individually and collectively in pursuit of their mission objectives (Elliot 1987; Keck and Sikkink 1998; Risse and Ropp 1999; DeMars 2005; Wong 2008; Najam 1996). Yet, relatively little is known about the nature of INGO interactions. In the following section, we first describe the network data employed in the analysis and present visual descriptions of INGO networks across the four different issue areas. We then review the theoretical and applied literature on network characteristics, particularly small word characteristics, and outline how this characteristic applies to networks of INGOs.

[3] As Taylor (2002) points out, the cross-disciplinary INGO literature could also benefit from more descriptive analyzes, especially those focusing on distinctions between various non-state actors.

2.1 INGO Relational Data

There is very little easily accessible, high quality data on INGO networks, especially for issue-specific INGO activities. Most existing studies on INGOs utilize data collected from the *Yearbook of International Organizations,* a publication of the Union of International Associations, an INGO itself whose mission is the "facilitation of the development and efficiency of non-governmental networks" (UIA 2008/2009. See Boli and Thomas 1999; Landman 2005; Neumayer 2005; Smith 2005; Smith and Wiest 2005; Boli and Brewington 2007; Author 2009). Past research has only focused on very small subsets of issue-specific INGOs (Caniglia 2001; Anheier and Katz 2004; Katz 2006; Murdie, Brewington and Davis 2009; Wong 2008; Lake and Wong 2009). We hope to add to the existing literature on INGOs by creating the first overall INGO network data. This dataset, which in its entirety spans over 10 years and covers over 60,000 INGOs, represents a major advance in capturing the networking behavior of INGOs. The Union of International Associations (UIA) produces a list of all active INGOs in the world by asking other INGOs for new organization information, looking at lists of INGOs produced by donor foundations and international organizations, and original research of newspaper and practitioner reports. The UIA then collects data on all INGOs on its list by sending out information requests to the organizations themselves. The UIA asks these organizations to self report a plethora of information, including the organization's mission or aims, its services and languages used, main and secondary addresses, structure, staff, and membership details. It has, since 1910, published its findings in its annually released *Yearbook*.

For our project, INGO data is based on the information provided in the 2001-2002 *Yearbook* CD-Rom edition.[4] Data on issue-specific focuses were complied using quantitative content analysis of the mission-statement provided to the UIA. We identified 4,378 organizations that fit both the accepted definition of an INGO and had an issue area focus of

[4]The 2001/2002 *Yearbook* was chosen for this project to compare to the existing 2001-2002 data we have from a hand-coding project (Murdie, Brewington and Davis 2009). Our current codings of multiple years of information reveals that this year is typical to overall patterns in the data source.

either human rights (663 INGOs), sustainable development (158 INGOs), environmental (1019 INGOs), health (1695 INGOs), or a some combination (843 INGOs) of these goals. Organizational characteristics, such as that discussed below, were also recorded.

Importantly, the UIA's *Yearbook* also provides information on connections between INGOs. Each organization is requested to provide information as to connections to other INGOs. We use this information to compile an asymmetric or directed dichotomous square matrix of the 4,378 * 4,378 organizations. This data forms the basis for the network analyzes used in this project. A "1" in a datapoint represents a self-reported connection from a specific INGO in that row to another INGO within the sample.

The use of network methods to describe the INGO network provided many interesting insights into how INGOs collaborate and the impact this networking behavior may have on effectiveness, efficiency, and information transmission. Below, we first describe the INGO network.

2.2 INGO Networks

Figures 1-4 highlight the network of INGO collaboration that is identified from the dataset. In all figures, isolates, or INGOs without any ties to the overall network, are removed, and the figures are organized with those organizations central to the network at the center of the graphic.[5] The size of the INGO *node* in these figures represent the eigenvector centrality score, which, as mentioned, is a function of its connection to other actors that are also central to the overall network (Wasserman and Faust 1994; Hanneman and Riddle 2005). Figures 1-4 are representations of the individual issue-specific INGO networks. These figures are quite striking and show that there are dramatic differences between INGO networks. Although, at first glance, some of these differences are due to different percentages of non-isolate INGOs for each issue-area, there also appears to be very different inter-issue networking patterns for

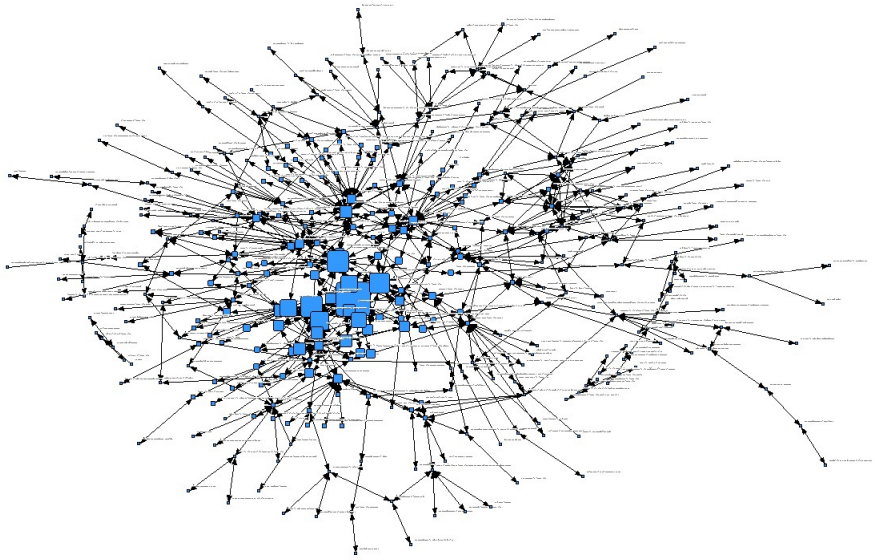
[5] Proximities in the graph are determined by geodesic distance using the spring embedding program within Netdraw, with 500 iterations each(Borgatti, Everett and Freeman 2006). Geodesic distances determines the "optimal" or most efficient path length between nodes (Hanneman and Riddle 2005).

the organizations. For example, node size is much larger for a handful of organizations in the human rights INGO network, as shown in Figure 1. The environmental INGO network, as illustrated in Figure 2, also has some variation in node size. Worth noting, however, it takes on a very different overall structure, as determined by geodesic distances. There are two "rings" of connected organizations: an outside ride with many central INGOs and an inside ring with much networking behavior. This visualization could indicate some division within the environmental INGO network.

The sustainable development INGO network, as visualized in Figure 3, is striking for two reasons. First, it is surprising how few of nodes within this network are not isolates. Of the 158 INGOs that solely had a sustainable development mission, only 56 are not completely isolated from the network. In addition, those that are connected are typically connected to only 1 or 2 other sustainable development INGOs. This would offer some support to Cooley and Ron (2002)'s claim that development INGOs are uncoordinated, perhaps because of "inter-INGO competition" for aid funds. This could also indicate a lack of capacity among these INGOs; sustainable development INGOs might be especially likely to lack the capacity required to network or coordinate amongst themselves.

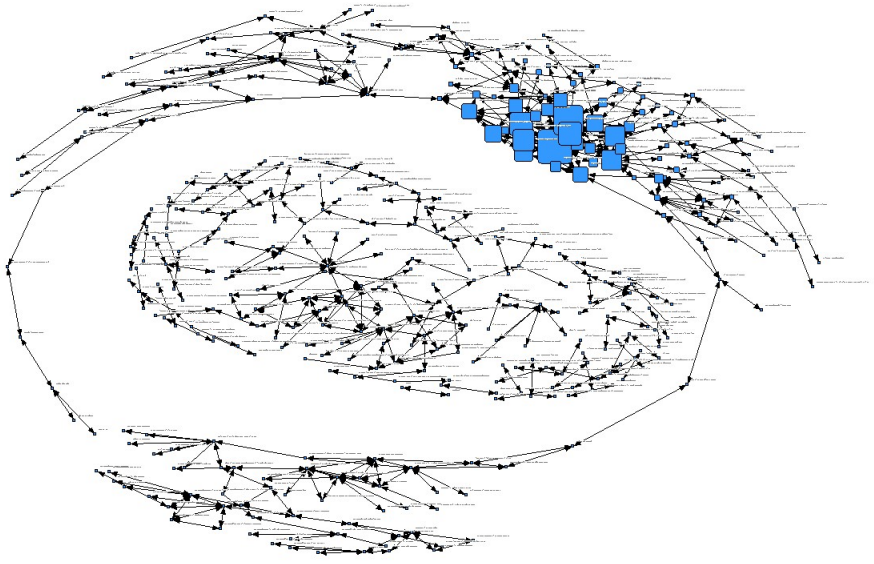
Figure 4, the health INGO network visualization, though containing more nodes than the human rights INGO network, does also appear to have a similar structure. The organizations with the largest eigenvector distance are at the center of the representation and many other organizations are connected to the overall network.

Figure 1: Human Rights INGO Network, 2001
Node Size by Eigenvector Centrality, Geodesic Distances, Isolates Removed



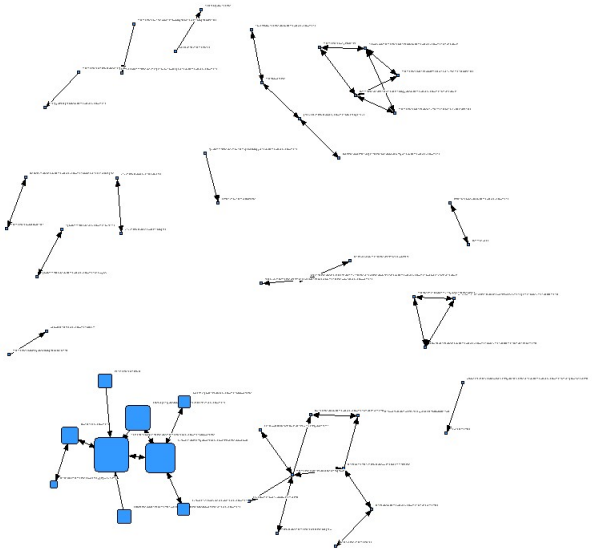
Sources: UIA (2001/2002)

Figure 2: Environment INGO Network, 2001
Node Size by Eigenvector Centrality, Geodesic Distances, Isolates Removed



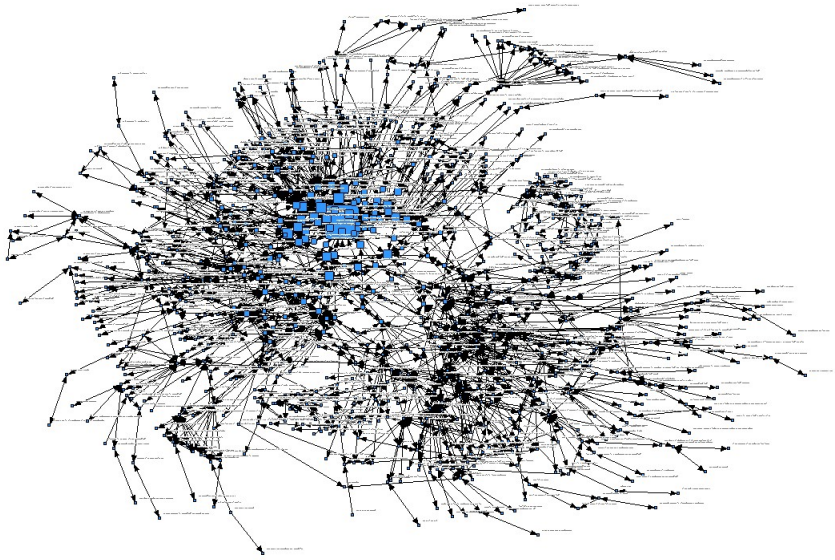
Sources: UIA (2001/2002)

Figure 3: Sustainable Development INGO Network, 2001
Node Size by Eigenvector Centrality, Geodesic Distances, Isolates Removed



Sources: UIA (2001/2002)

Figure 4: Health INGO Network, 2001
Node Size by Eigenvector Centrality, Geodesic Distances, Isolates Removed



Sources: UIA (2001/2002)

2.3 Describing Network Structure

Though these basic visualizations can be useful at gaining insights into the INGO network, descriptive characteristics of network structure can provide us with further information as to the characteristics of the INGO network and how the composition of the network can impact the ability of INGOs to work collaboratively.

Across disciplines, much attention has been paid to the existence of small world networks (Milgram 1967; Watts and Strogatz 1998; Latora and Marchiori 2001; Watts 2004*a*; Siegel 2009). According to Watts and Strogatz (1998), a small world network is defined as a type of network structure that exhibits (a) high clustering, defined as actors with a high probability of connection through an intermediary actor, and (b) a short average *path length* or distance between actors. Many times, these properties are summarized in a small world quotient (Kogut and Walker 2001; Sinani et al. 2008; Cho and Fowler 2009).[6] Though there is no definitive test for the existence of a small world network, the larger the small world network quotient, the greater the likelihood that small world characteristics are present within the overall network structure (Kogut and Walker 2001; Sinani et al. 2008; Cho and Fowler 2009). Small world networks, it is argued, are important for information transmission, innovation and efficiency (Watts and Strogatz 1998; Cho and Fowler 2009). Networks with small world structures would allow for information to be conveyed quickly but still be resilient if an actor were to drop out of the network. Small world networks would allow even a lot of actors that are specialized locally to still innovate (Watts 2004*b*; Newman, Barabasi and Watts 2006; Watts and Strogatz 2006). Small world network properties, as Shirky (2008) points out, would allow large numbers of small groups of social movement organizations to be connected to each other.

However, as Uzzi and Spiro (2005) point out, small world structures may innovate cre-

[6] This quotient summarizes the ratio of the normalized clustering coefficient and path length statistic. Normalized clustering coefficients are found by dividing the observed cluster coefficient by that calculated to be likely in a random network of the same size. Similarly, normalized path length statistics are calculated by dividing the actual average path length of the network by the random path length (Kogut and Walker 2001; Sinani et al. 2008).

atively only to a certain threshold. In addition, as pointed out in Lazer and Friedman (2006) discussion of the "dark side of the small world," small world connectedness may limit overall collective action problem-solving. Especially when there is a long time horizon, a longer average path length may be preferred for problem solving (Lazer and Friedman 2006). This type of critique of the small world connectedness may mean that these properties should not be desirable for INGO networks, especially within issue-specific INGO networks working with a long time horizon.

Given the existing theoretical literature on specifically advocacy INGOs, it seems plausible that small world properties would be evident in networks of INGOs, especially those with a human rights or environmental focus (Keck and Sikkink 1998; Risse and Ropp 1999; DeMars 2005). According to the prominent Keck and Sikkink (1998), transnational advocacy networks are comprised of local groups of INGOs and domestic actors richly connected to each other. However, as Murdie, Brewington and Davis (2009) found with reference to the network of human rights INGOs, the network structure was rather sparse, with very few central players and many INGOs that were not connected to the overall network. This was also found in other INGO networks (Caniglia 2001; Anheier and Katz 2004; Katz 2006; Wong 2008; Lake and Wong 2009). This would imply that issue-specific INGO networks might not exhibit many small network properties. Describing the existence or absence of small world properties in INGO networks may provide insights into information transmission between INGOs.

Tables 1 provide the summary statistics for the individual issue-specific INGO network structures. As the table highlights, the individual issue-specific INGO networks do not have a high degree of small world properties. In fact, the INGO network displays far fewer small network properties than even a divided U.S. Congress (Cho and Fowler 2009). In every case, the clustering coefficient within the networks is lower than expected at random. Additionally, the average path length is much longer than expected at random. In a way, given the conventional, slightly idealistic thinking of INGOs, this is rather surprising. However, as

many critiques of the dominant framework have contended, INGOs may have incentives not to collaborate and there are divisions within the INGO community that might not facilitate a short path length connecting small groups of organizations (Cooley and Ron 2002; Smith 2002; Author 2009). Alternatively, the low small world quotients might actually make INGO networking more innovative as a whole (Uzzi and Spiro 2005; Lazer and Friedman 2006).

Most of the individual issue-specific INGO networks have similar small-world properties and, as a result, similar small-world quotients. A notable exception, however, is the small world quotient observed for the sustainable development INGO network; it is over 5 times greater than for other issue-specific networks. One explanation could be that there is a low average path length from INGOs that are connected to the network. However, as mentioned above, about half of the INGOs within this network are completely isolated. As Kaiser (2008) points out, the existence of such a high number isolates can complicate the conclusions drawn concerning small-world properties. The theoretical work by Lazer and Friedman (2006) could also provide insights into why sustainable development INGOs exhibit a much higher issue-specific small-world quotient. If sustainable development INGOs are more likely to work in a "time urgency" situation and have a shorter time horizon compared to other INGOs, Lazer and Friedman (2006)'s work concludes that their collective action problem-solving benefit from a higher degree of small world properties.

Overall, the small-world properties, as shown in Table 1, highlight how relatively disconnected the various INGO network structures are. This could indicate difficulties with communication and coordination which could harm overall INGO effectiveness. Additionally, these results highlight some differences in the structures of the various issue-specific INGO networks. Given recent research concerning the role of time horizons and network structure, further theoretical development concerning the time-horizon differences of issue-specific INGOs is also definitely necessary (Lazer and Friedman 2006).

Table 1: INGO Network: Small World Characteristics

Measure	Purely Human Rights Focus	Purely Environmental Focus	Purely Sustainable Development Focus	Purely Health Focus
Clustering Coefficient (Actual)	0.142	0.255	0.209	0.232
Clustering Coefficient (Random)	1.456	0.821	0.456	1.484
Average Path Length (Actual)	5.043	7.974	1.872	5.782
Average Path Length (Random)	0.945	1.029	1.184	0.950
Small World Q	0.018	0.040	0.290	0.026

3 Heterogeneity in the INGO Community

Having demonstrated that there are clear differences in the structure of INGO networks across issue areas, we turn our attention to explaining the factors that drive these differences. An obvious set of factors that can explain differences in networks is heterogeneity among the actors in the network. We look at three primary sources of heterogeneity among INGOs - mission focus, location of origin of the INGO, and links to IGOs. This section outlines INGO differences across these three potential factors and discusses how these differences could condition the propensity of INGOs to collaborate. After discussing unit heterogeneity, we present a set of testable implications.

In addition to INGO differences in issue or mission area focus, mentioned above, the extant literature points to important difference between INGOs based on their country or region of origin (Elliot 1987; Eccleston 1996; Salm 1999; Mawdsley, Townsend and Porter 2005; Stroup 2008). Much has been written about differences between INGOs based or with a permanent location in the global "North," often thought of as developed democracies in Western Europe and North America, and INGOs based in the global "South," those INGOs based in developing countries (Elliot 1987; Eccleston 1996; Smith 2002; Salm 1999; Mawdsley, Townsend and Porter 2005; Stroup 2008). Organizations in the global "North" have been cited as having larger operating budgets, international media connections, and more formal internal bureaucracies (Elliot 1987; Salm 1999). These characteristics, in many regards, have made Northern INGOs more powerful than their Southern counterparts. For example, as Salm (1999) points out, "Northern NGOs' power stems from their experiences, their reputation and proven records of success, and their size and global reach" (91-92).

Conversely, organizations in the global South have been cited for their often deep connections to local populations and knowledge of local conditions (Elliot 1987; James 1994). For service provision activities, they can be greater "stake-holders" to the local population's development (James 1994). For advocacy activities, Southern INGOs, like solely domestic NGOs, may have a more in-depth knowledge of repression perpetrators and victims and may

have deep connections to local allies within the government (Keck and Sikkink 1998; Okafor 2006). However, as many have pointed out, Southern INGOs often lack funding, organizational capacity, and international media connections (Elliot 1987; Eccleston 1996; Salm 1999; Mawdsley, Townsend and Porter 2005; Stroup 2008). Some contend that lack of capacity for Southern INGOs have made them beholden to their Northern counterparts, which often serve as funding intermediaries between IGO and governmental aid and the Southern INGOs who work on the ground (Fowler 1992; James 1994; Fisher 1997).

Worth noting, however, as Elliot (1987) and Stroup (2008) point out, not all INGOs within either the North or the South are identical in this regard. Though there are powerful divisions in capacity and focus between Northern and Southern INGOs, these groups are in no way homogeneous themselves. Stroup (2008), for example, finds powerful and compelling differences between Northern advocacy INGOs capacity and operating structure that reflect underlying policies from the Northern INGO's country of origin. Future research that looks at distinctions within INGOs based in the global North and the global South is certainly necessary.

Finally, another major distinction between INGOs concerns their working relationships with IGOs and states (Carapico 2000; Dieng 2001; Willetts 2002; Kelly 2005; UNECOSOC 2009). Many IGOs, such as the United Nations (UN) and the World Bank, have consultative status or working relationship status that INGOs can apply for (Willetts 2002; Kelly 2005). These consultative status arrangements provide the INGO with some additional access to the workings of the intergovernmental organization and can be required for aid funding (Chiang 1981; Clark, Friedman and Hochstetler 1998; Otto 1996; Willetts 2000; Alger 2002). To gain consultative status, organizations must fill out a lengthy application and participate in a review process (UN 2008). To gain status with the UN Economic and Social Council (ECOSOC) or the World Bank, for example, an INGO has to state how its motivations and policy positions reflect the overall goals of the intergovernmental organization (Willetts

2002; Kelly 2005; UN 2008).[7] INGOs are asked about their governing structures, their relationships to any governments, and to list all monies received in the last five years with detailed explanations of how the funds were used. For ECOSOC consultative status, these applications are then reviewed by both governmental and non-governmental representatives and, if documentation is sufficient, the INGO is granted consultative status (UN 2008). This process, which is very arduous and time-consuming, is often a source of status for the INGO and can serve as a signal of the INGO's intent and interests (Author 2009). Once accredited, many INGOs proudly list their UN Consultative Status on their organization's stationary and website.

In short, there are many sources of heterogeneity between INGOs. Though in no way comprehensive, issue-area focus, permanent location, and relationships with IGOs are all factors that highlight the differences between INGOs. In the next section, we connect these differences to variation in the capacity and desire of INGOs to collaborate with each other.

3.1 Heterogeneity and its Connection to Networking Behavior

Though INGO collaboration may improve their overall impact, not all INGOs may have the same desire or capacity to join together. The heterogeneity highlighted above could condition the formation of the INGO network (Caniglia 2001; Anheier and Katz 2004; Katz 2006; Murdie, Brewington and Davis 2009).

First, the INGO literature is clear that INGOs collaborate out of a need to join forces in the pursuit of common goals (Keck and Sikkink 1998; DeMars 2005; Ahmed and Potter 2006). It follows, therefore, that INGOs with similar issue focuses would be more likely to collaborate because of similar mission-based desire for collaboration. This also appears to be consistent with practitioner reports on INGO networking (Abelson 2003; Clark, Sprenger

[7] As such, the vast majority of INGOs with consultative status are based in the global North, recent reports from the UN show that 66% of organizations with ECOSOC consultative status are based in either Europe or North America (UN 2008).There is a growing movement to increase the number of Southern INGOs with ECOSOC consultative status (Wieczorek-Zeul 2005).

and VeneKlasen 2006). INGOs with similar mission statements concerning environmental policy advocacy, for example, would be more likely to come together to work on a shared project or join forces in the crafting of policy statements than, for example, an INGO with a focus on health and one on the environment. These INGOs are also more likely to meet through shared conferences or gatherings. Additionally, it would seem likely that individuals in similar INGOs would know each other. This is often referred to as the "revolving door" of INGO employment and advocacy (Keck and Sikkink 1998: 9). Within the network literature, this propensity to tie because of similar characteristics is often referred to as "homophily" (Wasserman and Faust 1994; Hanneman and Riddle 2005).

Worth mentioning, we identified many INGOs that could be classified as "hybrids," providing both advocacy and service provisions (Kelly 2005). Out of the 4,378 organizations that fit the accepted definition of an INGO, 843 had mission statements that included some combination of human rights, sustainable development, environmental, or health goals. For example, many health INGOs could possibly be classified as both advocacy and service organization. The growth of "rights-based approaches," for example, has led to a growing number of INGOs that could be classified as human rights and health, environment, or development (Van Tuijl 2000; Nelson and Dorsey 2008).

What about the networking behavior for these "hybrid" INGOs? What networking behavior would seem likely for them? Based on the same homophily characteristics as within-issue area networking, it would appear consistent that these organizations would be more likely to tie with each other. However, because of the multiple issue-area focuses, it would also seem likely that these organizations would be more likely to tie to non-hybrids as well. For example, an INGO with a rights-based approach to health may find it advantageous for its mission to collaborate with INGOs both within the health community and those within the human rights community. It would also, of course, be likely to connect to other INGOs with rights-based approaches.

These arguments would lead to the following testable implication:

HYPOTHESIS 1: INGOs with similar issue-area foci will have a greater propensity to tie to each other. "Hybrid" INGOs will have a greater propensity to tie to each other and across issue-focuses.

Although issue-area focus could result in a different propensity to collaborate based mainly on desire, differences between INGOs based on the permanent location characteristics could lead to differences in networking behavior based predominantly on capacity. As mentioned, Southern INGOs often lack funds and international connections. Their organizational capacity difficulties could result in less of an ability to network with each other, as well as with their Northern counterparts (Manji 1997; Mawdsley, Townsend and Porter 2005; Ahmed and Potter 2006).[8] This is consistent with findings made in Murdie, Brewington and Davis 2009 with respect to human rights specific INGOs. Further, desire for collaboration across the North-South divide may be low. Although, as Elliot (1987) contends, Northern INGOs may be able to improve the "manpower" and "technology systems" of INGOs based in the South, many have pointed out problems with dependency issues and trust which could limit the desire of North-South connections (Fowler 1992; James 1994; Manji 1997; Dieng 2001; Manji and O'Coill 2002; Mawdsley, Townsend and Porter 2005). These arguments are somewhat counter to the dominant transnational advocacy network approach, which would imply more of a symbiotic relationship between Northern INGOs and their Southern or domestic counterparts (Keck and Sikkink 1998).

In short, there appears to be both capacity-related and desire-related reasons to expect more North-North networking behavior and less North-South and South-South collaborations then would appear at random. This could be stated as the following hypothesis:

HYPOTHESIS 2: INGOs differ in their propensity to interact or tie

[8] Worth mentioning, however, is the growing movement to facilitate South-South collaboration. One example of this would be the annual Southern NGO Caucus for Sustainable Development.

based on their permanent location. Organizations in the global North are more likely to tie with each other. Southern INGOs are less likely to tie with each other and less likely to tie with Northern INGOs.

Further, INGOs with connections to IGOs may have more of a chance to collaborate with each other. Through shared meetings and conferences, their collaboration is encouraged and they, perhaps, have more of an opportunity to connect with each other (Clark, Friedman and Hochstetler 1998; Kelly 2005; Wieczorek-Zeul 2005) Additionally, these INGOs, because of the increased status from their IGO consultative status, may be more desirable collaboration partners for even INGOs without consultative status (Dieng 2001). Finally, because of the capacity required to complete the regisration process required to get IGO consultative status, it is more likely that these INGOs also have greater capacity to collaborate and communicate with other INGOs generally. This line of reasoning implies:

HYPOTHESIS 3: INGOs with formal connections to IGOs will have a greater propensity to interact/tie to each other and a greater propensity to tie with INGOs without formal connections to IGOs.

Hypotheses 1-3 all relate heterogeneity in the INGO sector to differences in their propensity for networking or collaborative behavior. Hypotheses 4 and 5 address how the INGO network in general could be related to its overall ability to communicate and work effectively and the overall network structure.

Because INGOs with different issue-area focuses have varying reasons for collaboration and networking behavior, we contend that issue-area dynamics can create significant differences not only in an INGO's propensity to tie but also in their location and role within the overall INGO network structure. For example, advocacy INGOs, such as human rights or

environmental INGOs, as mentioned, might be more hierarchical, due to the need for collaboration for information transmission purposes (Keck and Sikkink 1998; Wong 2008; Lake and Wong 2009). In line with Cooley and Ron (2002), we might expect service INGOs to take a very informal network structure, with lots of disconnectedness. The literature seems to generally imply that issue-area INGOs should be unique in their overall network structure characteristics. This broad statement translates into the following general hypothesis:

HYPOTHESIS 4: Network characteristics vary for INGOs with different issue-area focuses.

One final issue-area dynamic desires attention: what about hybrids? How should their position within the overall network vary? Because hybrids effectively stand in multiple issue-area "camps," it follows that these organizations would likely serve as bridges between subsets of INGOs. This contention, though straightforward, is not readily discussed within the extant INGO literature, which has tended to either see all INGOs as homogeneous or leave out INGOs with hybrid goals. It can be restated as the following hypothesis:

HYPOTHESIS 5: INGOs that have mission statements that are "hybrids" of different issue areas serve as bridges between INGO groups.

If supported, Hypothesis 5 shows the powerful role hybrid INGOs have within the overall INGO network and would suggest that further focus on these hybrids is definitely necessary.

4 Data Analysis

4.1 Network Methodology

We use a variety of network methods to evaluate the 5 hypotheses outlined above. First, for Hypotheses 1-3, which all refer to how the characteristics of an INGO impacts its propensity to collaborate or tie, we use tests for two-group differences in tie density, as outlined in Hanneman and Riddle (2005). Much like a Pearson Chi-Square Test, this test examines whether the number of ties within and between two groups are different than would be expected at random. Because relational ties are not independent, statistical tests utilized here rely on bootstrapping and use random iterations (Cliff and Ord 1973; Borgatti, Everett and Freeman 2006). As a robustness check, we also use variable homophily blockmodels to test these hypotheses as well.

Data measuring the characteristics of INGOs was coded from the 2001 *Yearbook* (see description in section 2 above). We first recorded whether each organization was in the global North, which we defined as having a permanent office location in an Organization for Economic Co-operation and Development (OECD) country, or in the global South, defined as having no permanent office locations in an OECD country. As an alternative, we also recorded whether each organization reported having members in an OECD country or not. We also recorded the connections each organization reported to UN ECOSOC and the various World Bank components. These measures were all dichotomous, indicating the presence or absence of the connection.

For Hypothesis 4 and 5, we rely on measures of eigenvector centrality, closeness, betweeness (hierarchical reduction level), coreness, and cutpoints using conventions in the literature (Wasserman and Faust 1994; Hanneman and Riddle 2005). We then calculate the mean of these measures for each issue-area focus grouping of INGOs. To test Hypothesis 4-5, we use a one-way analysis of variance (ANOVA) method to test for differences between the means of these network measures between these groups. Standard errors are also calculated using

a random iteration process (Hanneman and Riddle 2005). Below, we briefly outline each of these measures of network characteristics.

First, eigenvector centrality captures actors that have connections to other actors central to the network (Hanneman and Riddle 2005). Closeness captures the position of an actor relative to all others in the network (Hanneman and Riddle 2005). Hierarchical reduction is based on betweeness centrality, looking at "actors in the middle" of the network that serve as a bridge in information transmission (Wasserman and Faust 1994:188).[9] This measure is useful at examining which INGOs are essential for information flow and INGOs that connect subgroups of the network.

The two remaining measures are useful in focusing on how the INGO network facilitates information transmission and coordination between INGOs and how this information transmission varies across issue-areas. These measures also help in understanding which actors can be "bridges" within the network (Wasserman and Faust 1994; Hanneman and Riddle 2005). First, continuous coreness captures the degree to which a certain actor is in the core instead of the periphery of the overall network. A higher coreness score would indicate that the actor is more likely in the core of the network (Borgatti and Everett 2000). If there is a large variance within coreness scores within a network, this would indicate a more stratified network. The final measure that is useful for understanding the importance of individual actors within the network is cutpoints. By cutpoints, we are referring to actors that "act as brokers among otherwise disconnected groups" (Hanneman and Riddle 2005:187). These actors can be thought of as bridges between otherwise disconnected groups of actors within a network. If these cutpoints were missing, information transmission through the network would be vulnerable to collapse.

[9] Through this approach, actors within a network are divided into different levels based on their betweeness centrality scores; a higher level indicates that the actor is more central to the hierarchy.

4.2 Analyzes and Results

Consistent with Hypotheses 1-3, we find that organizational characteristics of INGOs do impact their propensity to tie. This is consistent with the network literature on homophily; we find, in general, that organizations with similar characteristics are more likely to collaborate or tie to each other (Wasserman and Faust 1994; Hanneman and Riddle 2005). Below, we first lay out these findings, summarized in Table 3, before addressing Hypotheses 4-5.

Hypothesis 1 is supported for the issue-areas of human rights and sustainable development as well as for INGOs with hybrid issue-focuses, as shown in Table 2. As such, human rights INGOs, for example, have a greater propensity to tie to each other than exhibited at random (Hanneman and Riddle 2005). Reinforcing what was seen in Figure 4, there could be divisions within the environmental INGO network that is preventing the same homophily effect. Additionally, health INGOs do not tie to each other any different than expected at random. Further unpacking of the exact mission statements of INGOs within these issue areas could be interesting for examining why homophily effects are not observed for these INGOs.

As expected, our results indicate that hybrid INGOs are also more likely to tie to each other and to tie to INGOs across issue-areas. This is seen in the non-hybrid-hybrid grouping in Table 2. This result highlights the organizational need for hybrid INGOs to both work with other hybrid INGOs and to work with a wide variety of INGOs with multiple issue-focuses.

Permanent location also matters for an INGO's propensity to tie. Consistent with the expectations outlined in Hypothesis 2, INGOs based in the global North are more likely to tie to each other and less likely to tie to Southern INGOs. Southern INGOs tie to each other no differently than expected at random. As a robustness check, we also coded North-South divisions based on the existence of a member or volunteer in an OECD country (North) or not (South). These results are consistent; however, as shown in Table 2, INGOs without a member in an OECD country are less likely to collaborate with other INGOs with membership based solely in the global South. These findings highlight differences in capacity

of INGOs that could limit collaboration within the INGO network.

We also find support for Hypothesis 3: INGOs with formal connections to either the World Bank or ECOSOC have a greater propensity to tie with each other than expected at random. Also, as expected, these organizations have a greater propensity to tie to INGOs without formal connections to IGOs. This could indicate both a high capacity for networking amongst these INGOs and a higher desire for other INGOs to form collaboratives ties with them.

In short, these homophily results highlight the heterogeneity within the INGO network and the need for future empirical and theoretical research on divisions between INGOs and their impact on INGO networking behavior.

Additionally, as outlined in Hypothesis 4, we find variation in the network characteristics of INGOs with different issue-area focuses; the group means of network characteristics are not the same for INGOs with different issue-area focuses. These results are highlighted in Table 3.[10] As shown in the first column, the mean eigenvector centrality, which can be thought of as a measure of how importance your "friends" are in the network, varies for the different INGO groupings. The highest eigenvector centrality scores are found for both the human rights and the hybrid INGO groups. For hybrid INGOs, their multiple issue-area focuses may make them seek out key players across networks, raising this score. For human rights INGOs, their need to get information to INGOs with connections to the international media may increase their desire to tie to INGOs that are seen as important by others within the network.

Mean closeness scores, as outlined in the second column of Table 3, also vary within the issue-specific groupings. However, these measures, though distinct between INGO groupings, are all within the same general range. Hybrid INGOs are more closely linked, on average, to the overall INGO network than the other INGO issue-specific groups.

Hybrid INGOs are also more likely, as a group, to be the actors "in the middle" or "bridge"

[10]Results are also consistent if a t-test is used to examine the difference between hybrid and non-hybrid INGO groups.

of the overall INGO network. These results are consistent.with Hypothesis 5. This is shown in column 3 of Table 3, which displays the high group hierarchical reduction by betweeness measure for hybrid INGOs, and in column 4, which shows the high mean cutpoint scores for hybrid INGOs. Additionally, in both of these tests, the differences in means between the various groups is statistically significant. Hybrid INGOs, because of their multiple interests, serve to connect multiple subgroups of INGOs. Without hybrid INGO, the overall INGO network is at risk for separation (Hanneman and Riddle 2005).

5 Implications and Conclusions

INGO "networking" has been central to much of the theoretical literature related to the role of non-state actors in political and social change (Keck and Sikkink 1998; Risse, Ropp and Sikkink 1999; DeMars 2005). Many contend that the strength of INGOs is in their ability to coordinate quickly in order to get attention or services for a particular issue or region (Fisher 1998; DeMars 2005; Ahmed and Potter 2006). However, recent scholarship has also shown incentives within the INGO community for competition instead of coordination (Petras 1999; Cooley and Ron 2002). Also, interests and capabilities may limit the ability of INGOs to work cooperatively on a specific issue (Smith 2002, 2005; Mawdsley, Townsend and Porter 2005). In short, though networking is *supposed* to occur, evidence of uncoordination also exists.

Despite the prominent theoretical role networks have played in the extant literature on INGOs, little attention has been payed to the actual network itself. This paper advances the existing literature by actually examining the structure of the INGO network. Though this examination is largely descriptive, this description provides many insights into the efficiency, hierarchy, information transmission, and overall ability of the INGO network to collectively

Table 2: Tests for Two-Group Differences in Tie Density

Characteristic	Grouping	Expected	Observed	Difference	P >= Diff	P <= Diff
Purely Human Rights Focus	Non HR - Non HR	6995.056	7641.000	645.944	0.001**	0.999
	Non HR - HR	2497.427	1553.000	-944.427	0.999	0.001**
	HR - HR	222.516	521.000	298.484	0.001**	0.999
Purely Environmental Focus	Non Env - Non Env	5718.488	7388.000	1669.512	0.001**	0.999
	Env - Non Env	3470.601	1853.000	-1617.601	0.999	0.001**
	Env - Env	525.911	474.000	-51.911	0.787	0.218
Purely Sustainable Development Focus	Non Sus Dev - Non Sus Dev	9026.356	9274.000	247.644	0.002**	0.998
	Sus Dev - Non Sus Dev	676.067	399.000	-277.067	0.999	0.001**
	Sus Dev - Sus Dev	12.576	42.000	29.424	0.001**	0.999
Purely Health Focus	Non Health - Non Health	3648.127	6258.000	2609.873	0.001**	0.999
	Non Health - Health	4611.167	2058.000	-2553.167	0.999	0.001**
	Health - Health	1455.706	1399.000	-56.706	0.685	0.319
Hybrid Focus	Non Hybrid - Non Hybrid	6333.539	3180.000	-3153.539	0.999	0.001**
	Non Hybrid - Hybrid	3021.604	4375.000	1353.396	0.001**	0.999
	Hybrid - Hybrid	359.857	2160.000	1800.143	0.001**	0.999
UN ECOSOC Status	No ECOSOC - No ECOSOC	6612.500	3559.000	-3053.500	0.999	0.001**
	No ECOSOC - ECOSOC	2805.414	4169.000	1363.586	0.001**	0.999
	ECOSOC - ECOSOC	297.085	1987.000	1689.915	0.001**	0.999
World Bank Relationship	No WB - No WB	8775.695	7412.000	-1363.695	0.999	0.001**
	No WB - WB	915.541	1969.000	1053.459	0.001**	0.999
	WB - WB	23.763	334.000	310.237	0.001**	0.999
OECD Permanent Location (Global North)	South - South	496.389	474.000	-22.389	0.633	0.374
	South - North	3400.941	2022.000	-1378.941	0.999	0.001**
	North- North	5817.670	7219.000	1401.330	0.001**	0.999
OECD Membership (Global North)	South - South	1942.648	1152.000	-790.648	0.999	0.001**
	South - North	4804.504	3953.000	-851.504	0.999	0.001**
	North- North	2967.849	4610.000	1642.151	0.001**	0.999

*p <.05 ** p<.01‡ p<.10

Table 3: One-way Analysis of Variance (ANOVA) of Network Characteristics, with Permutation-Based Standard Errors

Measure	Eigenvector Centrality	Closeness	Betweeness (Hierarchical Reduction Level)	Continuous Coreness	Bi-component Cutpoint
Purely Human Rights Focus Group Mean [Min - Max]	1.064 [0-11.462]	0.055 [0.023-0.073]	2.934 [1-5]	.00680 [0-.0843]	.116 [0-1]
Purely Environmental Focus Group	0.338 [0-5.592]	0.051 [0.023-0.073]	2.640 [1-5]	.00145 [0-.0391]	.081 [0-1]
Purely Sustainable Development Focus Group Mean	0.486 [0-8.844]	0.053 [0.023-0.073]	2.683 [1-5]	.00184 [0-.0554]	.114 [0-1]
Purely Health Focus Group Mean	0.408 [0-12.781]	0.052 [0.023-0.073]	2.517 [1-5]	.00222 [0-.0699]	.100 [0-1]
Hybrid Group Mean	1.974 [0-43.528]	0.064 [0.023 - 0.073]	3.910 [1-5]	.0121 [0-.4482]	.221 [0-1]
F-Statistic (Degree Freedom)	119.921** (4)	48.5325** (4)	81.280** (4)	48.5135** (4)	13.4140 ** [4]

*p <.05 ** p<.01‡ p<.10

work for political and social change (Krackhardt 1994; Siegel 2009; Watts 2004*a*; Lazer and Friedman 2006).

In addition, this paper advances the INGO literature by highlighting key differences within the INGO community and outlining the role these differences can have in networking behavior. Importantly, organizational characteristics impact both network structure and the propensity to tie. There are structural differences between the human rights, sustainable development, health, and environmental networks. Additionally, issue-area focuses, permanent locations, and IGO connections affect an organization's propensity to tie. Future research should focus on how heterogeneity within the INGO community impacts coordination. Scholarship that divides out subcategories of issue-specific INGOs and looks at their network structure would be extremely valuable. Likewise, projects could highlight how network structure evolved over time within issue-area.

Finally, we draw attention to the existence of hybrid INGOs with multiple issue-area focuses. Though largely missing from the extant literature, these hybrids take a very important "bridge" role within the network. Their role in information transmission and their growth within the INGO sector definitely deserves a second look.

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