Networks, Terrorism, and Terrorist Networks

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This manuscript is adapted from a paper presented at the NCA Organizational Communication Preconference, New Orleans, November 20, 2002 Communication in Action: The Communicative Constitution of Organization and its Implications for Theory and Practice.

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ABSTRACT

In the last five years network theory and methods have undergone radical transformation. The purpose of this paper is to explicate the ways in which these new approaches enable organizational scholars to better understand one of the most pernicious forms of contemporary organizing- terrorist networks- and how an examination of terrorist networks informs our understanding of networks in general. Using specific examples from various types of terrorist groups across several temporal, cultural, and geographical boundaries, we illustrate how four major advances in the theoretical framing and methodological techniques of network analysis can provide scholars and practitioners with 1) new insights and greater understanding of terrorist organizing, 2) potential critiques of policy decisions, and 3) fruitful research paths for the future.

Networks, Terrorism, and Terrorist Networks

Just a few years ago, the network was what people tapped into at parties or business conventions or what they called upon if the market turned sour or they were in desperate need of a job. In the time since, a coterie of "network thinkers" have begun to extend the language of the network—"nodes,' and "hubs," and "links,"—to phenomena ranging from the workings of the world economy to the possible spread of a dangerous pathogen. *J.Gertner, Social Networks, The New York Times Magazine, December 14, 2003.*

The metaphor of the last century was the factory: the one of this century is the network…the metaphor may not explain quite as much as its proponents think, but students of everything from terrorist groups to environmental activists should take a look. *E.Cohen, Review of Linked: The New Science of Networks. Foreign Affairs, September/October, 2002*.

How will we fight and win this war? We will direct every resource at our command—every means of diplomacy, every tool of intelligence, every instrument of law enforcement, every financial influence, and every necessary weapon of war—to the disruption and to the defeat of the global terror network. *G. W. Bush, Address to Joint Session of Congress September 20, 2001.*

The closing years of the 20th century brought a burst of theory, research, analysis, and social commentary that established the network as the most important emergent organizational structure and the pre-eminent metaphor for sense making by academics and practitioners alike…The netization of the dialog about organizations is producing a new paradigm by which to make sense of the global world order. What does the future hold for theory, research, and analysis under the new network paradigm? *J. Fulk, Human Relations, 2001***.**

Notwithstanding the media's and the US President's "discovery" of network forms of organizing after September 11, 2001, "organizations as networks" has been a commonly-used organizational metaphor as well as an important method of organizational analyses for more than four decades. Organizational textbooks and communication audits have relied heavily on a network perspective (e.g. Farace, Monge, & Russell, 1977; Redding, 1972); typologies of organizational and interorganizational networks have long existed (e.g. Guetzkow, 1965; Perrucci & Pilisuk, 1970; Roberts & O'Reilly, 1978; Tichy, 1981), classic analyses of institutional and personal networks have linked public and private action (e.g., Bott, 1957; Fischer, 1977; Granovetter, 1985; Rogers & Kincaid, 1981) and seminal works in urban organizing and collective action have incorporated

networks and networking as critical organizational and civic activities (Laumann & Pappi, 1976; Lipnack and Stamps, 1986; Mitchell, 1979).

Even within the terrorism literature, the "organization as network" appeared as early as 1977 with the publication of Ovid Demaris's Brothers in Blood: the International Terrorist Network, followed by the publication of Claire Sterling's' (1981) widely cited (and often quite properly, excoriated) exposé The Terror Network.[1] These authors, along with others, such as Kupperman and Trent (1979), argued that terrorist groups had established worldwide liaisons and networks, securing cooperation among national and international terrorist organizations in the form of common financial and technical support.

So what has heralded the recent media hype and scientific attention or what Fulk (2002) describes above as "the new network paradigm"? First, beginning in the early 1990's academics identified networks as the quintessential organizational form of the post-industrial, information society (Castells, 1996; Monge & Fulk, 1999; Mulgan, 1991; C. Stohl, 1995). The turbulence, volatility, and uncertainty associated with globalization require organizational responsiveness, adaptation, and efficiency in communication systems that are not found in traditional hierarchical organizations but are made possible in global network forms (Monge, 1995). Across disciplines, most theories of globalization include a strong

[1] Ms. Sterling argued that there existed an international network of terrorists within whose center one found a Palestinian connection and a Russian patron, with, quite often, a Cuban cutout providing the shield for direct Russian participation. She argued that the Soviet Union had placed a loaded gun of the world table and benefited each time someone picked it up and used it. Secretary of State Alexander Haig and the Reagan administration went further and suggested that the Russians were behind it all. The administration was unable to convince its own intelligence agencies (or those of its allies) to support its view of the Soviet role and was not able to provide public evidence for the existence of such an actual network (Taubman, 1981:10; Pear, 1981:8; Miller, 1981:4). In one of the more celebrated instances of "blowback," William Casey, Director of the CIA, confronted his analysts when they refused to confirm that the Soviets were behind it all. "Read Claire Sterling's book and forget this mush. I paid $13.95 for this and it told me more than you bastards whom I pay $50,000 a year," Bob Woodward reports that Sterling had been leaked material as part of a CIA propaganda scheme.(see Woodward, Bob, Veil: The Secret Wars of the CIA, 1981-1987, Headline Press, 1987, pp. 125-127). Thus, while there is no doubt that there was Soviet support for the aims of many of the groups that were under suspicion, and that many members of those groups had passed through either the Soviet Union or one of its client states, there was also no clear network chart that distinguished the types of clear links, membership and type of network.

network component (e.g. Castells, 1986; Giddens, 1990; Held et al, 1999; Sassen, 2002). Second, a "new science of networks" has been developed within the biological and physical sciences (Barabasi, 2002; Buchanan, 2002; Watts, 1999). Exploring systems as diverse as the power grid for the Western United States, the neural connections of the C elegans worms, pulsations in near perfect unison of thousands of fireflies, and the architecture of the World Wide Web, these researchers uncovered an underlying mathematical dynamic of interconnectedness, a common architecture of shared deep structural properties that strongly influence who we are, how we think, how we make sense of the world, how we interpret messages, and how we organize, Third, a corpus of newly developed statistical tools, rooted in agent-based computational modeling and the p* statistical framework (Carley, Lee, and Krackhardt, 2002; Contractor et al., 2002; Crouch & Wasserman, 1998) enables researchers to take into account the non-independent, dynamic, and emergent nature of network data. Network data no longer need to be static representations of interaction that do not reflect actual communication activity (Bernard & Killworth, 1977). Fourth, the recent development of a multitheoretical, multilevel model of communication networks positions researchers to more fully explore the dynamics of network creation, maintenance, dissolution, and reconstitution across interactive strata (Monge & Contractor, 2003).

It is not surprising that until the mid 1990's network approaches did not stir great interest outside a relatively small circle of specialists across the social sciences. Network analysis was conceived by many communication scholars for example, as decentering communication, neither message- nor meaning- centered, embracing a linear, static, conduit view of communication process, and devoid of the rich communicative tapestry that comprises organizational life (Putnam & Pacanowsky, 1983). New approaches to the

study of networks, however, enable scholars to explore the dynamic nexus (i.e. the configurations, relationships, and elements of communication) of organizing and hence are able to capture the complexity that is inherent in all organizing processes.

The purpose of this paper is to explicate the ways in which these new approaches enable organizational scholars to better understand one of the most pernicious forms of contemporary organizing- terrorist networks- and how an examination of terrorist networks informs our understanding of networks in general. Most discussions and analyses of terrorist networks either use networks as a metaphor without any theoretical framework or are rooted in the problematic assumptions and methods that plagued network approaches through the mid 1990's. The few methodological exceptions (see special issue of *Connections, 2001)* are hypothetical analyses conducted by network researchers whose expertise lies in the statistical approaches rather than in substantive knowledge of terrorist organizing. But political terrorism needs to be "seen as a process of political communication and not simply a destructive or "simple" act of violence" (M. Stohl, 1988a, p. 4). To understand terrorist networks, we must take into account that networks are much more than "communication structures" or "information flow charts." They are a tapestry of agents, communicative relationships, histories, and a complex interwoven symbolic fabric. As the Director of the University of Virginia's Center for Risk Management of Engineering Systems argues

> To comprehensively assess the threats, and thus the corresponding risks, we must know the history, culture, mores, organization, decision-making processes, leadership and other forces that characterize and motivate enemy and terrorist networks (Haimes, 2002, p. 35).

Using specific examples from various types of terrorist groups across several temporal, cultural, and geographical boundaries, we illustrate how four major advances in the theoretical framing and methodological techniques of network analysis can provide

scholars and practitioners with 1) new insights and greater understanding of terrorist organizing, 2) potential critiques of policy decisions, and 3) fruitful research paths for the future. [2]

Theoretical developments

The atheoretical nature of prior network research can be seen in the earliest network studies (e.g., Bavelas, 1950; Leavitt 1951). Although these works, along with seminal articles such as Granovetter's 1973 article "The strength of weak ties" and Milgram's (1967) classic and brilliantly designed experiments testing the "small world hypotheses," are filled with logically compelling constructs and findings, there was no systematic attempt to link concepts such as liaison, bridge, centrality, or density into a coherent theory of social action. Furthermore, when researchers used theories that had relational and structural (hence network) components, they typically employed the theory without much attention to the network mechanisms contained within the theory (Monge & Contractor, 2003).

Monge and Contractor (2001, 2003) develop the Multi-Theoretical Multi-Level (MTML) model to address these concerns. They identify nine types of social theories which have implicit assumptions regarding the creation, maintenance, and dissolution of networks and then in careful detail trace the theoretical mechanisms embedded in each theory. Incorporating the generative mechanisms, i.e. the "network" rules they derived from each theory, they introduce the "complex adaptive systems perspective." Monge and Contractor (2001) suggest, "The theoretical mechanisms that generate most network organizations are exchange and dependency relations. Rather than being organized around market or hierarchical principles, network organizations are created out of

[2] The clandestine nature of terrorist networks, the diverse socio-cultural and historical contexts in which they have emerged, and the frightening and immediate power they wield clearly make these organizations quite different from other types of organizing we typically study. Nonetheless, we believe that terrorist organizing follows many of the same principles and processes scholars are uncovering in other human and natural systems and that their topology, structure, and ability to function are grounded in these principles.

complex webs of exchange and dependency relations among multiple organizations" (p. 463).

Extending their ideas to cooperative behaviors among clandestine political/terrorist organizations, state agents, criminals, legitimate corporations, banks, and the public produces insights into the emergence of terrorist networks which have heretofore been overlooked. For example, while it is not surprising that in the late 1970's the Brigate Rosse (BR) or Red Brigades in Italy would be sympathetic to the Palestine Liberation Organization's (PLO) political goals, traditional approaches do not explain the operational cooperation between the BR and the PLO. Indeed there has been no theoretical work which helps unpack these organizational communication activities. Yet what has came to light is an agreement reached in 1978-79 (although never fully carried out) that married the needs of the two organizations yet did not entail a "public" endorsement of each other's political objectives nor a continuing organizational connection beyond the operational agreement (see Karmon, 2001). Rather the two organizations agreed that

1. The PLO would deliver weapons to the BR.
2. BR members would be allowed to train in Palestinian camps in the Middle East.
3. The PLO would offer assistance to BR fugitives.
4. The BR would store weapons in Italy for use by the PLO.
5. The BR would participate in attacks against Israeli personalities in Italy.

Looking at the network dynamics of theories of collective action and exchange and dependency relationships explicated by Monge and Contractor (2003) makes these connections less surprising and more predictable. The derived network "rules" suggest that organizations make self-interested choices among alternative organizational linkages by attempting to minimize communication, information search, and decision making costs associated with finding sellers or acquiring suppliers. Additionally, Granovetter's 1985 theory of embeddedness suggests that organizational behavior and decisions occur

within existing communication structures and ongoing social relations. In this case, Morretti (member of Red Brigade) and Abu Iyyad (member of the PLO) were brought together by the French group Action Directe (Direct Action) who, on behalf of themselves and the Rote Armee Fraktion (Red Army Faction in Germany), were interested in establishing a militant anti-Israeli front amongst the Western European left wing terrorist groups. The leaders of these groups were not only known to each other but as early as 1969 members of the Red Army Faction had been training in Palestinian camps in Jordan. Thus the mutual interests and possibility of benefits from coordinated action were made concrete by the communicative linkages that were in existence prior to the agreement. The link generating mechanisms embedded in Monge and Contractor's MTML model provide the opportunity for terrorism scholars to test network hypotheses and understand in greater detail how communication-based rules constitute terrorist organizing.

Concomitant with the theoretical developments derived from the MTML, the surge of interest in networks from scientists in the natural and physical sciences has resulted in parallel conclusions. For example, similar to the generative mechanisms discussed in Monge and Contractor, these scholars posit "preferential attachment" as a law that governs network evolution (Buchanan, 2002). They discovered a ubiquitous "small world architecture" (first identified by Milgram, 1965 and then popularized in John Guare's play, Six Degrees of Separation and in pop culture as the Kevin Bacon game) in both naturally occurring and human made networks. Watts' finding, for example, of a "small world" network in which there were highly clustered segments and connectors linking hundreds of fireflies together, explained how thousands of fireflies

begin to pulse in near perfect unison. Watts found that connectors, or hubs, had a strong influence on the degrees of separation within the network and what the networks did and could not do. Even a tiny fraction of weak links— those long distance bridges-- had an enormous effect on the number of degrees of separation between nodes Through connection with a hub, the insects who were dispersed far distances across the network were able to manage synchronization "almost as readily as if everyone were talking to everyone else. By itself the small world architecture offered a reduction in the number of required links by a factor of thousands" (Buchanan, 2002, p. 59).

At about the same time, Barabasi and his colleagues (2002) looking at hypertext links on the World Wide Web also found the "small world architecture" and these networks adhered to "power laws." By mapping the links of the Web they found that the distribution of the links on various websites precisely follows a mathematical expression called a power law, making the networks scale free. Power laws are very different from bell shaped curves. A power law distribution of links in the network has critical mathematical properties with long term consequences. Unlike randomly developed networks the distribution does not have a peak, is characterized by a unique exponent-- the degree exponent, and the number of nodes k links follows a power law. Barabasi (2002) explains,

> if the heights of humans followed a power law most would be short with a few hundred foot people and at least one over 8,000 feet (p. 67)…The real importance of the power law, is that it reveals how, even in a historical process influenced by random chance, law like patterns can still emerge. For example, in terms of their self-similar nature, all river networks are the same. History and chance are fully compatible with the existence of law like order and pattern (p. 103).

The robustness of the laws governing the emergence of complex networks is the explanation for the ubiquity of the scale free topology. In Table 1 we identify the rules,

laws, and generative mechanisms derived from the recently developed "new science of networks" that have important implications for our understanding of terrorist networks (see Barabasi, 2002; Buchanan, 2002; Watts, 1999 for greater detail).

INSERT TABLE 1

TABLE 1: The New Science of Networks: Rules, laws, and generative mechanisms

a. Small world networks of all types fall somewhere between randomness and regular "latticed" networks, having a high degree of clustering (like regular networks) and shorter degrees of separation (like random networks)

b. Relatively minor changes in the connectivity of a network can have dramatic changes on the global structure of a network.

c. With their relatively small degree of separation between any two nodes, small world networks facilitate the efficient transmission of information or other resources without having to overload the network with too many redundant links.

d. Networks are governed by two laws: growth and preferential attachment. Preferential attachment suggests that linking is not random; certain links have qualities (e.g. popularity, more links than anyone else, and greater resources) that attract other links. Furthermore, real networks tend to grow one link at a time. The number of links never stabilizes or remains fixed.

e. More complex networks tend to fluctuate less and are more stable than simple networks. Networks which exhibit the small world architecture can have a significant fraction of nodes removed randomly without breaking apart. In a random network if the number of links removed reaches a critical point, the system abruptly breaks into isolated tiny unconnected islands. Even when 80% of nodes are randomly removed in scale free networks, the remaining 20% still hang together. This robustness, resilience to errors against failures, is a property not shared by random networks.

f. The source of topological robustness is the existence of the hubs, the few highly connected nodes that keep the scale free network together. Failures disproportionately affect small nodes. The accidental removal of a single hub will not be fatal since the continuous hierarchy of several large hubs will maintain the network's integrity.

g. Random networks, despite their redundancy, fall apart quite quickly in the face of an uncoordinated attack, whereas the small world architecture makes a network resilient against random failure or unsophisticated attack.

h. The very feature that "makes a small world network safe from random failure could be its Achilles heel in the face of an intelligent assault" (Buchanan, 2002, p. 132). Under coordinated attack, the random network has the advantage; a small world network is extremely vulnerable. "Disable a few of the hubs and a scale free network will fall to pieces" (Barabasi, 2002, p. 118).

i. Building redundancy into a network is not nearly enough; more subtle features of the architecture can have important effects.

Taken as a whole these theoretical connections between structure and network divisibility and robustness provide a rich lens for understanding not only how communication differentially constitutes terrorist organizing but possible avenues of network intervention and interpenetration. The history of events after September 11, 2001 illustrates that we do not yet fully understand the interplay between network robustness and vulnerability. Network organizations may be constituted by very different communicative relationships within and across cells (e.g. scale free or random) and these emergent structures have both pragmatic and policy implications. For example, Arquilla, Ronfeldt and Zanini (1999) caution

> It is important to avoid equating the bin Laden network solely with bin Laden. He represents a key node in the Arab Afghan terror network, but there should be no illusion about the likely effect on the network of actions taken to neutralize him. The network conducts many operations without his involvement, leadership, or financing – and will continue to be able to do so should he be killed or captured (p.63).

A careful analysis of the structures that emerge from the aggregated data of various sources (see Krebs, 2002 for an example) would clearly help us envision more realistically what might be the best solutions for network disruption. Carley, Lee and Krackhardt (2002), for example, utilize computational analysis to illustrate the value of simulated models which combine cognitively realistic agents, social network data, and theoretically-informed network rules to address the issue of network destabilization. Their results reveal that the removal of the "leader/central agent" in both hierarchical and distributed decentralized networks may have unanticipated effects. In a simulation of this emergent process they found that "visual inspection of the social network alone led to an incorrect prediction as to who would emerge as a new leader" (p. 87). Consistent with the work of Barabasi and Watts, the computational analysis showed that in a distributed

network the removal of the 'central agent" is not as likely to create a power vacuum because adding or dropping links is as likely to increase other nodes' power as to decrease it. Clearly this has important implications as the discussion of finding and killing bin Laden continues.

But the benefits of new network approaches go far beyond the determination of which critical links would create serious structural holes in a network. Connecting mathematical formulations, theoretically-derived constructs, and human action embedded in socio-cultural contexts provide a pathway for communication scholars to make important and unique contributions to the study of terrorist organizations. Consider ethnically-based political organizations such as Hamas, Hezbollah, and the Basque ETA. From a communicative network perspective these terrorist organizations enact a cell structure composed primarily of homophilous links (e.g. clan or ethnic group members). Although different from typical cell structures insofar as 1) connections with "outsiders" expose the organization to the threat of infiltration and arrest or death, 2) links must act with stealth and secrecy, and 3) in many, but not all locations the very organization/ network is illegal and must therefore be clandestine, these structures provide historic illustrations of the network principles found in Table 1. Constructed as typical cell organizations, growth and preferential attachment are turned inward. Conspirators do not form many new ties outside the network and often minimize the activation of existing ties inside the network. Strong ties, which remain mostly dormant and hidden, were frequently formed years ago in school and training camps, and keep the cell interconnected. Many such organizations also recruit their members only from a known and rather closed circle of potential participants, for example the family or clan and thus rely on kinship ties to provide trust (see Norton, 1988, p. 3). Indeed, Gunaratna (2002)

argues that since 1968, of all the guerrilla and terrorist groups that have emerged in the Middle East and Asia, only Al-Qaeda and Aum Shinrikyo (responsible for the Saran nerve gas attack on the Tokyo subway) have not been mono-ethnic and in the case of Al-Qaeda, the members still recruit from among their own families, friends and nationalities (Gunaratna, 2002). From a network perspective we would suggest they therefore combine the features of scale free and random networks.

> In the case of the Lebanese Shi'a fundamentalist group, Hizballah, …not only are all members from the same Shi'a Islamic confessional community, but the subgroups within Hizballah are often linked through close blood ties as well….Kinship is also a prominent factor in the composition of Amal, a faction of Hizballah led by Husayn al Musawi. Many of the members are from the Musawi clan (Lodge, 1990, p. 22).

In these terrorist organizations then, we would expect the communicative structuring mirrors the scale free, small world networks uncovered by Milgram, Watts, and Barabasi et al. They are "small worlds" with short degrees of separation and composed of strong ties with powerful hubs. Law enforcement and intelligence agencies have consistently indicated, and the historical record demonstrates, that these types of networks are very difficult to identify, even more difficult to penetrate, and almost impossible for intelligence operatives to join, but once identified each cell can more easily be monitored and destroyed ("rolled up" is the term used) than other types of communication structures. However, and this has oftentimes not been considered, consistent with other small world networks, the overall structure of the terrorist organization remains robust. The concomitant high degree of clustering and the shorter degrees of separation not only make for efficient transmission of information and other resources, but Barabasi and his colleagues show us they can have a significant number of

nodes removed without the network breaking apart. Thus the idea of random destruction of nodes makes little sense if the goal is to destroy the network.

Alternatively, other terrorist networks are not built upon relational homophily (family, friends, identity) but upon homophily of a particular value and "like-mindedness." These ideological or doctrinal movements (e.g., the German Red Army Faction [RAF], the various forms of militia organization in the United States-- such as the 112th Georgia Militia and Christian identity organizations, such as the 1980s Covenant, Sword and Arm of the Lord or the Aryan Nations) are much easier to penetrate and join than the precious networks. Growth and preferential attachment are oriented outwardly. For example, Snow (1999, pp. 125-126) notes terrorist organizations "such as the Viper Militia, the West Virginia Mountaineer Militia, the Blue Ridge Hunt Club, and Ray Lampley and the Tri-State Militia, were all successfully investigated by the police only because of governmental infiltrators and informers." However, when organizations are constituted by uniplex ideological links (as compared to the multiplex relational and ideological links) they can also thus be reproduced and replaced from a much larger pool of potential recruits. Their boundaries are more permeable. Insofar as the members are "ideologically connected" rather than "ideological/identity connected" they do not develop a small world structure and, as such, the random destruction of cells leaves these types of organization more vulnerable. As long as the conditions for the ideological position remain, however, new members continually join and though the entire organization may be in a difficult position to coordinate and carry out planned activity, individuals may act independently in accordance with the organizational mission.

There are significant policy implications embedded within this theoretical network understanding of terrorist organizing. Although open to much larger potential

recruiting bases, these uniplex networks also offer greater opportunity for addressing the fundamentals of the political issues underlying the conflict which has given rise to the choice of violence. As Ross and Gurr (1989) discuss there are four general kinds of conditions which can contribute to the decline of political terrorism: *preemption, deterrence, burnout, and backlash.* "*Preemption* and *deterrence* are counterterrorist policies and actions which can reduce or eliminate the terrorists' coercive capabilities. *Burnout* and *backlash* are general conditions which reduce the political capabilities of groups using terrorism" (p. 408).

Burnout refers to members' declining commitment to the group and its purposes, an effect more frequently seen and pronounced in ideological movements. As in all militant organizations, it is reinforced over time by the aging of members of the terrorist organization. The greatest numbers are recruited in their teens and twenties and begin departing in their thirties as they lose hope in "making a difference" and seek to "live their life (see Russell & Miller 1977, p. 18; Livingston, 1982, pp.43-45). In these networks, organizational members are far less likely to be embedded in an homophilous multiplex set of familial/kinship relations which socializes, reinforces and supports or even is aware of the terrorist organization. Therefore it is far more likely that discrepant messages, alternative interpretations, and diverse options will become visible and viable for the organizational member.

Backlash refers to actions that antagonize and alienate the terrorist organizations from the larger socio-political context in which they are embedded and interdependent. Accommodative political strategies initiated by governments as a response to terrorist threats or actions may serve to reduce the acquiescence of societies to the terrorists in their midst if the organizational leaders do not respond positively and/or accept the gains

offered by the authorities. Accommodative offers, as minimal as they may offer the hope of a continued presence in the political agenda. They force populations, who are not directly linked to the organization but whose support or acquiescence is vital to the organizations' survival, to consider whether continued adherence to the ultimate goals of the organization or continuing tolerance for the "right to exist" is worth the everyday effects of the continued presence of the terrorists. Such a rational calculus brought on by official governmental action is more likely to create backlash from the wider society undermining the political capabilities of doctrinal terrorist movements than those of clan or ethno-nationalist organizations. Within such a communicative context, it is easier for governmental actions to isolate the organization.

Thus, employing network theory, it is not surprising that the terrorist movements which have shown decline (and in many cases simply disappearance) over the past thirty years have been the ideologically based movements such as the Red Army Faction, Action Direct and Red Brigades of Germany, France and Italy respectively, while those which have shown the greatest resilience have been the ethno nationalist movements such as the ETA (Basque Fatherland and Liberty), the Sri Lankan based LTTE (Liberation Tigers of Tamil Eelam), the IRA, and the numerous Palestinian groups.

Emergence of multi-level dynamic approaches

Given the past methodological and statistical challenges of studying networks and the tendency for social scientists to do cross sectional rather than longitudinal research, the network literature has been filled with snapshots of organizational networks whose structure and roles were described in finite, static terms. The development, maintenance and dissolution of these dynamic communication systems were ignored. Moreover, by only concentrating on one level (interpersonal, group, organizational, interorganizational,

and community) at one time, emergent patterns, mutual dependencies, the permeability and reconfiguration of boundaries, and the communication activities that constitute the organization writ large were left unconsidered. This has presented network scholars with serious conceptual problems in terms of 1)understanding growth, change, and what Stohl & Holmes (1993) have called "the historic functions" of communication and 2) addressing the crosscutting memberships of organizational members in multiple social circles that weave together the social system.

Carley, Lee and Krackhardt (2002, p. 90) further note,

> Whether the topic is terrorism, the global economy, or the nature of the Internet, we are dealing with complex socio-technical systems that are large, multiplex, multimodal and adaptive. It is critical that we rise to this challenge and develop a new set of tools …to meet the challenge of understanding, predicting and explaining behaviour of multi-agent networks of this ilk…without such tools we will be theorizing in the dark.

By virtue of focusing on connectedness, network relations violate several assumptions of traditional parametric statistics including the assumption of independence of observations. Thus, it has been very difficult to make any sort of generalizable claims about network dynamics. But thanks to the work of Wasserman and Faust (1994), Snidjers (2001), Contractor et al, (2001) among others, there is a new array of tests and tools we can use for comparing networks and exploring networks over time. Monge and Contractor's MTML framework combined with p* analytic techniques and the statistical program SIENA provides us with the tools to address multiple levels over time and the capability to have multilevel hypothesis testing.

In the case of terrorist organizing this new ability for scholars to look at multiple levels over multiple time points and to explore how communication processes constitute and reconstitute the organization is crucial. As suggested above, networks of terror are embedded in

social structures and relations. Depending on the zone of their operations, they may cross national boundaries and therefore operate in many different social milieus and in very different ways. In some "environments", the members of the "network" may simply be "passing through" or "hiding out," while in other "environments", they may be seeking support. Ethno-nationalist based terrorist organizations well illustrate the necessity of looking across multiple levels of organizing. Hamas, Hezbollah, the IRA and the Basque ETA, for example, can only be understood if they are located as but one organizational part of a larger social movement which is represented by political parties, charitable organizations, neighborhood clinics, schools and other social service organizations. These organizations are further embedded within an ethno nationalist community which, at a minimum, acquiesces to the organization's existence because the community supports the organization's goals (even when the community decries the organization's methods) and at certain, relatively infrequent historical, moments also support the means as well. Regardless of how we judge their ends or means, without understanding that the IRA consists of more than the masked gunman, or Hamas of the suicide bomber, indeed without appreciating the communicative constitution of these organizations, one cannot "appreciate" their organizational potential.

In addition, these different organizing communication structures enable different members of the "network" to both behave and appear differently in different settings. Gerry Adams and other Sinn Fein members, acting in their positions as members of the Parliament of the United Kingdom or simply as members of the legal political party can travel to Boston and to other American Irish Communities and rally external support and political pressure upon the British and Ulster governments in a purely open manner. Other members of the "movement", operating within the illegal military, rather than the legal political wing travel clandestinely but find safe haven in various émigré communities or in nations which have chosen to quietly

support their efforts (for example, Libya in the early 1980s). Still others may sell their "services" and train other terrorist guerillas, etc. in the art of bomb making and other violent tactics (as appears to have been the case with the IRA members arrested in Columbia in August 2001 and charged with training the FARC, the Revolutionary Armed Forces of Colombia in the use of the explosive SEMTEX).

Further, various movements, illegal in their country of origin, find political safe havens in countries beyond the repressive regimes which the Bush administration often referred to as rogue states. These states either quietly or more openly support their political goals and activities for their own political purposes. Often less remarked upon is the fact that safe havens may also be found in open democratic societies which historically have been concerned only/and or primarily with illegal actions conducted within their own borders or against their own citizens. As a result, many groups have openly set up political organizations in London, Paris, Brussels, and Amsterdam, for example, and conducted their political business in full view. In addition, various western democratic governments, including notably the United States, have offered support to various groups that others considered terrorists when such organizations supported foreign policy objectives of the United States, or acquiesced to their presence within their boundaries because of domestic political constituencies (such as the concentrated Cuban American population in South Florida) and domestic political considerations, even in some cases when they carried out some of their activities on U.S. soil as was the case with the Cuban exile group Omega 7. [3]

[3] In early 2002, in an article revealing that George W. Bush had appointed Otto Reich, a prominent anti Castro Cuban, to be assistant secretary of state for western hemispheric affairs, some indications of United States continuing connections and attitudes toward Omega 7 were revealed. Reich, a former ambassador to Venezuela had, during his tour of duty, intervened on behalf of Orlando Bosch, a member of Omega 7, imprisoned for the bombing of a Cubana airliner in 1976 with 73 people on board. Bosch according to the justice department during the administration of George H.W. Bush had participated in more than 30 terrorist actions, including the bombing of a Polish merchant vessel in the Port of Miami that was bound for Cuba. Subsequent to that finding, Bosch was granted a pardon by George H.W. Bush in 1990 (see D. Campbell, 2002). For an analysis of U.S. and U.S.S. R. relations with terrorism and terrorists during the Cold War see M. Stohl, 1988).

Terrorists have of course also operated within weak states, and often in a far more open manner.[4] There are two seminal political events tied to the emergence of enduring networks of terror in the past quarter century. Both involve a protracted conflict, the destruction of a functioning state, and feature at least the acquiescence of and perhaps support of numerous other states in the region. Absent a communicative (as opposed to a merely political or cultural) understanding of both events it is impossible to understand the emergence and the continuity and robustness of many of the existing terrorist organizations. In particular, these events have engendered what Castell's (1996) describes as the "space of flows" in which stable forms of place, identity, and nation are replaced with flexible flows drawn across borders. In 1979, Giddens lamented that "most forms of social theory have failed to take seriously enough not only the temporality of social conduct but also its spatial attributes" (p. 201). The new network theory being developed enables us as researchers to explore the disembedding of social institutions and organizations as they have been lifted out of their local contexts and restructured across time and space, two critical components of today's terrorist landscape.

The two states that experienced the protracted conflict are Lebanon and Afghanistan and the two conflicts erupted in the 1970's. In Lebanon, the 1975-76 Civil

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[4] "Whereas some strong states -- primarily Iraq, Syria, and Iran -- still harbor, finance, and use terrorist groups, they also control them, as is the case with Hezbollah in Lebanon and the various Palestinian groups. In a few instances (Greek or Armenian support for the PKK), states secretly help terrorist groups but are neither interested in nor capable of influencing them. The most serious problem arises where deterrence through state sponsors does not work because the "host" governments are either nonexistent (political "black holes" like Somalia) or too weak to control their whole territory (viz., FARC's use of Panama and Ecuador, or Al-Qaeda's use of Yemen and Indonesia for training). Arafat's Palestinian Authority, while not a recognized state, operates like a weak one, harboring the externally supported Hamas and Islamic Jihad while unable and/or unwilling to control them." (Radu- Orbis, 2002. pp 281)

War and the subsequent destruction of a workable Lebanese state made Lebanon both a home and a battlefield for numerous groups with the goals of establishing a Palestinian state and/or the overthrow of conservative Arab regimes. Lebanon witnessed foreign incursions, full scale invasions and occupations during its 15-year civil war. Although that war ended in 1990, the Lebanese state remains quite weak and non-Lebanese forces still control much of the country. Thousands of Palestinian refugees, émigrés and potential supporters passed through Lebanon during this period and after the Israeli invasion of 1981-82, Hezbollah was formed and backed by Iran. Syria supports Hamas and Hezbollah and, according to the U.S. government, allowed both to operate in the Beka Valley of Lebanon which it controlled. The constant fighting and presence of Israeli forces within Lebanon for much of this period gave continual focus for recruitment. Just as importantly, the numerous political groups and terrorist organizations which used the opportunity of the weakness of the Lebanese state and its partial occupation by, at various times, Syrian, Israeli and Palestinian forces, also invited numerous members of other terrorist organizations and revolutionary groups to use their bases and training camps to build a network from which both political and operational support might develop.

The Soviet occupation of Afghanistan beginning in 1979 and the subsequent war against that occupation drew tens of thousands of Mujahedin volunteers from around the Islamic World. It also drew financial, logistic and operational support from the Arab states, the United States and many other western states. Enormous quantities of weapons and weapons training and other forms of support for increasing the war fighting capacity of the Mujahedin were transferred and Pakistan, with United States support, provided a safe haven for the anti-Soviet forces. The defeat of the Soviet forces and the subsequent

civil wars within Afghanistan and then the Gulf War led to a further mobilization of the forces unleashed against the Soviets. Osama bin Laden first reassembled his forces in the Sudan, yet another weak and failing state undergoing a protracted civil war, where he could operate with the indulgence and support of the Sudanese government. After Al Qaeda was implicated in a failed assassination attempt on Egypt's Mubarak significant Arab (as well as other government) pressure was placed on Sudan, and Bin Laden and his "brothers" were "invited" by the Sudanese to find a home elsewhere (see Gunaratna, 2002, pp. 29-39). He then returned to Afghanistan and formed an alliance between Al-Qaeda and the Taliban.

When the Mujahedin left Afghanistan (after 1989-90) many had returned to their home countries and joined or helped establish movements directed against their own regimes while others simply joined ongoing struggles in Chechnya, Bosnia, and Kosovo for example. As Shay and Schweitzer (2000) have described, today, the 'Afghan Alumni' operate in four capacities:

1. As leaders of the radical Islamic organizations in their countries of origin (Egypt, the Maghrib countries, Jordan, Saudi Arabia, etc.)
2. As founders of new terrorist organizations, such as Osama bin Laden's '*Al- Qa'idah*' ['The Vanguard'].
3. As the architects of 'independent' terrorist cells which, while lacking a specific organizational affiliation, cooperate with other institutionalized terrorist organizations.
4. As participants in the struggles of Islamic populations in places such as Bosnia, Kosovo, Chechnya, Tajikistan, and Kashmir.

Taken together, these events fostered the disembedding of local connections and the embedding of collective dangers and threats. The communicative foundations of many contemporary terrorist organizations were built upon the links forged decades ago in places far distant from "home." Steven Walt (2002, p. 62) has suggested,

> The September 11 attacks on the United States might never have occurred had these violent struggles been resolved. Thus, helping to settle protracted civil

> conflicts is not merely good for the world in general; it can also make the United States safer.

Thus, it is not simply the grievance created and encouraged by political decisions and interventions that leads to terrorist organization but the ramifications of unplanned "randomness" (unanticipated and certainly unintended) of bringing together so many potential recruits over an extended period. A similar historical process befell France in the 1950's as the Algerians recruited by the French to fight in Vietnam returned home after Dien Bien Phu and many became participants in the fight for Algerian independence. Recall Buchanan's (2002) conclusions "History and chance are fully compatible with the existence of law like order and pattern" (p.103). We are clearly not suggesting that all military interventions and the concomitant recruitment, training and deployment of young people lead to the emergence of new terrorist organizations in other contexts, but rather given similar contextual conditions the communicative foundation of terrorist organizing is laid.

The ability to specify boundary permeability

Boundary specification, permeability, and deliberation are essential aspects of organizational activity, including negotiations about membership, self-structuring, coordination of activities, and environmental/ institutional positioning (McPhee & Zaug, 2000). Yet, in traditional network analysis the constitution of boundaries was treated as relatively unproblematic even though the concern was raised more than twenty years ago.

> In view of the potential consequences of an incorrect specification of system boundaries in network analysis, it is somewhat surprising that the published literature reporting studies of social networks shows little concern for the problem of specifying the inclusion rules in defining the membership of actors in particular networks and in identifying the types of social relationships to be analyzed (Laumann, Marsden and Prensky, 1983, p. 19).

In many ways the lack of and misspecification of network boundaries has seriously compromised the contributions that a network approach has made in the terrorist arena. We are faced with conflicting descriptions of what, for example, is the al-Qaeda network, a definition which often appears dangerously based on political rather than analytic concerns. Clearly it will always be the case that when dealing with clandestine organizational networks the validity of the network data will be in question (even the most careful intelligence agencies and law enforcement officials around the world will have to make assumptions and draw connections from very incomplete and suspect data and journalists must often write their stories from material provided by government officials or from terrorists or sympathizers providing materials for their own purposes). As scholars, however, we must remain vigilant to the fact that the lack and/or inconsistent specification of inclusion rules into what are the boundaries of the organization can be far more intentional and political than inadvertent or inevitable. Even within more traditional organizations, the communicative construction of boundaries serves political as well as organizational and individual needs.

For example, in the early stages of trying to build a coalition to fight the war on terrorism, it appears that the U.S. government made the network as large as it could to justify the need for the efforts to combat it. Coalition and potential coalition members as well as governments who sought arms, training and other forms of military aid from the US also had incentives to describe a wide network. Thus, we saw President Bush's rather loose identification rules and unspecified linkage rules and the corresponding interest of enforcement agencies throughout the world (both because they were interested in "combating terrorism" and because by doing so they could obtain U.S. financial assistance and gratitude) to count anyone they sought and/or arrested as "members" of

Al-Qaeda. By early summer 2002 the pressure to demonstrate success brought incentives to limit the scale and scope of Al-Qaeda and to more carefully describe organizational connections. Thus there were attempts to more carefully distinguish between those who had passed through training camps from those who were actual members of Al-Qaeda.[5]

However, at the same time, reporters also noted that some of the same officials were indicating that the threat of terror itself had not diminished because a new organization or a new organizational form was emerging. "Officials emphasized that it was no longer possible simply to label all post-Sept. 11 plots as Al-Qaeda inspired, because the new terror alliance has largely replaced the old bin Laden network" (Johnston, Van Natta & Miller, 2002, p.1). Assuming that the administration was not simply engaging in Orwellian doublespeak when it both announced the elimination of much of the Al-Qaeda central command structure and support infrastructure and also indicated that it would no longer count all terror attacks as linked to Al-Qaeda, the obvious question is whether the new organization was indeed new or if the administration did not understand the nature of the network that it was confronting at each of the two points in time. Perhaps most disturbingly, Johnston, Van Natta, and Miller further

[5] For example, on June 16, 2002,Johnston, Van Natta and Miller, quoting "officials" from the FBI and CIA, reported that, "Although sworn members of Al-Qaeda were estimated to number no more than 200 to 300 men, officials say that at its peak this broader Qaeda network operated about a dozen Afghan camps that trained as many as 5000 militants, who in turn created cells in as many as 60 countries (2002,p.1). In addition, officials indicated that they recognized that there was a difference between Al-Qaeda as a network and acts of terror that had been perpetrated by other groups with similar targets and purposes "To some extent, Al-Qaeda itself was always something of a hybrid that staged not only highly structured, top-down attacks but also relied on affiliated -- or like-minded -- militant groups that concocted and financed their own schemes, with Al-Qaeda's blessing, to strike at American targets (Johnston, Van Natta and Miller,2002, p.1)." It is interesting to note that it is not specified how when groups concoct and finance (as well as presumably carry out their own schemes) they either communicate their schemes or receive blessing from Al-Qaeda.

reported that , "classified investigations of the Al-Qaeda threat now under way at the F.B.I. and C.I.A. have concluded that the war in Afghanistan failed to diminish the threat to the United States. Some analysts suggest that the war might have complicated counterterrorism efforts by dispersing potential attackers across a wider geographic area. (p.1)"

As we consider the ways in which organizational boundaries are socially constructed through communication, the misspecification of network boundaries is even more troublesome. Not only will such misspecification facilitate the misinterpretation of messages and acts generated by the supposed links of the organization, but the interventions chosen to combat the networked organization can be seriously misguided. After September 11, for example, the U.S. government put pressure on numerous governments to connect terrorists acting within their borders to the global terror network. There were carrots (lots of U.S. money) and sticks (threats to withhold financial aid). China, for example, lobbied for ten months to have the East Turkestan Islamic Movement, known as the ETIM added to the US list of terrorist organizations linked to Osama Bin Laden's global terror network.

> "Washington had not been receptive to the claim, emphasizing instead respect for human rights and religious freedom in China's western region of Xinjiang, where the Muslim Uighur minority chafes under Beijing's harsh rule. However, just two months before a scheduled summit between President Bush and China's Jiang Zemin, Washington shifted its stance on the Islamic group. Meanwhile China announced new restrictions on the export of missile technology, a move long awaited by Washington." (Eckholm, E. *The New York Times,* Aug. 26, 2002, p.3)

This boundary specification not only directly influences the global stance toward this group but it may have lasting effect on the present and future of Muslims residing in western China.

Perhaps the most glaring example of the importance of boundary specification is President Bush's justification for the Iraqi war. Throughout September 2002 administration officials repeatedly made reference to Iraqi involvement in the Al-Qaeda organization. Their assertions are widely disputed. Daniel Benjamin (2002) points out

> Throughout the 1990's the understanding of American intelligence has been that like other Middle Eastern rulers, Saddam Hussein has long recognized that al-Qaeda and like-minded Islamists represent a threat to his regime. Consequently, he has shown no interest in working with them against their common enemy, the United States… In 1998, the National Security Council assigned staff to determine whether that conclusion was justified. After reviewing all the available intelligence that could have pointed to a connection between al-Qaeda and Iraq, the group found no evidence of a noteworthy relationship. (p. A25) [6]

It is not only in the context of the political needs of the Bush Administration in generating support for its "War on Terror" that this is a problem. The tendency to make everything connected to everything else is extremely problematic for both theoretical and practical reasons. Paradoxically, this tendency is derived from a process oriented approach of communication in which membership, boundaries, and connectedness are open-ended and not delimited apriori. The basic requisites of organization-- coordination, control, membership integration and institutional interdependence-- represent communication processes that may be conceptualized as descriptors of virtually all links within the organization's milieu.

Further, boundaries are neither objective nor completely defined by goals, tasks, physical location, or presence of group members. Boundaries are equivocal, emergent, and blurred; enacted as members connect with their social context, construct their multiple roles and identities, and live out their histories (Putnam and Stohl, 1990).

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[6] And in scenes reminiscent of the Soviet Network of terror and the disagreements between the CIA and the Reagan administration discussed earlier in note 1, CIA Director Tenet, in testimony to Congress during the debate on the resolution to give President Bush the authority to use military force against Iraq, disputed the existence of the Iraqi-Al Qaida connection.

Internal and external group processes shape the negotiation of boundaries, particularly on such issues as representation, fluctuating and variable membership, networks of relationships, and roles in the intergroup system. Monge and Fulk's (1999) definition of global organizations as a newly emerging organizational form that transcends national boundaries and readily adapts to the volatile environment illustrates the dilemma. Global network organizations, they suggest, are 1) built on flexible emergent communication networks, rather than traditional hierarchies, 2) develop highly flexible linkages which connect them to a changing, dynamic network of other organizations, transcending their local country-bound networks, and 3) contain a highly sophisticated information technology structure that supports flexible emergent systems of communication. In their view the global organization reflects communication relationships that transcend organizational levels and boundaries and "flexibility implies that these relationships wax and wane." (p. 71). Moreover, according to McPhee and Poole (2001, p. 517) "the networked organization refers not to a single formal organization but to a more or less formal relationship among several different organizations."

Thus, we cannot determine a priori which links are part of or apart from an organization as we did in earlier conceptualizations of organizational networks where there was the assumption that relevant linkages could be found in some predetermined formalized or material context. Paradoxically, as suggested above, this realization can result in the enlargement and exaggeration of organizations' roles and their interest in and capacity to work together for common goals. Michael Wolff (2002) writes in New York Magazine, when describing many of the recent descriptions of the terrorist network

> What's wrong with this picture?... For one thing, everything fits. If connecting the dots was a problem before 9/11, now everything is part of a carefully drawn schematic. All elements are easily, almost lovingly, incorporated into the story,

even the oddest elements -- Jose Padilla, the gangbanger turned Islamic revolutionary, being among the oddest.

Our research must be able to distinguish between an organization and a movement of which it may be part. We must be able to recognize that different organizations may share some particular bits of useful information-- arms, arms merchants, travel documents, transit routes, etc. -- but are not therefore one and the same. We suggest that the solution to our dilemma lies in our ability to explore through network analysis the constitutive features of organizational communication in terms of coordination, control, and membership integration – the collaborative interface which results in a systemic structure that is meaningful and recognizable. For our approach to work we need to be able to distinguish between the ability "to network," (i.e., the structural capacity to activate the ubiquitous six degrees of separation) from the ability to mobilize, control, and coordinate members for specific planned acts. Connections do not equal coordination, temporary exchange relationships do not equal control and identification of an agreed enemy does not equal the emergence of an organization.[7]

So the question arises, how do we prevent the network metaphor from becoming the catchall for everything is connected to everything and that organizations flow into one another and have no identity in an of themselves? How do we decide if groups like Al-Qaeda and the groups presumed to be either associated or part are a networked

[7] The existence of multiple organizations in the Middle East that both oppose Israel and identify the U.S. as the key supporter of Israel mean that a potential base for networking of like minded people and organizations exist, but it does not imply organization. The chaos in Lebanon, the safe havens made possible by Syria and the ability of many to travel to Europe provide opportunities for communication. But because many of the goals of the organizations differ, e.g. secular Palestinian statehood, a fundamentalist Palestinian state, the overthrow of all secular states in the Middle East, etc. moving beyond occasional cooperation is very unlikely and we must be careful not to equate cooperation with organization.

organization a network of organizations or simply a set of organizations that appear to have similar aims and goals and why does it matter?

First, we suggest the conflating of these two types of organizing may create logical paradoxes that will doom us to failure.

> …We've built a major black-is-white logic reversal into the very nature of the threat: Although we've killed countless members of the enemy group, including much of its leadership, disrupted its infrastructure, captured reams of intelligence on its activities, it's suddenly stronger than ever before. Likewise, we ascribe substantial organizational talents to what we also describe as uniquely disorganized. This new group has become, the *Times* story implies, a threat not least of all because it is less a group than the former group, which itself was notable for its loose-knitness (although, in comparison with the new group, the former group was apparently a model of central governance). By the logic we are applying to Al Qaeda and its offspring, we can never prevail. Whatever we do to thwart the enemy just makes it stronger. We are always, because of our size and power and resources, necessarily weaker (Wolff, 2002).

Such "hyper connectivity" reinforces our fears and our sense of threat to our security, both states of mind which are not conducive to reasoned and rational action.

Second, without a clear understanding of what constitutes an organization we will make choices regarding possible interventions that may not fit or may even exacerbate the situation, i.e. they might have nothing to do with the problem we are confronting or worse will increase the likelihood of future cooperation where none previously existed. Decisions to assist the Philippine and Georgian governments in their efforts to counter indigenous groups by training the local armed forces or to participate in sweeps against local militants (as we have done in a few places in Pakistan, see Frantz, 2002 for greater detail), or to take some other course of action, are dependent upon how we define the situation and the organization with which we are dealing. In short, if we believe that each of the groups is a constituent unit of Al-Qaeda, action against them may make operational sense. If they are not part of Al-Qaeda at best the actions divert valuable resources from

the efforts against Al-Qaeda. Further, such actions may inadvertently provide "ammunition" to those groups, by uniting them. One of the "security" arguments against a war with Iraq, we may recall, was that such a war would likely trigger attacks from like minded groups who are not coordinated nor controlled by Al-Qaeda, but would use the opportunity to mobilize populations against the United States for their own organizational purposes (an outcome which appears in some parts of the world to have occurred).

As troublesome as the lack of boundary identification is, recognizing the dilemma means that we accept that the uncertainty and necessary flexibility of boundary specification (as compared to the misspecification) is an inherent part of any conception of organization as communicatively constituted. Indeed, it has long been acknowledged that one of the greatest difficulties in understanding terrorist organizing within the context of long standing ethno nationalist movements such as that which has occurred in Northern Ireland and the Basque Region of Spain is identifying the boundaries among the various organizations and the individual memberships in those organizations which comprise the movement. But, if we acknowledge the communicative construction and permeability of organizational boundaries what has been a point of contention and confusion becomes a useful map by which to understand the constitutive features of the organization. The negotiation of boundaries and membership criteria are ubiquitous and on-going instantiations of organizing.

Specifically, within the political arena actors maintain organizational fictions to determine boundaries and memberships and individual actors move between and among the organizations as dictated by external contingencies and political necessity. With respect to the IRA (an illegal and designated terrorist organization) and Sinn Fein, a legal political party with seats in the British Parliament, the British government and much of

the Catholic population publicly maintains that they are two distinct organizations. Gerry Adams, the leader of the Sinn Fein, represents himself and is publicly accepted by the government as apart from, not a part of, the IRA. However, when the British government needs the IRA to act in a particular manner, it "tasks" Gerry Adams to make sure it occurs, holding Sinn Fein responsible for IRA compliance. During the period in which the fiction of separation was acceded to by all parties (including the Ulster unionists headed by David Trimble, who heretofore had publicly and privately denied the separation), a new boundary was further created as the "Real IRA" separated from the Provisional IRA (it itself split from the official IRA nearly 25 years earlier) and new boundaries among the groups were constructed both internally and externally. The walkout by the Ulster Unionists from the current government last year, occurred because they no longer (officially) were willing to accept the shifting identities assigned for political purposes to Mr. Adams or Sinn Fein.

By centering on the moments of transition when a group's boundaries are forming or being changed, a network approach can enable researchers to orient their investigations to the dynamic and evolving nature of permeable boundaries of terrorist organizing; through focusing on the points of connection and overlapping group links, researchers can capture interactions aimed at negotiating jurisdiction, coordination, and interdependence.

Mediation of structural determinism

From its earliest roots in small group studies (Bavelas, 1950; Leavitt, 1951) network scholarship maintained a degree of structural determinism which initially limited its contribution to understanding organizational communication processes. Networks were seen as given, the structures (such as wheel, chain, Y, all channel) were

predetermined and functioned merely as channels where messages could be exchanged. Little attention was given to the actual messages exchanged; content, affect, and context were ignored. The optimum pattern of communication was hypothesized to derive from requirements independently of the task itself and not from any thing external to it.

With the interpretive and process turns in organizational studies, the focus on network studies moved from a preoccupation with static positions to highlighting the emergence and evolution of networks (Eisenberg & Monge, 1987). No longer were roles were seen as static structures that people occupied in an already over determined network structure. The argument was persuasively made that these "relatively stable and enduring" positional networks, formal or prescribed (Eisenberg & Monge, 1987, p. 305) reflected only a limited sampling of organizational activities. "A prescribed organizational network provides pegs from which emergent networks hang" (Tichy, 1981, p.227). Moreover, the focus of network studies moved to exploring different types of linkages within the social system (semantic, occupational, etc.) and more complex constructs were developed such as structural equivalence and structural holes (Burt, 1992).

Within the terrorism literature, however, most network discussions are still rooted in structural determinism. For example, the best known terrorism network papers are those of Arquilla et al. (1993, 1999, 2001) at the Rand Corporation. They argue that

> the information revolution is favoring and strengthening network forms of organization, often giving them an advantage over hierarchical forms (p.45)… Whoever masters the network form first and best will gain major advantages (p.55).

Their underlying assumption is that network structure determines action. They identify the chain, star or hub network, and the all channel network as the three basic

types. They suggest that clandestine networks generally have adopted either a chain or hub approach to protect the integrity of the network and the particularly the leader or core. A chain approach is a line of separated contacts or cells in which it is necessary to go through the chain to get from one end to the other whereas a hub approach is where a set of cells (or chains) are tied to a central node and must go through the central node to get to anywhere else in the organization (see Arquilla, Ronfeldt & Zanini, 1999, pp. 48-52). Many hub networks are independent chains connected to the hub. They suggest that classic underground smuggling rings (of people or things) adopt chain networks, classic intelligence operations use variants of hub networks.

Arquilla et al. attribute the greater activity of the new terrorists to new forms of organization and these new forms to the greater adoption of newer forms of information technology (see Arquilla, Ronfeldt & Zanini, pp. 57-67). They posit that "a positive correlation is emerging between the degree of activity of a group and the degree to which it adopts a networked structure." New communication/information technologies are seen to be the fundamental driving force in these new types of organizations. They argue that expanding IT and the network structure makes the all –channel network most difficult to combat. They combine the new reliance on networks and information technology to describe an approach to conflict they define as "netwar."

> To be more precise [sic], *netwar* refers to an emerging mode of conflict and crime at societal levels, involving measures short of traditional war, in which the protagonists use network forms of organization and related doctrines, strategies, and technologies attuned to the information age." (Arquilla, Ronfeldt & Zanini, 1999, p. 47).

The netwar concept, they posit, is consistent with patterns and trends in the Middle East, where the newer and more active terrorist groups appear to be adopting decentralized, flexible network structures (Arquilla, Ronfeldt & Zanini, 1999, p. 57).

While we understand the wish to emphasize that networked forms of organizing provide strengths over that of traditional organizational forms, it is a long leap to then suggest that all who to try to use new forms of organizing to meet their organizational goals are engaged in netwar and that all forms of organizing which challenge the existing status quo are the same. Terrorist organizations, criminal organizations, and non violent social movement organizations which employ the latest network structures and information technology are lumped together as the same type of organizations--violent revolution and social change are equated and, despite the caveats expressed, by implication condemned. Interestingly, for profit organizations such as advertising agencies and entertainment groups which employ the same structures are not included as examples whereas they suggest that for

> a seminal case of a worldwide netwar, one need look no further than the ICBL [The International Campaign to Ban Landmines]. This unusually successful movement consists of a loosely internetted array of NGOs and governments which rely heavily on the Internet for communications (Arquilla & Ronfeldt, 2001, p. 5).

Further, nowhere do Arquilla et al. discuss the particular differences in goals of the contrasted groups within the Middle East and elsewhere, nor do they recognize the different historical moments in which each of these organizations is operating. They argue that the distributed network organization is useful to prevent detection and for destructive purposes, but ignore the fact that it is not necessarily useful for negotiation of political processes because there is no "leadership' clearly identified in this structure.

Indeed, throughout their discussion, they are intent on the structural capabilities of networks but seem to forget that we are talking about organizations in action. As we have suggested throughout, for network analysis to help us truly understand organizational

behavior, it is critical to recognize the communicative relationship among the types of goals, behaviors and organizational needs and structures that these very different terrorist groups have adopted.[8] Fountain, (2001, p. 12) in her examination of the impact of

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[8] Perhaps the most important of these is the nature of their goals and therefore the purpose of the violence they employ. For example, the IRA, the PLO (and the old line groups of which it is mainly composed), the ETA have had as their goal specific political concessions from the states with whom they have been locked in struggle. They have not sought to destroy their adversaries but to inflict enough damage to force them to bargain with them and grant concessions.

The IRA sought, for much of its history to reunite Ireland. It used violence as a tool of intimidation and as a "bargaining" device to force the British government and the Protestant establishment within the North to discuss the political status of Northern Ireland. Since the Good Friday accords (1998) it has engaged in a truce and foresworn terrorist actions. Likewise, officially the PLO and Yasir Arafat's own Fatah organization engaged in much of the half decade prior to Arquilla et al's work in a political process to establish a Palestinian state and an interim Palestinian authority during which it was necessary to curtail violence. Their previous violence had achieved the purpose of serious political bargaining. Hezbollah, a Shi'a based organization with much support from Iran (and operational assistance from Syria) which had introduced suicide bombings to the Middle East and which prior to September 11, 2001 had been responsible for killing more Americans than any other organization, had first struck Americans in Beirut at the Marine Barracks (October 23, 1983) in an attempt (which was successful) to drive the United States (and France, whose peacekeepers were also bombed at almost the exact same time on October 23, 1983) out of Lebanon. Thereafter, for the most part, Hezbollah engaged in a war against the Israeli occupation of portions of Lebanon (which did not end until 2000). Its goals are to establish an Islamic state in Lebanon and to liberate all occupied Arab lands including Jerusalem. While it has engaged in actions that have been far more deadly than Fatah or the IRA, it also uses its terrorism in a coercive bargaining approach. In addition, during the period of negotiation between PLO and Israel very different goals have been pursued by Fatah under Arafat and Hezbollah (and Hamas) which reject the political strategy and, in fact, have not only targeted Israel but have engaged in a struggle against Arafat as well for pursuing an agreement (however poorly or fitfully that is judged from within Israel or elsewhere). This is not noted by Arquilla et al.

These groups are all very different from Al Qaeda, whose "main mission is the overthrow of the godless regimes and their replacement with an Islamic regime" in that their political programs are confined to "Greater Palestine," or Lebanon and Palestine. However, for Al Qaeda to achieve its goals it is necessary for the populations of the Muslim states to rise up against their regimes and thus they may make common cause with groups such as Hamas and Hezbollah. We may therefore conclude that in part attacking the United States (both within our borders and around the world) demonstrates that Al Qaeda can inflict great pain on the U.S. and destroy the veneer of invincibility of the world's sole remaining superpower. Al Qaeda's goals are thus more global than local and that combined with the belief that the United States is the hub of evil in the world allows and justifies the targeting and killing of large numbers. Al Qaeda is thus in a war against the United States and its allies in the Middle East (all of the "conservative" Arab regimes (e.g. Egypt, Jordan, Saudi Arabia, the Gulf States). It is a war in which there is no clear bargaining point and thus hierarchy and control of the various cells are not necessary. In that they can afford to be structured as suggested by the Christian identity theorist Lewis Beam as "leaderless resistance," wherein it is unnecessary to coordinate or even communicate with those who would attack as they "know what they have to do." Arafat or Gerry Adams as heads of political organizations engaged in political bargaining with their adversaries can no longer afford to not control the activities of their followers and thus require hierarchy and command structures to further their goals.

information technology on organization within governmental structures, eloquently refutes the structural determinism embedded in the Rand researchers' work,

> New information technologies are enacted-- made sense of, designed, and used (when they are used) -- through the mediation of existing organizational and institutional arrangements with their own internal logics or tendencies. These multiple logics are embedded in operating routines, performance programs, bureaucratic politics, norms, cultural beliefs and social networks.

By linking organizations as networks with a focus on the communicative constitution of organization we will be better able to understand the role of information technology.

CONCLUSION

John Naisbitt (1990) certainly was prescient when he suggested the shift from hierarchy to networks as one of the ten megatrends shaping the future. Since that time, network has emerged as 1) a popular descriptor for many forms of social organizing both benign and malignant, 2) a verb designating strategic and well positioned communication, and 3) the focus of a great deal of theoretical and empirical research in the physical and biological sciences, engineering, and social science. As the unfolding of the discourse after September 11, 2001 clearly demonstrates networks are no longer conceived as residing within traditional bureaucratic organizations but rather as representing "organization" writ large. We have suggested throughout this essay that these forms of organizing require new theoretical approaches and methods rooted in the constitutive communicative features of organizing.

As suggested in the text above, the distributed network organization is useful to prevent detection and operates well when all goals are previously declared but it is not necessarily useful for negotiation of political processes because there is no "leadership."

Whether terrorist networks will conform to the principles and processes that their topology and structure suggest remains to be seen. As social scientists we are somewhat skeptical of the first part of Buchanan's (2003) claim, but in complete agreement with the second. The more we can understand network forms of organizing, the richer our analyses will become.

> In reality, terrorist networks obey the rigid laws that determine their typology, structure and therefore their ability to function. They exploit all the advantages of self organized networks, including flexibility and tolerance to internal failures. Unfamiliarity with this new order and a lack of language for formularizing our experience are perhaps our most deadly enemies (Buchanan, 2002, p. 223).

Furthermore, there is no reason to believe that terrorist organizations will not capitalize on the advantages of self organized networks. As Barabasi (2002, p. 225) writes,

> The goal before us is to understand complexity. To achieve that we must move beyond structure and topology and start focusing on the dynamics that take place along the links. Networks are only the skeleton of complexity, the highways for the various processes that make our world hum.

Clearly, just understanding the communicative composition, emergence and persistent enactment of terrorist networks will not solve the problems facing us today. The United States along with many other countries, the United Nations, and additional governmental and non governmental associations throughout the world must join together and act cooperatively to alter the very conditions that give rise to the desperation that has emboldened terrorist organizing and deter and protect against future attacks. We also strongly believe, however, that a better understanding of the communicative foundations of organizing, along with careful and detailed examination and consideration of the multidimensional causes that arise in different contexts throughout the world will enable us to mobilize individuals, groups, publics, and nation states in ways that will be better

grounded, humane, and more efficacious in both the short and long term than our efforts have been thus far. Undoubtedly, understanding the emergence, maintenance and dissolution of terrorist networks will also provide insights into less destructive and more constructive types of organizing.

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