# MOBILIZING IN BLACK BOXES: SOCIAL NETWORKS AND PARTICIPATION IN SOCIAL MOVEMENT ORGANIZATIONS*

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*Recent research has focused on the role of social networks in facilitating participation in protest and social movement organizations. This paper elaborates three currents of microstructural explanation, based on information, identity, and exchange. In assessing these perspectives, it compares their treatment of multivalence, the tendency for social ties to inhibit as well as promote participation. Considering two dimensions of multivalence—the value of the social tie and the direction of social pressure—this paper discusses problems of measurement and interpretation in network analysis of movement participation. A critical review suggests some directions for future research.*

In focusing on purposive action in organizations, resource mobilization theory (McCarthy and Zald 1977) invited decades of research on the role of social networks in shaping protest and social movement participation. Supplanting earlier collective behavior theories (Turner and Killian 1957), which explained insurgency as a result of idiosyncrasies or psychological drives, microstructuralists argue that the "pull" to activism through social networks (McAdam 1986: 65) may be more crucial to explaining participation than the "push" of attitudes, dispositions, or grievances. Most studies of social movement organizations now recognize that the structure of social interaction, including networks of friendship, family, and shared organizational memberships, may be important channels for movement participation.

Indeed, the social network has proven to be an attractive concept across various domains of social movement theory. Qualitative research using case studies of movement campaigns (Cable 1993; Loveman 1998; Mueller 1997) or revolutionary mobilization (Goodwin 1997; Pfaff 1996) has often depicted the social network as a workshop where grievances, identities, and strategies of resistance are constructed. Meanwhile, recent work in formal theory (Chwe 1999; Gould 1993; Oliver 1993) has focused on network structure as a key to explaining collective action among rational actors. Structural models have largely replaced the masses of atomized agents in Mancur Olson's (1965) *Logic of Collective Action*. While the idea of the social network has been so important to recent theory, the application of network analysis tools to empirical problems of mobilization has been mostly exploratory. Scholars have assessed various effects of social ties on participation while either leaving the underlying causal mechanisms as unspecified "black boxes" or inferring those mechanisms from observations. They have measured the effect of presence of social ties (Snow, Zurcher, and Ekland-Olson 1980), the number of ties (Oliver 1984), and more recently the effect of tie strength (Kriesi 1988; McAdam 1986), or actor centrality on participation (Fernandez and McAdam 1988, 1989)

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Numerous case studies of movement organizations or protest campaigns have demonstrated significant effects of these microstructural variables on participation but no effect could be consistently replicated across movements and contexts. Unfortunately, the lack of strong theory leaves us without guidance for integrating divergent findings and for planning further research.

While movement scholars have generally argued that social ties facilitate participation, no one has identified any intrinsic property of social ties that unequivocally promotes protest, collective action, or organizational participation. As networks may presumably channel disengagement as well as recruitment, there is no guarantee that a tie will increase participation in any given group. Indeed, while offering evidence for the importance of preexisting social ties in recruitment, Snow et al. (1980) find that ties to extramovement social networks tend to reduce individuals' structural availability and can thus inhibit participation. The same breadth of informal ties or organizational affiliations that exposes individuals to recruitment may also limit their ability to participate, due to time and resource constraints.

Scholars have sought to account for inconsistent structural effects by introducing moderating variables at either end of the black box. For example, they have differentiated high-cost / high-risk activism from low-cost / low-risk activism (McAdam 1986; Wiltfang and McAdam 1991), distinguished movement diffusion from recruitment (Erickson-Nepstad and Smith 1999), and described multiple "recruitment contexts" (Fernandez and McAdam 1988) where different properties of ties ostensibly promote activism. However, these post hoc accounts do not clearly predict when we can expect network effects to be positive, negative, or unimportant.

Movement theorists recently discussed this ambiguity as a problem of "multiple embeddings" or "multiple ties" (McAdam and Paulsen 1993: 650-2). Of course, modeling multiple ties may be relatively straightforward if their effect is linear and unconditionally positive. However, if social contacts have *multivalent* effects, where some enhance and others diminish participation, these multiple embeddings may confound a summative model of network mobilization. I will discuss two independent factors that may underlie the fickle relationship of social ties to activism. First, not all social referents (e.g. friends, parents, coworkers) support activism. Some may discourage participation or compete for an actor's time or other resources. Second, not all ties are positively valued. An actor may ignore or even rebel against some referents' attempts to influence her.

I begin with a critical review of the network mobilization literature in light of these problems of multivalence. I identify three movement processes that scholars have addressed with network analysis, as well as three theoretical orientations used to explain those processes.

## THREE EXPLANANDA: RECRUITMENT, INVESTMENT, DISENGAGEMENT

Most microstructural research focuses on recruitment to movement organizations or campaigns (e.g. Klandermans and Oegema 1987; Snow et al. 1980; Stark and Bainbridge 1980). Scholars examine the role of social ties in leading sympathizers to become activists.

Some early work in this area focused at the organizational level, showing how movements may take advantage of preexisting social networks, recruiting clusters of actors as "blocs" (McCarthy and Zald 1977; Oberschall 1973). For example, Morris (1981) and McAdam (1982) credit black churches with facilitating the civil rights movement, as local congregations provided an organizational infrastructure for the diffusion of collective action. Observing peace movement organizations, Bolton (1972: 558) notes that such network recruitment may lead to "chains of group affiliation," in which clusters of people travel together through memberships in a series of organizations.

Recent work has used tools of network analysis to predict differential recruitment among sympathetic actors. In a seminal research program, McAdam and colleagues (Fernandez and McAdam 1988, 1989; McAdam 1986, 1988a, 1988b; McAdam and Fernandez 1990; McAdam and Paulsen 1993) examine a broad range of individual and structural determinants of participation in the 1964 Freedom Summer civil rights campaign. From records of campaign applications, they analyze applicants' likelihood of withdrawing before the campaign officially began. Studying only individuals acquainted with the campaign and with strong affinity and availability to participate in effect controls for these variables as explanations for activism. Focusing on these applicants' decisions to volunteer or withdraw offers insight into the role of influence-based factors in the later stages of recruitment.

This project has produced numerous empirical results. McAdam (1986: 88) and McAdam and Paulsen (1993: 654) find positive effects for organizational affiliations, prior activism, and strong ties to other volunteers, and a negative effect of strong ties to drop-outs. Analyzing a network of shared organizational memberships among applicants, Fernandez and McAdam (1988, 1989) show a weak positive effect of actors' network centrality and a positive effect of past activism. Shifting the unit of analysis from individual actors to dyads (pairs of actors), McAdam and Fernandez (1990) find that ties to other applicants have negligible or negative effects on mutual participation, but shared organizational memberships have a positive effect. In an analysis of applicants to the Nicaragua Exchange campaign, Erickson-Nepstad and Smith (1999) find that strong ties to activism have a notable positive effect on participation, though organizational affiliations have little effect.

While much work has examined recruitment to social movement organizations and campaigns, little research has addressed the effects of personal and organizational ties on level of sustained investment. In one such study, Kitts (1999) finds that both organizational memberships and informal friendship ties to other members may be important determinants of investment in a neighborhood activist group, but finds no effect of centrality in the network of shared memberships. Oliver (1984) shows that residents who know many of their neighbors are more likely to be highly involved among members of a neighborhood association, but finds network effects to be mixed overall.

While much of the literature on recruitment has shifted from an individual psychological approach based on personality or attitudes to a microstructural foundation based on social networks, the work on disengagement has not followed suit. Scholars still explain maintenance of memberships using psychological terms, such as "commitment" (Hall 1988; Klandermans 1997). Presumably, actors join movement organizations because of whom they know, but remain active in movements because of ideological and emotional factors.

For network theorists, these findings call for more investigation, perhaps drawing on structural studies of turnover in firms and voluntary associations. For example, Krackhardt and Porter (1986) find a "snowball effect" in turnover among fast-food employees, where one member's departure tends to precipitate the departure of others who occupy a similar position in the informal group structure. In a classic case study of schism in a monastery, Samuel Sampson (1969: 375) shows how the departure of one monk who occupied a key position in the network of informal relations led to a chain of apostasy that decimated the group.

Member exit rates may also be related to patterns of in-group and out-group ties. Using a large sample of members of voluntary associations from the General Social Survey, McPherson, Popielarz, and Drobnic (1992), show that out-group ties appear to increase the probability of exiting, while in-group ties increase the probability of staying. Calling for comparable research in social movement organizations, I will discuss structural approaches as general explanations for participation, including disengagement and level of investment as well as recruitment.

## THREE EXPLANATIONS: INFORMATION, IDENTITY, AND EXCHANGE

This paper will now examine some assumptions that have explicitly or implicitly informed network analyses of movement participation. I will describe three general perspectives, naming them after the primary mechanisms—*information*, *identity*, and *exchange*—they have proposed to explain the role of social networks in mobilization. While some scholars shift between approaches to suit various projects and some appeal to multiple theoretic foundations, this characterization will highlight some important distinctions in theory and method.

### *Information Approaches*

Perhaps the simplest approach proposes that networks are conduits of information, such as when social ties provide exposure to a recruitment opportunity (Snow 1980). Assuming that there are always grievances in the population, and there are always some people willing to join in activism if given the opportunity, this approach can predict which individuals actually participate as a function of their social contacts. Where contact with a recruitment agent is a necessary—if not sufficient—step to participation, structural proximity to the movement should be a strong predictor of activism.

Another approach based on access to information is the class of "threshold" or "critical mass" models of collective action (Granovetter 1978; Macy 1990, 1991; Marwell, Oliver, and Prahl 1988). Even when they share a collective interest, actors may be willing to participate in costly or risky activism only if they can be assured of cooperation by some critical number of other actors. This threshold may differ across individuals, with some willing to play an early role in organizing activism and others joining only after participants are so numerous that success seems likely or repression seems unlikely. Of course, this also allows that collective action may fail where thresholds are too high (and thus no one is willing to "get the ball rolling") or where potential activists are not aware of each other.

Social networks are clearly relevant for the attainment of critical mass. Lacking perfect information about their peers, actors usually must infer the overall mobilization potential from their sample of local contacts. A sophisticated literature (Gould 1993; Heckathorn 1993; Kim and Bearman 1997; Macy 1991; Marwell, Oliver, and Prahl 1988) has explored global properties of networks—such as network density, centralization, and the cost of communication—as catalysts and inhibitors of collective action. In simulated groups, this work has also manipulated the distribution of interests, resources, and the centrality of individual actors to predict which types of actors will contribute.

While this paradigm has produced a number of highly abstract models that allow us to derive hypotheses for empirical research, there has been little dialogue between this work in collection action theory and the network analysis of real-life mobilization. Recent work using formal models (Chong 1991; Chwe 1999) begins to bridge this gap by suggesting techniques for applying and testing theory using cases of activism.

### *Identity Approaches*

While information approaches generally model the coordination of collective action among people who are already motivated to cooperate, "identity" approaches examine the processes by which this motivation is built. They posit that informal relations activate feelings of solidarity and a sense of shared identity, which overcome selfish interests and promote contribution to the collective good. Fireman and Gamson (1979: 22) argue that various types of social ties have a direct positive effect on solidarity. For example, a group's solidarity will

increase with the number of friendship and kin relations within the group and with the number of shared outside organizational affiliations. Also, solidarity will be higher if members share similar profiles of "subordinate and superordinate relations" with others outside the group.

Fireman and Gamson also suggest that this solidarity will have a corresponding positive effect on collective action. Indeed, in a study of insurgency in the Paris Commune, Gould (1991) finds that preexisting informal ties interact with shared organizational ties to enhance solidarity and thus mobilization. A recent paper by McAdam and Paulsen (1993) similarly argues that identities reinforced by significant others within an organizational context can facilitate participation in protest

*Exchange Approaches*

Using an instrumental model of social action, other scholars argue that groups may motivate members' cooperation through informal social exchange (Klandermans 1984; Opp, Finkel, Muller, Wolfsfeld, Dietz, and Green 1995), such as by giving social approval to those who contribute to a collective good. If face-to-face encounters provide incentives to participate or raise the cost of nonparticipation (Fernandez and McAdam 1989), then the structure of informal exchange may channel collective action.

To a greater extent than other perspectives, exchange-based theorists have measured and explored their proposed microfoundations. For example, recent work (Opp 1989; Opp and Gern 1993) has measured activists' expectations of criticism or approval by peers and peer groups, showing that expected rewards or punishments can be used to predict participation. Similarly, based on in-depth interviews of Italian Leftist terrorist groups, della Porta (1988) concludes that members often joined to receive approval from friends who were also joining, or who were already active.

## COMPARING PERSPECTIVES

To assess these perspectives, I discuss the implications of multivalence, including facilitating or constraining pressures as well as positive or negative social ties. The goal is to build explanations that are both plausible and robust, while simple enough for straightforward investigation.

Unfortunately, recognizing that referents may either promote or oppose participation and that ties to referents may be either positive or negative severely complicates both measurement and modeling of structural effects. We could measure the opinions or behaviors of each acquaintance, measure the value of the ties connecting the focal actor to these referents, and then compute some summary (e.g. weighted sum or average) of influence from all available referents. However, this extensive measurement would prove very difficult for all but the smallest networks. If we must then make simplifying assumptions in empirical study, we should be conscious of their implications for our theories of mobilization.

Unlike the other two perspectives, the information-based research may be able to safely ignore negative social ties. While people may regard sources of information as more or less credible, basic information may not depend crucially on the value of the conveying tie. We rarely hear a factual statement from a disliked peer and automatically assume that the opposite is true. Obviously, the role of social networks in exposing individuals to recruitment cannot be reversed by negative ties, as actors cannot be un-exposed to a movement.

Note that restricting the model scope to positive influence does not mean the information approach is unable to handle the constraining effects of social networks. If outside social ties provide information about other groups and opportunities to contribute resources

elsewhere, this may diminish availability for participation in any one group. Thus, the information-based models generally predict facilitating effects of in-group social ties on participation, but constraining effects of ties to outsiders.

In contrast to a simple diffusion of information, the identity approach assumes a rich content of interaction within each tie. Most accounts regard the construction of social identity as an ongoing negotiation, where actors define themselves in relation to positive and negative role models ("us" and "them"). For example, many young activists of the New Left may have identified themselves or constructed their activities in opposition to their parents' conservative views. Indeed, research in social psychology has found that individuals seek to differentiate themselves from some people while they seek to emulate others (Sampson 1969; Sampson and Insko 1964; Schwartz and Ames 1977). If identities develop partly in reaction to negative referents, then it is hard to constrain a model of identity to positive influence.

Even where solidary ties to other group members may contribute to collective identity, there is no guarantee that this collective identity will promote activism for the common good. In fact, Oliver (1984) finds that it is often those individuals who feel distanced from the group who are willing to bear the costs of defending their collective interest. The potentially distracting effect of solidary ties has received some attention, particularly in research on neighborhood organizing. Several studies (Isaac, Mutran, and Stryker 1980; Orbell and Uno 1972; Walsh and Warland 1983) have shown that level of social integration with neighbors is inversely related to political and social movement participation.

Though building an activist identity clearly depends on differentiation as well as social communion, the identity-based microstructural research has not yet begun to address this using network analysis tools. In order to avoid the complications of multivalence, scholars have examined only positive ties and movement-promoting pressure. For example, McAdam and Paulsen (1993) ask activists to report and rank only referents who "positively influenced" (1993: 652) their joining a movement campaign. Of course, this excludes negative relations and opposing referents by definition, and also leaves the actual influence mechanism unspecified. This reveals some difficulties in implementing an identity approach in a network analysis of mobilization.

An exchange-based approach would seem to invite similar problems due to negative ties. The subjective value of solidary incentives may depend on the value of the conveying tie, as social approval received from strangers or enemies is almost certainly worth less than approval from friends. However, the ubiquitous assumption that approval is always rewarding (or at least never punishing) may be defensible as a first approximation. Few would argue that actors seek primarily to earn insults from enemies.

Even if we can assume that social approval is always positively valued, we can rarely assume that all referents will approve of participation in social movements. This appears to require measurement of the particular influence efforts of all significant others. A common solution is to infer the direction of referents' pressure from their own behavior, taking this as a proxy for their preferences or values. For example, McAdam (1986) sees ties to volunteers as giving incentives for participation and ties to drop-outs as giving disincentives for participation. This assumption may allow us to approximate the forces acting on an activist (or potential activist) without measuring the influence attempts of each referent.

Now note that these two simplifying assumptions—the rewarding nature of social approval and the mobilizing pressure of in-group ties—lead the exchange approach to provide the same basic predictions as the information approach. Equivalent hypotheses of positive effects for in-group ties and negative effects for out-group ties leaves little room to test the two explanations independently. Unlike the information-based approach, however, the exchange model could relax these assumptions and explore either dimension of multivalence.

To contrast the effects of information exposure with the effects of intentional social influence, we may examine the mediating role of tie strength. Granovetter (1973) notes that "strong" ties of family or close friendship tend to span a shorter social distance than "weak" ties of regular acquaintances, and thus the latter will serve as a more potent source of new information. If transmission of novel information is a key mechanism of disseminating activism then weak ties should be more effective than strong ties. However, if persuasion or social approval is the underlying mechanism of network mobilization, then effects should be greater for strong ties than for weak ties. In light of multivalence, the above predictions should apply to negative as well as positive effects. These empirical questions remain open.

## SPECIFYING STRUCTURAL EFFECTS

While there has been little attention to theoretical explanation of observed network effects, there has been more interest in investigating these effects empirically. These sophisticated explorations may provide important clues for further work, but they only contribute to our understanding of mobilization as we begin to integrate them with theory. Further, a meaningful network analysis demands not only a matrix of numerical "ties" between actors, but an explicit understanding of what those measurements entail. How we view social ties—as bonds of friendship, conduits of advice, or chains of authority—fundamentally affects our selection and interpretation of analytical tools.

### *Relational and Positional Analysis*

Most early work examined differences in the *relations* of actors. Assuming that social influence operates through direct ties, they simply counted actors' personal ties and assessed the effect of "contagion" from one member to another. Recent work has extended our view to the *positions* of actors (Borgatti and Everett 1992), depicting them as members of a greater structure of relations and analyzing their location relative to other members of that structure. Positional methods generally identify members who have similar sets of relations, and thus who occupy similar roles in the network. By analyzing positions, we can see common influences of network structure on two or more actors, even where there are no direct ties between them.

As social movement scholars have rarely gone beyond a simple comparison of the total number of ties for activists and non-activists, the few exceptions merit a more detailed discussion. Again, McAdam and colleagues have contributed much of the empirical work in this area, studying applicants to the Freedom Summer campaign. In analyzing shared organizational memberships among Freedom Summer applicants, Fernandez and McAdam (1988: 358) argue that it is not the number of ties, but "position in the multiorganizational field" that channels movement participation. They operationalize actors' position as their *centrality* (Freeman 1977, 1978/1979) in the network of shared memberships. Centrality may extend analysis of social ties by taking into account the structure of the whole network. For example, it allows us to identify actors who are particularly accessible to their peers, or who may serve as bridges between otherwise distant groups of actors.

Using what I have called the exchange-based perspective, Fernandez and McAdam argue that centrality measures should serve as proxies for social influence processes: "Because they are linked to many people, more central individuals are more likely to experience social influences (costs for possible nonparticipation and benefits for participation) on their decisions" (1988: 365). They later propose that effects of network position do not represent direct influence from one member to another ("contagion"), but influence of the entire group on each individual member. In effect, ties to *any* others will increase involvement, even if those particular others do

not themselves participate (McAdam and Fernandez 1990: 11). This disregards both dimensions of multivalence and treats all influence as promoting movement participation.

Fernandez and McAdam (1989) explore *betweenness*, *closeness*, and *prominence* centrality as measures of actors' position in the multiorganizational field. To interpret these measures, first consider a network of actors who may "reach" each other either directly or indirectly, through "paths" of connected actors. The "length" of a path represents the number of links in the chain from one actor to another. An actor's *betweenness* centrality represents the extent that she lies on the shortest (presumably the most efficient) paths connecting other actors in the network. If *B* lies on the shortest path between *A* and *C*, then *B* may serve as a "broker" or "gatekeeper" for *A* and *C* in that indirect relation. Because the broker may control the flow of resources or information, sociologists have thought of betweenness as a measure of social power. Similarly, *closeness* centrality measures the extent that each actor may reach other actors through relatively short paths, thus relying on few intermediaries. This measure is often used to find actors who can efficiently communicate with other members, while remaining independent of others' control.

If betweenness represents social power and closeness represents independence, then both of these measures of centrality are hard to reconcile with Fernandez and McAdam's theory of group-wise influence. While these interpretations are not set in stone, Fernandez and McAdam do not motivate our interest in centrality as an index of actors' susceptibility to control by the group.

These interpretations of betweenness and closeness are particularly strained when applied to networks including disconnected subgroups. In fact, the closeness measure requires that all actors must be connected by paths of some finite length, and is undefined for networks where no path exists between some actors. As the majority of applicants in their sample were structural isolates with no shared memberships, Fernandez and McAdam (1989) replace these undefined values in the matrix of path lengths with the total number of actors in the network (twenty-three). Note that this would leave comparisons across multiple networks highly susceptible to differences in group size.

Fernandez and McAdam present their next measure—*prominence* (Knoke and Burt 1982)—as simply a sum of an actor's ties, recursively weighted by the prominence of each of those referents. Thus a prominent actor is highly connected to others who are highly connected to highly connected others (and so on). While this measure at first seems well-suited to test their proposed theory, it has several properties that may make it inappropriate for most analyses of social movement organizations. Note that it cannot be interpreted as above for so-called multicomponent networks, where a group may contain disconnected subgroups that have no cross-cutting ties. Bonacich (1972: 116-17) notes that the measure provides centrality scores only for one such "clique," ignoring all others as structural isolates. Fernandez and McAdam (1988) apply this measure to two samples of Freedom Summer applicants, one from Madison, Wisconsin, and the other from Berkeley, California. While the measure may have been appropriate for the Madison network, which consisted of a cluster of ten connected members along with thirteen structural isolates who had no ties at all, the Berkeley sample contained two disconnected subgroups. As the prominence measure cannot differentiate Berkeley applicants with no memberships, individuals with non-shared memberships, and members of the smaller subgroup, Fernandez and McAdam (1988, 1989) must treat all of these as equivalent. Notably, prominence shows a weak positive effect on Freedom Summer participation for the Madison sample, but not for the Berkeley sample.

Disconnected networks thus complicate our interpretation of measures of centrality. This problem is particularly relevant to membership organizations, due to the tendency for large groups to develop internally cohesive cliques or factions, which may be mutually apathetic or

antipathetic. Even if influence is purely positive, Friedkin (1991) notes that a powerful actor in one subgroup may exert little or no power in another subgroup.

While we can safely assume that applicants to Freedom Summer share some common norms in favor of the campaign, we cannot always assume a unitary force acting on all group members. Subgroups may promote varying standards of behavior, often quite different from the optimal group norm (Kitts, Macy, and Flache 1999). A one-dimensional measure of network centrality may not have a consistent relationship with the magnitude or even the direction of the group's influence on an individual member. For example, if a group includes a small subgroup of "movers-and-shakers" and a larger subgroup of "slackers," then the most central members by any measure would probably be slackers.

Plagued by such pitfalls, social movement scholars should use sophisticated measures of centrality only with an explicit and compatible theory of social influence. For many networks, the microstructure of mobilization may be better modeled as a process of social influence through direct ties (Marsden and Friedkin 1993) than as an unconditionally positive effect of network centrality on participation. Rather than assuming that all social ties will influence an actor toward participation, this allows that influence may be multivalent, with some ties promoting and others opposing participation.

While most notions of centrality may be inappropriate for groups that do not have a single "core" of central members, surrounded by "peripheral" actors (as in Fernandez and McAdam 1989), other types of positional analysis are intended to reveal patterns in these more complex networks. For example, much work in network analysis examines issues of subgroup formation and influence within and across subgroups.

As empirical research on factionalism in social movements (Balser 1997; Gamson 1975) has focused on the substance or content of conflicts, the structural aspects of movement schism remain essentially unexplored. However, various analytical tools can identify cohesive subgroups or partition networks into classes of structurally similar actors. These tools may also be used in tandem with analysis of actor centrality, to represent social influence within subgroups, possibly avoiding some of the complications of multivalence.

*Affiliation Analysis for Interpersonal Networks*

The membership of an organization implies a set of ties—often called "co-membership" ties (Wasserman and Faust 1995: 295)—connecting all pairs of members. Shared memberships then may provide a convenient way to observe social relations between actors where more traditional survey or observational measures are unavailable or unreliable. However, this approach also entails severe limitations for many applications to mobilization.

Co-membership analysis often assumes that two actors' shared membership in one organization allows them to influence one another. Admittedly, we have no reason to assume that this relationship has causal priority over the numerous unmeasured co-membership ties these actors have with all other members of those groups. Analyzing social influence through shared memberships without including all members of the various groups requires a heroic *ceteris paribus* assumption, that all unmeasured actors have no net influence on the actors in the sample, while the few measured actors are responsible for any effects observed.

Influence models based on co-memberships are also threatened by direct effects of organizations on members, such as through increased skills or decreased availability, which may affect movement participation. The nearly ubiquitous finding that outside organizational memberships have strong effects on social movement participation (e.g. McAdam 1986, 1992; Orum 1972; von Escen et al. 1971; Walsh and Warland 1983) suggests that the effect of co-memberships will be highly contaminated by the simple effect of memberships. For example,

Kitts (1999) finds that participants in one environmental group who had similar profiles of outside organizational memberships also had similar levels of involvement in that group. While this appears to support the argument for contagion through shared memberships, the effect was strongest where relatively similar profiles of memberships did not involve the same particular organizations. The effect thus cannot be attributed to dyadic influence in co-memberships, and shows this contagion to be largely spurious.

Due to these problems, we should analyze dyadic social influence through co-memberships only with great caution. In order to estimate these effects, we should clearly specify the boundaries of the network (Laumann, Marsden, and Prensky 1992), measure the networks exhaustively within those boundaries, and control for any direct effects of organizational memberships whenever possible.

*Affiliations Analysis for Interorganizational Networks*

While this paper is primarily concerned with structural accounts of individual participation, the methods described should apply to macro-networks of social movement organizations. Just as we can map ties between individuals through shared memberships, we can estimate relations between organizations due to shared members (Aveni 1978; Breiger 1974). Indeed, recent empirical work has mapped such "interorganizational networks" (della Porta and Diani 1999: 124) based on shared protest issues (Bearman and Everett 1993), activities, and campaigns (Diani 1995), as well as shared members (Carroll and Ratner 1996; Diani 1995; Fernandez and McAdam 1989; Rosenthal, Fingrudt, Ethier, Karant, and McDonald 1985).

Analyzing ties between organizations through shared issues, events, or members offers to operationalize the "multiorganizational field" (Curtis and Zurcher 1973) surrounding protest. Unfortunately, specification at the level of shared members is fraught with methodological hazards, particularly due to inadequacies of available data on shared memberships for entire organizational populations. I will discuss some of these problems, as well as some diagnostic or mitigating procedures that may improve our measurement and interpretation.

In a recent study of activism in British Columbia, Carroll and Ratner (1996) provide one of the broadest investigations of interorganizational social movement networks using shared affiliations. However, this great scope requires them to estimate relations between organizations by interviewing only a "snowball" sample of members in each organization. While sampling may be a standard practice for conventional social statistics, network analysis tools are much more sensitive to missing data (Laumann et al 1992), as a few missed actors or ties may fundamentally transform a network. Further, a snowball sampling method may lead to systematic biases in the data. Not only could the initial sample be unrepresentative, but the data collection itself will arbitrarily oversample highly central actors with a greater number of social ties. In light of these problems, sampling a tiny fraction of thousands of actors in a multiorganizational field is unlikely to provide a reliable picture of interorganizational networks. We must then regard the map of organizational relations provided by Caroll and Ratner (1996: 613-4) as exploratory or illustrative.

Ideally, a matrix of shared members for any set of organizations should be derived from the entire defined universe of affiliations, including all members of all groups in that universe. A simple approach to estimating a network without such extensive data is to collect a large and representative sample of members in the entire population, then count the number of shared members for each pair of organizations, producing a dyadic measure of tie strength, weighted by membership overlap. The extent of overlap (whether absolute or in proportion to group size) represents our confidence that the two organizations are in fact "tied." If we want a conventional binary measure, then we can specify a cutoff point, which defines the presence or

absence of an organizational tie. Using this strategy, Caroll and Ratner define two organizations as tied if at least ten actors in their sample share memberships in both organizations. Such aggregate measures should be more robust than direct analyses of sampled co-memberships.

As an alternative to random or convenience sampling, we may simplify modeling of interorganizational relations by targeting a specific category of members, such as group leaders. This makes exhaustive measurement feasible and has been common in the extensive work on interlocking directorates of firms (e.g., Mintz and Schwartz 1981; Mizruchi and Bunting 1981; Roy and Bonacich 1988). In an important study of nineteenth century women reformers, Rosenthal et al (1985: 1028 fn. 4) similarly draw the boundaries of their network around the "notable" women reformers. That is, they measure only the relatively famous women, whom they assume to be the entire population of interest. Of course, their results may not generalize to overlaps of rank-and-file members, so our interpretation depends on the boundaries of "notability."

A more acute risk of sampling bias appears in Fernandez and McAdam's (1989) study of interorganizational networks in Madison, Wisconsin, as measured through memberships of Freedom Summer applicants. They specify the boundaries of this network (and of the multiorganizational field) as including the entire university community surrounding Madison. However, they sample only the twenty-three applicants to the Freedom Summer campaign from this city and map the links between seventeen local organizations using this sample of twenty-three applicants. It is unlikely that the few individuals who applied to Freedom Summer are representative of the organizations to which they belonged. Accordingly, Fernandez and McAdam's (1989: 327) discussion of the Congress of Racial Equality (CORE) and the Student Nonviolent Coordinating Committee (SNCC) as "central" in the multiorganizational field surrounding the Madison Freedom Summer recruitment campaign is problematic. While these are clearly the most common organizations to be mentioned on a Freedom Summer application, they were not necessarily the most central in a network of shared members among these seventeen organizations. In order to address that question, Fernandez and McAdam would at least need membership lists from all seventeen groups. To fit the boundaries given for the study, they would need membership lists for all organizations in the Madison university community.

Co-membership analysis is most compelling because it targets a key arena of resource mobilization, the interface of personal and organizational relations. However, proper measurement is so expensive that simplifying assumptions are almost always required, and these assumptions constrain our interpretation of results. Concentrating only on overlaps among leaders (Rosenthal et al 1985) simplifies measurement, but does not permit generalization to rank-and-file members. Sampling from members (Carroll and Ratner 1996) allows an overall view, but is subject to random sampling error and systematic biases, which limit the range of tools we can apply.

In preparing to collect data for structural analysis of mobilization, the methods of network analysis vary greatly in their sensitivity to missing data or measurement error. Many measures of centrality have been found to be particularly sensitive to random error or bias (Bolland 1988), while an ordinary count of ties is relatively robust. When using sophisticated network measures or questionable data, network-mobilization scholars should explore the reliability of their results through some form of sensitivity analysis. For example, if a few ties are randomly added or removed, do the results remain qualitatively similar? Bolland provides a helpful introduction to this type of sensitivity analysis, in comparing centrality measures.

While allowing for exploration on other frontiers, we might focus more attention on direct links between organizations, such as co-sponsorship of protest campaigns or events (Bearman and Everett 1993), overlaps of organizational goals (Hathaway and Meyer 1993; Kitts 1999; Klandermans 1989; Minkoff 1995), or exchanges of resources (Diani 1995). This focus

on direct ties mirrors my conclusion for interpersonal networks. In both cases, we first need to understand the ties themselves and the local mechanisms of social influence before addressing more elaborate questions about position and network structure.

## CONCLUSIONS

In this paper, I have evaluated theoretical and methodological tools of social network analysis, as they have been used to explain social movement participation. I have described three families of structural accounts for mobilization—information, exchange, and identity—aiming to consider their strengths and weaknesses without advocating a particular theory. In suggesting directions for future work, I have drawn on research in social influence, as well as network analysis of firms and voluntary associations.

This critical review has focused on two dimensions of multivalence in influence. First, social referents oppose as well as promote participation in protest. Second, an actor may value each social tie positively or negatively. Though common sense and empirical research insist that these two dimensions are important to processes of social influence, they have been largely ignored in network analyses of mobilization. As we begin to explore multivalence, we may distinguish mechanisms of information, identity, and exchange, and thus weigh evidence for these explanations.

The approach based on information is most parsimonious and easiest to apply. It can provide concrete predictions of both positive and negative effects with only minimal information about the actors and their interaction. For example, its simplest form predicts positive effects for in-group ties and negative effects for out-group ties. It further suggests that such structural effects should be relatively insensitive to tie value (positive or negative) or the opinions of referents.

In contrast, the identity approach allows—and probably requires—consideration of negative ties and the content of social communication. Identity building clearly involves processes of differentiation, as a "*we* feeling" means little without a corresponding "*they* feeling." This perspective then provides a promising vocabulary for exploring negative influence through in-depth study of activists. However, it remains evasive for standard tools of network measurement and analysis. Attempts to implement this approach using network analysis of mobilization have required simplifying assumptions that undermined any unique contribution of this perspective.

The exchange framework allows straightforward modeling of social influence and power. Though it may not require consideration of negative ties, it does call for knowledge about the preferences of social referents. We can study the ways that multiple pressures combine to influence behavior only with some information about the valence of those pressures. To its credit, this literature has made the most progress in explicitly measuring the proposed mechanisms as predictors of behavior.

I have shown that these dimensions of multivalence can serve to explore and validate the three alternative models of network mobilization. However, I have also shown some problems they may pose for common tools of network analysis. While actor centrality remains a key theoretical interest, for example, common measures of centrality are difficult to apply or interpret for networks that are broken into subgroups or that include negative ties. Similarly, most sophisticated techniques of network analysis assume that the data represent a population measured exhaustively and without error. Studies of activists and social movement organizations will rarely give us data that conform to these restrictions.

A need to investigate multivalent influence in movement participation suggests a renewed focus on some of our earliest intuitions in network mobilization. We should continue to

examine direct ties between people as simple conduits of social influence, as this allows a straightforward way to incorporate multivalent influences at the individual level. Analysis of direct relations is also relatively robust to problems of missing or noisy data, which could render the more sophisticated techniques of network analysis meaningless.

I also discuss recent work in "interorganizational networks," which has mapped relations between social movement organizations. I discuss some problems with this approach for modeling of resource mobilization, and suggest some ways to improve data collection, choose analytical tools, and assess the robustness of our results. In parallel to the discussion of interpersonal networks, I encourage simple analysis of direct ties between organizations, such as through exchanges of resources and shared activities.

In closing, an important step for refining our explanations will be a transition from static to dynamic analysis. We can hardly find mechanisms to fill the black box while remaining indifferent to questions of causal order. As activism may create some social ties while it proliferates through others, we cannot gain an adequate understanding of these recursive processes using only cross-sectional lenses. The scarcity of dynamic network data in resource mobilization provides an obvious call for empirical investigation. In the meantime, increasing dialogue among diverse approaches—case studies, large-scale surveys, analyses of local organizations and whole movements—may help correct the blind spots of each approach. Social network analysis has offered a rigorous family of methods, which should prove complementary to other approaches that may more easily focus on changes over time.

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