

Social movements

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Abstract:

This chapter maps network studies of social movements from two perspectives. It first looks at personal networks as facilitators of individual recruitment to collective action. It then shows how network analysis may contribute to the analysis of collective action fields that comprise of both organizations and individuals. It covers both studies that focus on 1-mode networks, based on actors' mutual recognition as relevant partners, and on 2-mode networks in which connections are based on joint involvement in events. It identifies the longitudinal analysis of networks and triangulation strategies, combining qualitative and quantitative data, as two promising areas for future research.

Keywords: alliance building; collective action fields; modes of coordination; recruitment; diffusion.

Mapping applications of social network analysis (SNA) tools and concepts to the study of social movements requires first of all to recognize the multiplicity – and diversity - of processes at work within the broad instances of collective action conventionally associated with social movements. In this chapter, we will focus on two main perspectives. While we cannot provide a comprehensive coverage of the literature for each perspective, we will offer illustrative examples of research strategies or techniques. The first approach has looked at networks as the interpersonal connections that facilitate, sustain, or discourage individual involvement in collective action. Given its focus, its findings and tools are easily applicable to a broader range of instances of participation than political protest strictly defined, from volunteering to involvement in formal political organizations. This has been, arguably, the most explored connection between networks and movements (Tindall et al. 2021; Tindall 2023).

The use of SNA to map interorganizational relations, in contrast, has been far more problematic. Many social movement analysts, particularly those in the North American tradition, have treated inter-organizational networks mainly from a tactical and strategic perspectives rather than as (albeit informal) organizational structures with some degree of continuity and stability. Accordingly, SNA has been dismissed in favor of more fluid and “dynamic” interactionist approaches (most notably by Fligstein and McAdam 2012; see Crossley 2011; Mische 2011 for attempts to combine interactionism and SNA). In the remainder of this chapter we’ll consider two applications of SNA that, while not being necessarily restricted to inter-organizational ties, provide nonetheless the tools to systematically explore those ties. They draw upon the two main definitions of social movements in the literature. One refers to the well-known conceptualization of social movements as sustained interactions between challengers and powerholders (Tilly 1984). In this case, SNA provides a set of tools to map the connections between contentious events using different types of 2-mode logics (Breiger 1974), including among others organizations and/or individuals involved in them, but also categories of actors or non-agentic elements such as claims or action repertoires (Bearman and Everett 1993; Boudourides and Botetzagias 2007; Wang and Soule 2012). The second area of application of SNA builds on Diani’s (1992) view of movements as informal networks of multiple actors engaged in social, political, or cultural conflict. It focuses on the structure of collective action fields, conceived as variable combinations of organizations and individual actors (Diani 2015; Crossley 2015). The two perspectives have tended to focus on partially different sets of questions: the former has been particularly useful for tracing the evolution of networks over time, while the latter has mostly focused on the in-depth exploration of multiplexity mechanisms behind alliance building. However, they both contribute to our understanding of the structure of collective action fields.

The Study of Personal Networks in Social Movements

Personal networks are commonly employed in the study of social movements to understand political involvement in different types of collective action and activism, such as protest behavior. Political scientists have extensively documented the importance of these networks in participation, indicating that individuals engage in politics because *they can, they want to*, and because *they have been asked to* (Schlozman and Brady 2022). Personal networks are believed to facilitate social and

political embeddedness, providing resource pipes and prisms for interpreting one's sense of agency while shaping political engagement. Accordingly, networks can shape behavior, attitudes, and opportunities.

Personal networks play a crucial role in shaping actors' decisions to participate in collective action, and enabling them to overcome the free-riding dilemma (Marwell and Oliver 1993). These networks are essential for micro-mobilization processes, as participants are interconnected both structurally and relationally. Personal networks provide individuals with opportunities for participation through information exchange and political communication, verifying the well-known effect of political discussions on mobilization and recruitment. Furthermore, personal networks serve as vehicles for ongoing social interactions that are instrumental in identity formation and can either facilitate or constrain the process of mobilization (see Kitts 2000; Passy 2003; Gould 2003; Tindall et al. 2021; Tindall 2023 for some extensive reviews of this well-known literature).

In the context of protesting behavior, personal networks provide valuable insights into processes fostering the development of collective action and identity. Tindall (2002; 2004) demonstrated this through examining both close ties and broader organizational ties among social movement participants. Factors such as centrality within one's personal network and the nature of those social connections contribute to varying levels of activism and the likelihood of engaging in new forms of collective action. Classic themes in personal network analysis within social movements' agenda include exploring how the structure of interpersonal networks reinforces politicization and ideological congruence among participants. Questions such as how personal networks shape individual political beliefs, attitudes, and behaviors, which ties are significant for individual engagement and commitment to social movements, and whether the diversity of social ties (the range of connections) in personal networks promotes engagement with a social movement, continue to be addressed in these studies (Tindall, 2002; 2015, Tindall et al. 2021).

In addition to investigating patterns of political beliefs formation and participation, research on interpersonal networks underscores the significance of comprehending the nature of ties that go beyond mere instrumental mobilization processes. This line of research sheds light on the role of ties in fostering emotional and social support among participants (Passy and Monsch, 2014). Drawing on a large-scale survey conducted among (non-)participants in the 2016 Grand Parade demonstration in Brussels, which opposed austerity policies, Walgrave and Wouters (2022) employed aggregate measures to investigate differences in support-mechanisms across types of social ties shaping politicization, political agreement, and social approval in personal networks. Along these lines, recent literature in the field of political networks has recognized the increasing diversity observed in personal discussion networks. This recognition has prompted a reevaluation of the tools used to identify the composition of personal networks, specifically the name generators (Cowan and Baldassarri 2018; Tindall, Cormier, and Diani 2012). These analyses reveal the breadth to which interpersonal ties extend across various social circles, including political groups, family, friends, colleagues, and acquaintances, resulting in a greater variation in the political nature of social exchanges.

Methodologies for Examining Personal Networks

Personal networks encompass the examination of actors' embeddedness in specific relationships and structures. This approach provides researchers with valuable insights into the social context of social movement actors, including the diversity of their social circles and ties. It enables the observation of actors' interconnectedness within their own small worlds (Moor et al. 2020)(Lubbers, Molina, and McCarty 2021), placing movement actors at the crossroads of different relationships and social structures throughout time. Methodologically, the study of personal networks within a broader egocentric perspective primarily centers on individuals as the main unit of analysis (Tindall 2015). Data collection involves gathering information about an actor's network, which includes their connections with others, often referred to as "alters," and sometimes includes the connections between these alters (Tindall et al., 2021). Some commonly used strategies for collecting personal network data in social movement studies involve employing approaches that focus on the unrestricted direct ties of movement participants and/or analyzing participants' sub-graphs or networks derived from the larger movement networks. The former involves examining relational information that goes beyond specific groups, social circles, or bounded social movement networks, while the latter generally relies on data obtained from existing complete networks or modified – which occasionally provide information on the 2-step neighborhood of alters not directly connected to the focal actor (Crossley, 2015; Diani, 2015).

Nonetheless, data collection strategies for researching personal networks in social movements often encounter challenges when broadly targeting the general population. These strategies frequently yield a low representation of movement actors and use generalized political involvement survey questions. In standard population survey analysis, such as those conducted by the European Social Survey (ESS) or the World Value Survey, the reported proportion of participants engaged in protesting typically averages around 10-15%. However, employing movement-oriented data strategies tailored to a specific movement (whether online or offline), such as individual random surveys, organizational surveys, or participation in protest events (see Tindall et al., 2021), can overcome these limitations.

For example, Tindall et al. (2012) demonstrated the effectiveness of using modified position generators in individual surveys targeted at participants in environmental movements. Their study provided substantial evidence of the correlation between an individual's level of activism and the diversity of their occupational ties to other movement participants, resulting in a greater overall occupational diversity within their personal networks. More recently, an analysis conducted in 13 Western European cities exemplified a data collection strategy based on random surveys administered to protesters at large-scale protest events. This analysis used single-item summary count measures to examine the composition of mobilizing networks, specifically the categories of alters, among Fridays For Future climate protesters (Moor et al. 2020).

However, classifying individual actors as social movement members presents challenges in terms of boundary specification and determining appropriate data collection strategies (Diani, 2015; Tindall et al., 2021). In an attempt to tackle this matter, Tindall and Robinson (2017) conducted a probability survey among participants involved in environmental movement organization in British Columbia, supplemented by the analysis of open-ended written questions and interviews. The study identified overlapping ties across environmental organizations, categorizing actors based on their activism levels, forms of engagement and identification with the movement. Nevertheless, ongoing

discussions about the inclusion of movement actors based on their proximity to the core of the movement structure, their roles within the movement, and their forms of engagement continue to shape and guide the design of potential personal network research studies in the field (see Tindall et al., 2021; Tindall, 2015).

Strong and weak ties in the offline and online sphere

Analysts of individual participation in grassroots collective action have also paid huge attention to tie strength. Since Granovetter (1973) famously suggested that strong ties often lead to clumpy networks where individuals share redundant information, while weak ties serve as sources of new information, tie strength has been commonly invoked to account for different types of activism (McAdam 1986; Tindall 2002; Passy and Monsch 2014). Strong ties are expected to correlate positively with high-risk activism, providing intense emotional and social support that encourages participation. Social interactions embedded in strong ties are important for costly protest actions, helping individuals to cope with challenges of high-risk participation and sustain their commitment (McAdam 1986).

Strong ties are characterized by close relationships, such as family members, close friends, and peers with whom individuals have frequent and intense interactions. These interactions often involve shared experiences and beliefs, which contribute to the formation of collective identities and commitment among participants (Passy and Monsch 2014). However, the importance of strong ties for all types of activism is not clear-cut. The literature indicates that both strong and weak ties play significant roles in participation. While strong ties may encourage participation through 'social support' and 'social pressure', weak ties may facilitate entry points and access to information about a movement, thereby broadening its activists' social space (Tindall 2002, 2015).

The discussion of the impact of tie strength has been revitalized by the spread of online activism. Weak ties in digital personal networks have also been found to positively correlate with various forms of online engagement, as they enhance social diversity (de Zúñiga, Jung, and Valenzuela 2012). Studies on online participation have shown that protesters are more interconnected on platforms like Twitter compared to non-protesters via direct and indirect ties (Larson et al. 2019). Social media platforms serve as facilitators for exchanging information, emotional support, and motivational content related to protest activities, while the structural characteristics of online networks play a crucial role in shaping individuals' participation in protests (Jost et al. 2018). Digital personal networks that encompass both weak and strong ties contribute to heightened activism by enabling effective communication and information dissemination across different layers of an individual's network (Bennett and Segerberg 2013; Netmat et al., 2015). Earl and Kimport (2011) argue that online activism harnesses its strength through the utilization of short-term campaigns that employ cost-effective strategies. These campaigns enable powerful and rapid collective actions by leveraging both impersonal and personal ties in digital networks.

Extensive research has been conducted on the implications of personal networks and ties in the diffusion of collective action, both in online and offline contexts. This research has examined various aspects, including the influence of prominent nodes within networks and their structural properties (Centola 2015; 2018; Gonzalez-Bailon 2013). In particular, Centola provides a comprehensive examination of the dynamics of simple and complex contagions in relation to the

diffusion processes of collective actions, taking into account the varying levels of risk and cost associated with participation. He shows that low-risk and low-cost collective actions are more likely to spread through long, narrow ties (weak ties) in networks, as even minimal contact with a participating individual can incentivize others to join. In contrast, high-risk or high-cost collective actions rely on wide bridges (strong ties), in close-knit networks to establish trust and provide social reinforcement for participation. Social movements encompass a diverse range of events, ranging from peaceful environmental gatherings to rallies advocating for political rights. The level of risk or cost associated with an event significantly influences the role of personal networks in mobilizing participants (Centola 2015, 2018). Therefore, the effectiveness of mobilization networks depends on the specific characteristics and complexity of the collective action being pursued.

From personal networks to collective action fields

Personal networks do not only affect individual participation; they also contribute to the fabric of collective action fields, that Diani and Mische (2015, 307) define as “localized relational arenas characterized by mutual orientation, positioning, and (at times) joint action among multiple kinds of actors engaged in diverse forms of collective intervention and challenge.” Although actors can be connected at multiple levels, either directly or through joint participation in events or shared members (Knoke et al. 2021, chap. 6), the process of alliance building between organizations represents the most important generative mechanism for the structuration of collective action fields.

Alliance building may be driven by a variety of factors. Some have to do with similarity in agendas and convergence on specific goals; others, with shared value orientations and ideological positions; still others, with choice of repertoires of action. Organizations can also engage in alliances following mechanisms of preferential attachment, with organizations perceived as influential being disproportionately targeted as partners by other actors in the field. Moreover, the salience of ideological differences or disagreement on preferred repertoires may vary substantially depending on the political opportunities offered by specific polities, or the overall intensity of social and political conflict (for more extended discussions of this issue, see Diani 1995, chap. 1; Diani and Mische 2015, 315–17).

SNA has been applied to explore alliance building from two main angles. The first one has a dyadic focus, i.e., it explores whether the presence of a tie between a pair of organizations may be accounted by the same pair being similar on a number of traits. One example comes from a study of networks of religious environmental movement organizations (REMOS), based on semi-structured interviews to 63 national group representatives in the USA (Ellingson, Woodley, and Paik 2012). The authors explored whether REMOS were more likely to collaborate if they shared religious affiliations, theological frames, or similar environmental interests. A number of QAP (quadratic assignment procedures) regressions implemented in Stata suggested that while shared environmental interests might increase the probability of information exchange, they religious affiliations and shared theological frames were consistent, important predictors of involvement in joint actions (operationalized as a count variable). This held particularly strongly for conservative religious organizations: “For REMOs tied to conservative Protestantism or Catholicism, the public nature of joint action with theologically dissimilar groups poses significant risks and the loss of

support among their core constituencies. This concern pushes them to avoid joint action” (Ellingson, Woodley, and Paik 2012, 281).

Along similar lines, but relying on QAP routines implemented in Ucinet,¹ Diani (2015, chap. 3) identified quite different factors behind alliance building in two British cities. Data came from semi-structured interviews to group representatives (124 in Glasgow and 134 in Bristol). In contrast to Ellingson et al. (2012), he operationalized alliance ties based not on frequency of joint events but on perception of one group as a top five important partner by another organization. He found such identification to be positively correlated across cities to two factors: similar level of organizational formalization, and different amount of perceived influence in the urban polity. Factors such as similarity in agendas and repertoires on the one hand, and joint participation in public events and institutional networks on the other, were found to matter in one specific context but not in the other.

The second, currently most popular, approach to alliance building adds to dyadic covariates a number of relational factors, in order to take into account the impact over alliance building of the broader pattern of ties in which actors are embedded. A family of exponential random graph models (ERGM) has been deployed, often in reference to “virtual” networks consisting of ties on the web between different organizational websites. One example comes from Lusher and Ackland’s (2011) study of the hyperlinking behaviors of 144 websites of Australian asylum seeker advocacy groups. They showed in particular how taking into account “endogenous, purely structural network effects” substantially reduced the impact of similarity in organizations’ attributes. This had been emphasized by a series of regressions on count variables. Moving from similar premises, and also relying on hyperlink connections, Simpson (2015) analyzes the determinants of alliance building among 55 health-related professional activist organizations, challenging austerity policies. He focuses on multiplexity, defined “as overlapping relations between a set of actors whereby; (a) each relation forms a distinct layer of a larger system of interest; (b) layers are beholden to emergent processes which may differ from other layers; and (c) combinations of ties across layers may interact in non-random ways” (2015, 45). He uses five ERGMs to explore the effects of both dyadic covariates and triadic dependencies on the structure of the alliance network as well as other networks, based positive nomination and instrumental information exchange. This is done in reference to three univariate models and two bivariate models (alliance-positive nomination, alliance-information exchange). On this basis, he looks at the relational mechanisms that may account for the co-presence of both competition and collaboration between SMOs.

From alliance networks to modes of coordination

Alliance building is an essential – possibly, the most fundamental – component of social movement activity. The models we just illustrated help us to identify the homophilic and relational mechanisms

¹ The difference is worth emphasizing because the additional QAP library present in Stata offers a broader range of options than those available in Ucinet.

that facilitate alliance building. At the same time, alliance ties may be of quite a different nature. Even in our examples, alliances are operationalized some times in terms of frequency of joint actions, other times, in terms of mutual identification as most relevant partners. Moreover, some joint actions may be quite circumscribed in time. One question is therefore how to deal with the fact that network maps of collective action fields might summarize both (a) occasional, purely contingent collaborations; and (b) sustained, if informal, interactions, reflecting mutual trust and interdependency, and corresponding to some form of “organizing” (Ahrne and Brunsson 2019). To this purpose we need to recognize the difference between relations and interactions. Generally speaking, “The term “relations” signals relative stability and durability over time, and thus is critical for understanding movements in terms of structured fields of collective action. In contrast, the term “interactions” highlights the dynamism and fluidity of social engagement within particular social sites.” (Diani and Mische 2015, 308). It is important to note that even repeated interactions do not necessarily imply stronger feelings of mutual obligation between two actors if those interactions are driven by purely tactical motives (e.g. Diani 2015, chap. 6); at the same time, it is certainly possible – but not granted - that mutual recognition as important partners also correspond to joint involvement in many events (Satoh, Fung, and Mori 2022).

The concept of “modes of coordination” (MoC: Diani 2015; Diani & Mische 2015, 312-315) accounts for the variety of relational forms that can connect actors within collective action fields. MoC are defined by different relational structures in which two essential mechanisms of collective action, *resource allocation* and *boundary definition*, are embedded. Sometimes, decisions about the allocation of personal and organizational resources to collective goals are taken mostly within specific groups or organizations. Other times, substantial efforts may be devoted to the building of collaborative relations with other groups, and resources may flow through dense exchanges at the field level. How to define boundaries is another essential dimension of collective action. Boundaries mirror processes of identity building, establishing connections across time and space, e.g. within different phases of personal biographies, between generations, or between events occurring simultaneously in different locations. Some organizations may focus their boundary work on the strengthening of their own separate identity. Others, however, may identify with collectives that go beyond the confines of any specific organization. Rather than implying the replacement of an organizational identity with a broader collective identity, it is reasonable to expect a variable tension between the two levels of identification (Diani 2015, chap.1).

The variable density of the network exchanges within a field, related to resource allocation and boundary definition, enables us to identify four basic MoC: *social movement*, *coalitional*, *subcultural/communitarian* and *organizational* modes (see Figure 1). The “social movement” mode of coordination is defined by the intersection of *dense networks of informal inter-organizational exchanges* and processes of *boundary definition* that operate at the level of broad collectives rather than specific groups/organizations. Coordination takes place through dense interpersonal networks, multiple affiliations, and symbolic production. The terms of inter-organizational collaboration are informal, and need to be renegotiated each time a new issue/opportunity/threat emerges. In other

words, each collective action event can be regarded as the product of a specific negotiation on forms and content of resource allocation. As for boundary definition processes, social movements have no formal boundaries and no formally defined criteria for inclusion or exclusion. Instead, the boundaries of a movement are defined by processes of mutual recognition whereby social actors recognize each other as part of the same collective experience and identify some criteria that differentiate them from the rest.

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Figure 1 *Modes of coordination of collective action* (source: Diani & Mische 2015: 313; reprinted by permission © 2015 by Oxford University Press)

Multiplexity sets apart the social movement mode of coordination from other patterns that are often detected in collective action fields. First of all, one should note that a substantive share of collective action is coordinated through “organizational” modes, implying limited cooperation with other actors in terms of resource exchange, and boundaries and identities that are defined in reference to specific groups or organizations rather than broader collectives. While this is obviously a least exciting phenomena to explore from a SNA perspective, the analysis of isolates still raises important sociological questions, often in relation to the study of centrality (see e.g. Diani 1995, chap. 5; 2015, chap. 7).

“Coalitions” represent another, distinct MoC, which however is often equated with movements. In principle, coalitions may be driven by purely goal-related motives, requiring no broader definitions of boundaries that outlive specific campaigns. Not only NIMBY local protests but also large scale, yet single-issue campaigns (e.g. on peace) may fall under this category (Heaney and Rojas 2008; Walgrave and Rucht 2010). At the same time, coalitions and social movements proper may be treated with similar network analytic tools when it comes to identifying actors playing central roles in resource and/or symbolic exchanges, whether in revolutionary situations (e.g. Abul-Fottouh 2018) or in routine interest representation dynamics (Box-Steffensmeier et al. 2018).

Finally, a “subcultural/communitarian” MoC occurs when inter-organizational linkages are sparse (due to repression, infighting, or the nature of the issues), yet feelings of identification with broad collectives are widespread, and are embedded in shared practices and mutual affiliations by individual activists. In these cases, collective action gets coordinated primarily through interpersonal connections developed either in local communities or in communities of practice. The practices enacted by activists provide the main connection as well as the basis for boundary definition processes, in situations in which the role of groups and organizations is limited. The idea that activists’ interpersonal connections are the driving force of collective action, regardless of their possible ties to organizations, and the role that the latter may nonetheless play, has been well illustrated in reference to communities focused on cultural practices and cultural innovation, as well as to communities targeted by repressive bodies. One example of the former, conducted with a large use of sophisticated multimode and multilayer approaches, has come from Basov’s comparative work on artistic communities (Basov and Brennecke 2017; Basov and Kholodova 2022;

see also Crossley 2015 on networks behind the emergence of the punk movement). As for covert networks, an analysis of British suffragettes inter-personal networks between 1906 and 1914, based on Home Office reports, found the network to become less dense and less centralised as it became more covert (Crossley et al. 2012)."

Searching for modes of coordination

In order to detect MoC within larger fields, Diani (2015, chap.4) relied on structural equivalence and block modelling. Using clustering routine Concor (White, Boorman, and Breiger 1976), he identified within collective action fields in Glasgow and Bristol three sets of structurally equivalent organizations in the resource exchange network; then, he checked which blocks were also dense above the average in terms of boundary spanning connections (operationalized in this case as the network created by activists' multiple memberships). While mechanisms of homophily showed different strength across the two cities, in both case the incumbents of the block characterized by dense multiplexity were also the most likely to identify subjectively as part of broader social movements; the opposite applied to organizations in the least dense block (Diani 2015, chap.5). A related study applied the MoC model to networks of minority organizations in France and Switzerland, with analogous findings (Eggert 2014).

Another application of the MoC approach relied on a different blockmodeling strategy. Wary of the criticisms associated with the Concor procedure,² in her analysis of networks active on global justice Saunders (2014) relied on deductive rather than inductive blockmodeling. Differentiating between insiders, thresholders and outsiders, she contrasted their hypothesized network position against actual networking patterns. She used in particular an 'optimization' routine from the software package Pajek (de Nooy, Mrvar, and Batagelj 2004). In the first step she wisely restricted her empirical focus to actors in the main component of the network, moving later to treat incumbents of smaller components, or disconnected actors, "as a separate structurally equivalent" (Saunders 2014, 177).

Network positions, homophily, and cultural traits

Regardless of the preferred strategies, structural equivalence approaches have identified blocks within larger networks that have then been subjected to some kind of homophily analysis, searching for some correspondence between actors' traits and network position (Saunders 2014; Diani 2015, chap. 5). Among those traits, the exploration of boundary definition mechanisms, and their substantive interpretations, has proved difficult. In his applications of the MoC approach Diani (2015) has adopted a particularly "soft" version of boundaries, suggesting that organizations linked not only by resource exchanges but also by their activists' multiple commitments could be expected to share some degree of identity. On the other hand, critics (Saunders 2007) have countered that the concept of identity should be restricted to clearly identifiable units with agentic capacity such as organizations. Whatever the case, the role of cultural and symbolic traits has been highlighted.

² Concor has long been criticized for the difficulty to identify the analytic rationale behind the iterated correlation procedure (Wasserman and Faust 1994, 380–81).

The role of cultural traits in shaping network structure has also been explored through other approaches, searching for particularly dense subgroups within larger fields rather than equivalence. For example, looking at 25 organizations mobilized on forestry in Indonesia, Di Gregorio (2012) used the “island” algorithm to test to what extent density of interaction reflected value homophily among organizations. Cultural dynamics were also central to Ackland and O’Neil’s (2011) exploration of online hyperlinks between websites of 161 environmental activist organizations worldwide. Combining ERGM and modularity techniques to identify smaller clusters, they explored the interaction of hyperlinks and the structure of ties created by shared ways of framing environmental issues. Their findings illustrate the gap between interactions among organizations and their sharing of broader symbolic spaces.

One recurrent theme in the analysis of collective action networks has been the role of culture in strengthening density (and thus cohesion) within specific clusters, yet to the possible detriment of the integration of the larger networks. For example, an analysis of the twitter networks during the 2011 Egyptian uprising has shown strong ideological cohesion of subclusters to result ultimately in the fragmentation of the larger network (Abul-Fottouh and Fetner 2018). These findings are consistent with analyses of offline networks in British cities under very different political conditions. Baldassarri and Diani (2007) looked at the distribution of strong and weak ties within fields, where “strong ties” (that they named “social bonds”) combined resource exchanges and identity elements, represented by shared core members; while “weak ties” (“transactions”) only implied resource exchanges. They showed strong ties to be more significantly present within relatively dense clusters, while weak ties operated more frequently as bridges across clusters. Strong ties were also more likely to develop mechanisms of triadic closure, suggesting once again that greater cohesion within clusters might well ultimately increase the fragmentation of civil society networks taken as a whole.

Dynamics in collective action fields

A recurrent critique of SNA concerns its difficulty to cope with dynamics over time (e.g. Fligstein and McAdam 2012). While technical tools to model network change have long been available (Snijders 2005), access to proper data remains an issue. In the study of collective action, 2-mode or multimode data have proved useful. In particular, inspired by protest event analysis (e.g. Koopmans 2004), media reports as well as other archival sources have been searched in order to gather information about the co-presence of multiple actors in the same events/activities. SNA has then been used to map the structure of organizational fields, based on the co-presence of organizations in the same events. An earlier application mapped the protest sector in the US between the 1960s and the 1980s (Bearman and Everett 1993). Subsequent analyses have been devoted to a range of cases, from the Greek coalitions challenging neoliberal globalization in the early 2000s (Boudourides and Botetzagias 2007), to the global coalition fighting climate change in 2008-2009, building-up to the Copenhagen summit (Hadden 2015), or the protest coalitions in Poland in 2020 (Platek 2023). Different clustering techniques, from Concor (Bearman and Everett 1993) to Louvain

group detection (Platek 2023), have enabled researcher to highlight the internal complexity of collective action fields.

Analysts have also used media reports and similar data to explore the structure of protest campaigns, where specific events (or the issues raised in them) were connected to each other by organizations' multiple involvements (Bearman and Everett 1993). Additional expansions of the same 2-mode logic have looked at the evolution of protest campaigns where events were not connected by the co-presence of social actors, but by the similarity in the claims raised by promoters (Diani and Kousis 2014). Yet another line of investigation has looked at the co-presence of organizations in events to better understand mechanisms of tactical diffusion and the role played in it by inter-organizational collaboration (Wang and Soule 2012; see Bearman and Everett 1993 for an earlier exploration of changes in protest repertoires).

Looking ahead

On top of the persistent need to pay more attention to the time perspective, the network analysis of social movements and collective action also faces other challenges that are shared with the broader field of political networks and indeed network analysis at large. These include tackling the issue of endogeneity; dealing with missing data and sampling issues; understanding how to use big data; strengthening the link between network analysis and social scientific theorizing on political processes; developing the analysis of multiplex networks (Victor, Montgomery, and Lubell 2017, 24–27). Among them, looking not only at multiplex but at multi-modal networks seems particularly relevant to us, given the nature of collective action fields as the precarious, constantly renegotiated outcome of multiple interactions that involve heterogeneous actors as well as non-agentic elements such as events or symbols. While most of the contributions referenced here refer to 1-mode or 2-mode networks, work is in progress on multimode political networks that also covers collective action fields (Melamed, Breiger, and West 2013; Knoke et al. 2021).

Finally, the very surge in the use of big data in political analysis (see e.g. Rotman and Shalev 2020 for a masterful application to collective action) renders even more urgent to pay attention to the quality of data. Quantitative data are essential to map basic network patterns, but their interpretation can be massively enhanced through triangulation strategies that rely massively on qualitative as well as institutional data. In their study of food activist organizations in Denver, Luxton and Sbicca (2021) have provided an excellent example of how we can deepen our understanding of network structures and individual nodes through systematic, qualitative fieldwork. Through extensive use of materials from interviews they have been able to interpret survey data on actors' ego-networks, showing that networks are inevitably constituted through processes of meaning attribution. We need more research along those lines to overcome outdated oppositions between quality and quantity.

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