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RESEARCH ARTICLE

Taking a detour to travel farther afield: reconstructing collaborative collective action networks through documentary traces of events

Alejandro Ciordia
Scuola Normale Superiore

Aurora Perego
University of Trento

ABSTRACT

Social movement scholarship has long examined interorganizational collaboration through diverse theoretical and methodological lenses, with relational theories and network analysis being increasingly adopted. However, empirical investigations of collaborative networks remain limited due to data collection challenges. Reviewing extant network-analytic investigations of collaborative collective action, this paper distinguishes five types of data collection strategies and spotlights *indirect-unobtrusive* strategies. This long-available yet underutilized approach infers collaborative ties from documentary traces of co-involvement in diverse instances of collective action, offering cost-effectiveness, facilitating longitudinal network analysis, and enabling more theoretically grounded inductive solutions to the problem of network boundary specification. Such benefits are illustrated through recent examples of longitudinal network studies of environmental and LGBTQIA* collective action in distinct local European contexts. By providing a theory of practice of *indirect-unobtrusive* data collection designs, this article equips social movement scholars with the tools to travel farther afield in their explorations of collaborative networks.

KEYWORDS: collective action networks, comparative network analysis, data collection, interorganizational collaboration, longitudinal network analysis

CORRESPONDING AUTHOR(S): alejandro.ciordiamorandeira@sns.it, aurora.perego@unitn.it

1. Introduction

Since the 1960s, social scientists have examined collective action —i.e. "social phenomena in which social actors engage in common activities for demanding and/or providing collective goods" (Baldassarri 2009, 391)—from several theoretical standpoints and methodological approaches. Two main bodies of scholarship have contributed to the study of collective action dynamics: social movement research, focused on the social forms and processes through which collectivities express their grievances and attempt to promote or resist social change (della Porta and Diani 2006; McAdam, Tilly and Tarrow 2001), and organizational studies, focused on how actors succeed or not in forming stable patterns of coordinated action (DiMaggio and Powell 1983; Scott 1996).[1]

At the intersection between these two main strands, social network analysis (SNA) has been increasingly used by researchers studying collective action and social movements (for overviews, see: Crossley and Diani 2018; Diani and McAdam 2003; Diani and Mische 2015). In parallel, several relational theories have gained prominence, emphasizing that collective action cannot be understood without considering the complex web of relations in which sociopolitical actors operate (Diani 2015; Kriesi, Hutter, and Bojar 2019). Indeed, one of the most popular conceptualizations of social movements defines these as "networks of informal interaction between a plurality of individuals, groups and/or organizations, engaged in a political and/or cultural conflict, on the basis of a shared collective identity" (Diani 1992, 3). Network approaches can be broadly understood as "a way of thinking about social systems that focus our attention on the relationships among the entities that make up the system" (Borgatti, Everett, and Johnson 2013, 1). Hence, the conceptual and methodological toolkit of SNA allows analysts to formally represent and examine the complex meso-level structures in which collective action takes place. SNA provides a comprehensive view of multifaceted collaborative structures and enables systematic comparisons across contexts and over time.

Despite the potential benefits of using SNA in studying collaborative collective action, its use in empirical analyses remains limited. Traditionally, the bulk of extant network investigations of collaborative collective action gathered the required data through organizational surveys. More recently, with the increasing use of information and communication technologies (ICTs), digital data collection strategies have also gained prominence, driven by both the expanded availability of digital data and the growing theoretical attention to digitally-enabled collective action (e.g., Bennet and Segerberg 2013; Earl and Kimport 2011). While these two dominant families of data collection strategies offer many advantages, they also present important limitations regarding the type of research questions that can be explored. One of the main shortcomings concerns the difficulties in comparing collaborative networks across time and space, which has hampered empirical examinations of the role of shifting socio-political contexts in collaborative behavior.

To overcome some of the limitations associated with the two most common data collection strategies for reconstructing interorganizational collaborative networks, this article focuses on a long-available yet often-forgotten data collection alternative: *indirect-unobtrusive* strategies. Drawing upon the well-established tradition of multimodal network analysis (Breiger 1974; Knoke, Diani, Hollway, and Christopoulos 2021), this derivative approach (Borgatti 1998) towards network generation infers collaborative ties from documentary traces of co-involvement in specific collective action instances, be these public events or other types of activities. While these approaches have been employed for decades by network-oriented scholars from a variety of cognate (sub)fields such as historical sociology (e.g., Gould 2003), economic sociology (e.g.,

[1] For a comparative overview of the main theoretical standpoints that characterize social movement research and organizational studies and the bridges between the two, see: Davis, McAdam, Scott, and Zald (2005), Den Hond, De Bakker, and Smith (2015), Soule (2013), Weber and King (2014).

Mizruchi 1996), or international relations (e.g., Maoz 2006), they have long remained overlooked in the study of collective action and social movements.

In our view, this might be due to the high costs in terms of time and resources for collecting the required affiliation matrices of relevant instances of collective actions (e.g., protest events) with sufficient accuracy and reliability. However, the digitalization of social life has made this strategy much more feasible also in the case of collective action phenomena, therefore expanding its potential empirical applications. While gathering relevant datasets of ”documentary trace data” (Adams and Lubbers 2023) as an intermediary step of network generation could, at first, look like an unnecessary and costly detour, we contend that such an initial effort allows analysts to travel farther afield in their queries. More specifically, this underutilized approach presents a number of advantages in comparison with other data collection strategies, facilitating much-needed longitudinal and cross-sectional comparisons of collective action networks (Crossley and Diani 2018), providing more theoretically-grounded inductive solutions to the problem of network boundary specification, and expanding the kind of collective action phenomena that can be empirically studied through SNA lenses.

Considering these analytical advantages and diminishing implementation costs, we argue that network-analytic researchers of collective action should exploit the many advantages of indirect-unobtrusive data collection strategies, either in substitution or in combination with other data collection approaches, while also remaining aware of their challenges and limitations. For this purpose, this article aims to provide a “theory of practice” (Tarrow 2010) for the use of this long-existing network data collection strategies within the literature on collective action and social movements. Specifically, we address two sets of questions:

- What is distinct about indirect-unobtrusive network data collection in relation to other network data collection strategies?
- How can it be used most effectively? What are its strengths and weaknesses in terms of the kind of research questions that it can and cannot help answer?

This article argues that a wider adoption of indirect-unobtrusive strategies by network-oriented social movement scholars would offer novel opportunities to improve our understanding of relational dynamics within collective action fields, especially regarding collaborative behavior. The next section reviews the main strategies to collect data on collective action networks, distinguishing five main types. Section three provides a theory of practice of indirect-unobtrusive strategies in the context of collective action research, outlining concrete suggestions on the kinds of data sources and affiliation artifacts that can be used, and reviewing their pros and cons. The fourth section presents two empirical illustrations from the authors’ own research on the interorganizational dynamics of environmental and LGBTQIA* activism in Spain and Italy.[2] Finally, we conclude by outlining the opportunities, challenges, and recommendations for future network-oriented research on collective action and social movements.

2. Reconstructing interorganizational collaboration in collective action networks: a typology of data collection strategies

The interest in reconstructing the network patterns of interorganizational collaboration between collective actors can be traced back to the 1960s, with classic community studies. For instance, Edward O. Laumann and colleagues uncovered local power structures by looking at networks of collective action (Laumann and Pappi 1976), crystallized as interorganizational linkages between focal corporate actors (Laumann, Galaskiewicz, and Marsden 1978). More recently, relational meso-levels analyses of collective action have been increasingly resorting to a variety of field-theoretic approaches (Kluttz and Fligstein 2016). Within this framework, fields have been variously conceptualized and labeled as “collective action fields” (Diani and Mische 2015), “social

[2] The encompassing acronym LGBTQIA* stands for lesbian, gay, bisexual, trans*, queer, intersex, asexual, and other.

movement exchange fields" (Zietsma, Groenewegen, Logue, and Hinings 2017), or "fields of contention" (Hoffmann, Steinhilper, and Bauer 2022). Field-theoretic approaches, despite their diversity, share a common focus on dynamic systems of interdependencies. These systems are characterized by mutual recognition and dense interactions (Diani and Pilati 2011), in which collective actors define their membership and identity while collaborating or competing with other field members in pursuance of their objectives (Bourdieu 1977; Fligstein and McAdam 2012).

Regardless of their different focuses and specific inclusion criteria, a key task for any network analyst adopting a field-theoretic approach is to map the structure of collaboration between different collective actors, examining the extent to which they coordinate (or not) their activities with one another. Investigations into so-called "social movement coalitions" (for recent overviews, see: Brooker and Meyer 2018; McCammon and Moon 2015; Van Dyke and Amos 2017) aim to provide a deeper understanding of the formation, maintenance, and dissolution of different forms of interorganizational collaboration, as well as on their consequences for collective action outcomes. This literature empirically encompasses a wide range of collaborative interactions —from fleeting *ad hoc* collaborations to instrumental coalitions or more stable and deeper alliances— relying on a variety of methodological approaches such as interviews (Beamish and Luebbers 2009), ethnography (Lichterman 1996), and surveys (Saunders 2013). On a terminological note, while the term coalition is often used broadly to refer to any instances when "distinct activist groups mutually agree to cooperate and work together toward a common goal" (McCammon and Moon 2015, 326), throughout this article we favor the more encompassing term collaboration. We regard coalitions as a qualified subtype of interorganizational collaboration requiring a relatively sustained pooling of resources and some agreed-upon (formal or informal) norms to regulate decision-making and manage disputes (Brooker & Meyer 2018; Levi & Murphy 2006).

Existing approaches to collecting information about various types of interorganizational collaboration differ along two methodological dimensions: the type of evidence gathered, and the degree of obtrusiveness of data collection. Regarding the former, researchers can document collaborative interactions in direct ways –be it through self-reports, on-site observations, or the written records of these interactions– or, instead, infer their existence indirectly through other indicators such as joint participation in specific initiatives. Regarding the latter, depending on the level of involvement and interaction with studied collective actors that is feasible and/or desired, researchers can use more obtrusive or unobtrusive approaches (Webb, Campbell, Schwartz, and Sechrest 1966). In more obtrusive procedures, data are collected through interactions between researchers and research subjects.[3] In contrast, in unobtrusive procedures, data collection proceeds without interaction with the research subjects. Drawing upon the intersection of these two dimensions, we propose a typology of five main data collection strategies that can be adopted to reconstruct collaborative collective action networks (Figure 1).

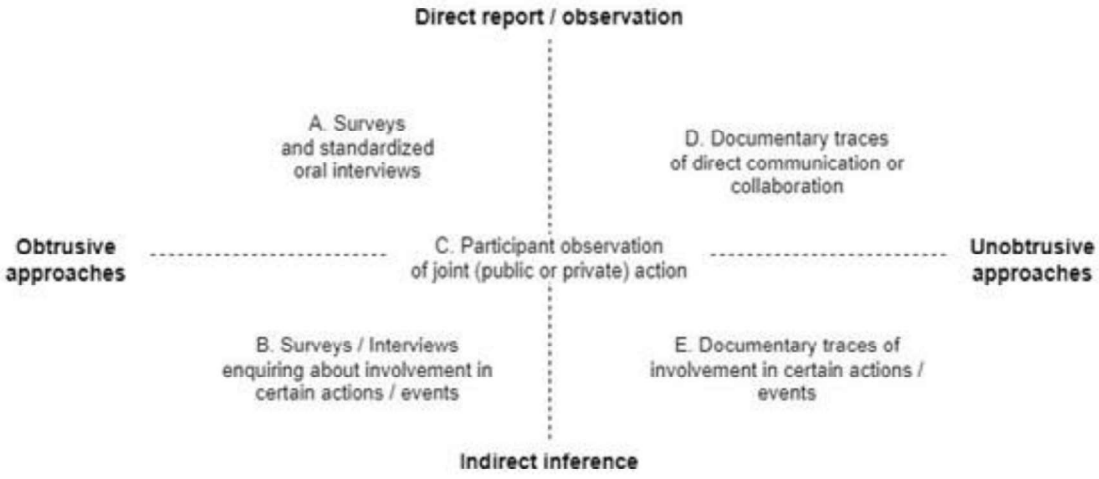
The first type, strategy A in the top left part of Figure 1, involves collecting information on interorganizational relations through surveys or standardized interviews with representatives of the studied organizations. This type of approach is, hence, obtrusive and direct. Traditionally, organizational questionnaires have been the main instrument for reconstructing collaborative collective action networks (Diani 2002).[4] They can be either self-administered (for instance, Saunders 2013) or completed together with the researchers (for instance, Diani 2015), in which case, they could also take the form of standardized oral interviews with a predetermined set of open-ended questions (e.g., Kriesi, Adam, and Jochum 2006). Using questionnaires and standardized interviews to collect network data presents numerous benefits. First,

[3] These approaches have also been called "collaborative" (Cardano 2011) or "reactive" (Veltri 2020), depending on scholars' emphasis on different aspects of the data collection process.

[4] For a broad overview of the types of questionnaires used to collect network data and of their construction see: Wasserman and Faust (1994, 5-48); Borgatti *et al*. (2013, 5-52).

researchers can obtain an extensive range of detailed relational information that would be otherwise difficult to observe, such as subjective relations between members (e.g., trust, distrust, friendship, etc.) and non-public connections (e.g., exchange of information, shared resources, mutual members, etc.). Additionally, surveys enable a better qualification of the properties of such relationships, like their perceived intensity and frequency (Marsden 2011).

Figure 1 - Typology of strategies to collect network data on interorganizational collaborative ties



Source: *Authors' own elaboration*

However, when using direct-unobtrusive approaches, there are several limitations to consider. These include challenges in delineating network membership (Laumann, Marsden and Prensky 1983), in reaching a complete or representative share of the population of interest due to high non-response rates,[5] dependence on organizational representatives' expertise, and issues with respondents' reactivity to the interview situation (Nederhof 1985) and questionnaire wording (Borgatti *et al.* 2013). The first two limitations can be particularly worrisome for the validity of the resulting collective action network, as sociocentric network approaches are sensitive to missing data (Borgatti, Carley, and Krackhardt 2006) and an inaccurate 'boundary specification' may result in a misrepresentation of the network, hence rendering the analysis potentially meaningless (Lauman, Marsden and Prensky 1983, 19). Furthermore, organizational surveys are poorly suited for longitudinal network analyses due to high levels of attrition, caused both by response burden and the inherent perishability of voluntary organizations (Marsden 2011). Additionally, interviews aiming to reconstruct past ties are problematic because people often inaccurately remember past interactions (Bernard, Killworth, Kronenfeld, and Sailer 1984). This explains the dominance of static studies over dynamic network analyses in interorganizational collective action networks (Crossley and Diani 2018, 159).

The second type of data collection approaches, strategy B in the bottom left area of Figure 1, involves obtaining information on interorganizational interactions by asking about organizational participation in specific activities (Diani 2002). Researchers examine the reported coincidences as indicators of collaboration,

[5] It has been found that when researching social movement organizations "mailed questionnaires seldom generate response rates higher than (…) fifty percent for organizational ones [surveys]" (Klandermans and Smith 2002, 17). Indeed, in the few studies in which this information is reported response rates remain at best between thirty and fifty percent (see Ansell 2003, 128; Eggert and Pilati 2014, 863; Saunders 2013, 19), with the lone exception of Katia Pilati's (2016) examination of migrant organizations in Milan, which reached 70%.

therefore inferring collaborative ties indirectly or by "derivation" (Borgatti 1998). While this strategy suffers from some of the same caveats associated with obtrusiveness mentioned above (i.e., boundary specifications, low response rates, responses' varying reliability), its indirect nature may reduce both respondents' reactivity in comparison with more explicit relational questions (since the ultimate purpose of the question is not evident at first sight) and the impact of recall issues (especially when asking about involvement in major events, which are more likely to be accurately remembered than past pair-wise collaborations). Thus, this obtrusive survey-oriented approach may be slightly more suitable for longitudinal network analyses than its direct counterpart (see Diani 2015, ch. 6).

A hybrid type of approaches concerns participant observation of joint activities, strategy C at the center of Figure 1. Participant observation can involve analyzing communication patterns, conversational dynamics, and cultural or cognitive proximities between actors of interest (Hollstein 2011; Mische 2008). The study settings range from closed organizing spaces to public gatherings and protest events. From a network perspective, this approach allows researchers to observe on-site interactions between the population of interest in a specific setting and time (Caiani 2014). However, the meaning of such interactions needs to be inferred by researchers who are observing (hence unobtrusively) or by directly asking participants (hence obtrusively) (Hollstein 2011). While participant observation is seldom used as the sole source of network data, it can be combined with other data sources, such as interviews or documents (e.g., Broadbent 2003). As key benefits, it can increase access to the field, help build rapport with the organizations under study (Hollstein 2011) and enhance the reliability of data obtained through other sources, providing an exhaustive contextualization of the field along with an in-depth understanding of collaboration-enabling practices (Mische 2008). However, participant observation also presents some limitations, as the quality and significance of the data collected depends on the observation setting and temporal window, since limited exposure in the field –either in terms of diversity or temporal reach— may affect the researcher's ability to obtain a comprehensive view of the interactions between all involved actors. To improve data quality, repeated observations over extended periods of time are advisable (Mische 2008) but may entail significant time and resource costs. Therefore, participant observation may not be suitable for collecting data on large networks or from a longitudinal perspective.

The fourth approach, strategy D in the top right part of Figure 1, involves gathering information on interorganizational relations by examining written records or traces of direct communication and/or collaboration. Written records may include various kinds of documents, such as traditional archival data (Burt 1983) but also digital traces of communication through emails, forums, or social media (e.g. Simpson 2015). Similarly to participant observation, network data from written records is often used in combination with other data sources to enhance the reliability of the network (Hollstein 2011; Mische 2008). This strategy offers advantages such as low cost and the ability to study fields in which access or direct observation is challenging, for instance, when investigating marginalized groups, hostile or extremist collective action, or emerging phenomena (Hollstein 2011). However, written records also present some limitations. Firstly, many of the documents on organizations and collective action events are less standardized than official records, and thus may require high efforts to systematically process and code (Borgatti *et al.* 2013). Second, the reliability, validity, and accuracy of written records needs to be critically assessed by researchers on a case-by-case basis (Cardano 2011). For instance, archival data may contain partial and/or manipulated information to serve certain agendas. Furthermore, the meaning of digitally-mapped ties is still highly debated and not easily transferable from offline to online interactions (Earl, Kimport, Prieto, Rush, and Reynoso 2010). Hence, using written records as the only data source may lead to misleading results if not carefully designed and assessed.

The fifth type of approaches, strategy E in the bottom right area of Figure 1, refers to strategies that gather information on interorganizational relations by examining written records of affiliation data, such as co-participation in events, meetings, and projects, as well as co-citation and co-appearance in documents (Caiani

2014). Through these approaches, collaborative relations are, similarly to strategy B, inferred by "derivation" (Borgatti 1998), though this time the required data can be obtained unobtrusively. In contrast with strategy D, rather than considering direct relations, such as communicating with and mentioning each other, researchers focus on indirect relations, such as appearing in the same document, participating in the same event, taking part in the same committee, and so on. The idea of inferring relations between actors when direct observation is not possible or desirable builds upon a slight variation of Breiger's (1974) well-known formalization of the "duality of persons and groups" principle, inspired by Simmel's classic theoretical work (1955). Just as individuals develop links to each other through their overlapping affiliations with the same social groups, it seems reasonable to assume that shared activities generate connections between collective actors who partake in these. While the frequency of co-participation cannot provide a perfectly accurate measure of interorganizational collaboration, it can serve as a valid indicator of meaningful collaboration patterns when values are obtained from large and reliable catalogs comprising hundreds of events that occurred over an extended period of time. Moreover, once an affiliation matrix is available, the technical procedure for obtaining co-participation networks is quite straightforward, founded upon basic matrix algebra, suitable for normalization, and readily available in common statistical software packages (see Borgatti and Halgin 2011).

Despite relying on the same data sources as strategy D, we argue that indirect-unobtrusive approaches present specific advantages that may overcome the limitations of written records employed in a direct fashion. Additionally, they may help researchers deal with the shortcomings of surveys, participant observation, and interviews to collect information on both direct and indirect relations. We dedicate the next section to discussing the advantages of collecting affiliation data to study collaborative collective action networks, with a particular focus on the use documentary traces of collective action events to derive collaboration. Despite the abundance of studies based on the well-established methodological tradition of protest event analysis (PEA) (for reviews, see, among others: Earl, Martin, McCarthy, and Soule 2004; Hutter 2014), cross-fertilization between PEA and SNA has remained scant, with only a few exceptions (e.g., Bearman and Everett 1993; Diani and Kousis 2014; Pirro, Pavan, Fagan and Gazsi 2021; Wada 2014; Wang and Soule 2012). Thus, we argue that, in addition to their traditional use for aggregative statistical analyses, PEA datasets can also be used relationally to build collective action networks if variables registering participant organizations are coded with enough granularity and record multiple participants for every single event. The implementation of methodological improvements on the relationality and verifiability of protest events datasets (Oliver, Hanna, and Lim 2023), as well as the expansion of the conventional contours of PEA beyond traditional mass media sources and strict protest events (Carvalho 2024; Sampson, McAdam, MacIndoe and Weffer-Elizondo 2005) will make this hybridization with network analysis even more attractive.

3. Indirect-unobtrusive data collection: a theory of practice for an old, underused alternative

As shown in the previous section, researchers interested in studying interorganizational collaboration through network-analytic lenses have multiple possibilities at their disposal, which we categorized into five broad strategies, each with its own strengths and weaknesses. In the remainder of this article, we will focus on the last outlined strategy: indirect-unobtrusive strategies that reconstruct collective action networks through documentary trace data. This decision is not based on the assumption that this strategy is necessarily superior to the others, as the effectiveness of any approach depends on its adequacy to the specific research question, context, and objectives of a study. Instead, we focus on this network data collection strategy because it has remained largely overlooked by network-oriented scholars of collective action, even though it is commonly used in other areas of social research. Moreover, we argue that when researchers aim for reliable longitudinal

and/or cross-sectional analysis of interorganizational networks, this data collection approach might be the most suitable option.

3.1 Practical considerations: affiliation artifacts and data sources

Researchers using indirect-unobtrusive data collection need to specify a sufficiently comprehensive catalog of relevant affiliation artifacts (Neal 2014) and elaborate a reliable registry of how each of the collective actors of interest relates to these. A wide range of indirect indicators of relations, associations, and/or dependencies can be selected to establish relevant connections between collective action organizations. Possible examples include co-participation in public collective action events, in internal activities or in institutionally-channeled initiatives, co-membership in multi-organizational initiatives, and overlaps in claim-making. Because suitable datasets of relevant affiliation artifacts are seldom available ex ante, researchers usually need to build their own dataset of documentary trace data that serves as valuable breadcrumbs from which interorganizational relations can be inferred (Adams and Lubbers 2023). For instance, to obtain network data on event co-participation, an appropriate dataset of collective action events is required.

Here we concentrate on four types of documents where traces of relevant offline and/or online collective action behavior are most likely to be found: (a) news articles, (b) alternative media sources, (c) organizations' primary documents, and (d) administrative records. Table 1 provides a summary evaluation of the suitability of different affiliation artifacts and sources of documentary traces for building collective action networks. Our assessments are not intended as definitive and universal criteria, but as a tentative guideline that can be adapted to the specific research objectives and practical constraints of each empirical study.

Table 1 - Summary table of the appropriateness of different combinations of affiliation artifacts and sources of documentary traces (A = Advisable; P = Possible; NS = Not Suitable)

AFFILIATION ARTIFACTS	*News articles from mainstream media sources*	*Alternative media sources*	*Organizations' primary documents*	*Institutional administrative records*	***Examples of advisable combinations***
I. Visible collective action events	A	P	P	NS	Wang and Soule (2012)
II. Non-visible internal activities	NS	P	A	NS	Harris & Doerfel (2017)
III. Institutional procedures	NS	P	P	A	Holm and Berardo (2020)
IV. Umbrella groups	NS	P	A	P	Hadden (2015)
V. Claim-making	P	P	A	P	Perego and Pavan (2024)

Source: Authors' own elaboration

The first and most frequent affiliation artifact for indirectly reconstructing collective action events are public and visible collective action events, particularly protests events (e.g., Wang and Soule 2012).[6] From this perspective, event co-participation is considered a public expression of interorganizational collaboration (Diani and Mische 2015, 311), assuming that organizations involved in many shared events will tend to be more strongly linked to each other than those who hardly coincide in the same events (Diani 2015, 141). To identify traces of organizational participation in public events, news articles (particularly from newspapers) are the

[6] Even if protest events have received the lion's share of attention, collective action events can also be of a civic or hybrid nature (Sampson *et al.* 2005, 684-6).

preferred data source. Despite their imperfections and shortcomings (see Earl *et al.* 2004), newspapers are widely used in PEA studies because of their accessibility (enhanced by digitalization), selectivity, reliability, continuity over time, and ease of coding (Hutter 2014, 349). Although news articles are generally a convenient source to find documentary traces of event co-participation, alternative sources can be better suited in specific cases, provided that they present sufficient temporal continuity and systematicity. These alternatives include nontraditional media outlets like social media profiles (e.g., Zhang and Pan 2019) or sector-specific hub websites (Kousis, Giugni and Lahusen 2018), which can also be used in combination with newspapers (e.g., Hoffman *et al.* 2022).

Nonetheless, in many empirical contexts (e.g., marginal fields of contention, repressive contexts, prevalence of non-contentious and non-publicly-oriented repertoires of action, etc.), public collaborative events might not be the best choice as affiliation artifacts. In such cases, researchers can examine less visible instances of collaboration, such as open meetings and assemblies, fundraising events or educational activities, which are covered in mainstream media but can function as valid indicators of collaboration, rarely make the news, yet they can still be equally or even more indicative of collaborative ties than co-attendance at larger protest events. For these purposes, document analyses collecting organizations' primary documents can be reliable sources of information, particularly case studies examining small local fields (e.g., Harris & Doerfel 2017). Alternatively, nontraditional media outlets and social media accounts are also worth exploring, particularly for fields where relevant hub-websites (Kousis *et al.* 2018) exist.[7] Additionally, since collective action sometimes takes advantage of established institutionalized channels, procedural actions such as administrative or judicial complaints, or popular legislative initiatives, could also serve as affiliation artifacts, with the advantage that their content and authorship are often automatically archived in administrative registries (e.g., Holm and Berardo 2020).

Besides participating in specific collective action events, civic actors can also collaborate by joining forces in ad hoc supra-organizational umbrella groups (e.g., Hadden 2015, ch. 2). Joint participation in this kind of enduring coalitions (Levi and Murphy 2006) –which can be highly heterogeneous in terms of longevity, size, scope, public impact, and activities conducted— provides meaningful information on more sustained and behind-the-scenes forms of interorganizational collaboration. Information on the organizational composition of such umbrella groups can be found in primary documents, websites, newspapers or administrative archives when these are formally constituted.

Finally, a quite different yet increasingly available affiliation artifact concerns claim-making, which can serve to unveil latent discursive and cognitive bonds between collective action organizations (e.g., Völker and Saldivia Gonzatti 2024). This can allow researchers to obtain a wider view of frame alignment processes between organizations. Framing congruence signals not only ideological proximity, but also the emergence of deep interactions through which collective identities are formed and negotiated (Diani and Pilati 2011), hence providing deeper insight into how interorganizational collaboration may be sustained over time. As claim-making instances are typically disseminated in the public sphere and registered in written and/or digital forms, gathering instances of claim-making by collective organizations themselves on their own websites or social media accounts through web-scraping or API interfaces is nowadays a reliable and efficient data collection strategy (e.g., Perego and Pavan, 2024).

[7] That said, it should be borne in mind that actors themselves may indeed incur in self-reporting bias, as well as having inconsistent and non-comparable communication strategies.

3.2 Advantages and weaknesses

We highlight four prominent strengths of indirect-unobtrusive strategies for collecting data on collaborative collective action. The first three advantages are shared with other unobtrusive strategies that rely on secondary network data collection (see Diani 2002, 182), whereas the fourth one is particular of indirect inference vis a vis explicit records of interactions.

1. *Cost-effectiveness*. While collecting relevant documentary traces of interorganizational collaboration in a systematic way entails a significant investment of time and resources, this approach is often cost-effective compared to other forms of primary data collection and is particularly beneficial for complex multi-site investigations.
2. *Reduced problems of access and non-responses*. This approach mitigates issues related to gaining access to certain organizations or individuals, thereby bypassing the vexing issue of low response rates and ultimately enhancing the feasibility and completeness of data collection.
3. *Enhanced comparability over time and across geographical contexts*. Documentary trace data provides a more cost-effective, reliable and comprehensive means of observing collaborative interactions among collective actors over extended periods –circumventing the problems posed by the well-known of inaccuracy of survey data to track past interactions— and/or across multiple geographical contexts.
4. *Inclusion of a wider array of contexts, actors and collaborative behaviors*. Utilizing documentary sources can enable empirical examinations of collective action phenomena on which systematic relational data could hardly be collected through other means. These include groups of various kinds to which access and consent might be especially hard to obtain, such as extremist or violent actors, authoritarian contexts, and long-past historical phenomena.

The combination of these four strengths leads to two crucial beneficial implications for the advancement of network-analytic collective action research, addressing two common criticisms of existing studies: the inconsistency and lack of transparency of boundary specification rules for deciding which collective actors are included in a given network (Diani 2002; Laumann *et al.* 1983), and the excessive predominance of static designs that do not capture network dynamics (Crossley and Diani 2018). To counter these two shortcomings, indirect-unobtrusive strategies offer two key advantages: (a) clearer and more explicit criteria for boundary specification in emic/realist terms,[8] based on actual involvement in specific collective action initiatives, and (b) the increased feasibility of data collection designs encompassing multiple time points and longer periods. This second advantage is crucial for encouraging further explorations of how interorganizational collaboration and their determinants "vary in different political contexts and phases of protests" (Diani and Mische 2015: 316), as different contextual conditions are expected to provide different incentives and constraints for creating and maintaining certain types of collaborative ties. Even though the few available network studies do not provide univocal findings (Ibid.), it is generally understood that more open and favorable contextual settings are conductive to more inclusive networks in which collaborative ties cut more often across ideological or identity-based differences (e.g., Diani 1995; Eggert 2014).

Notwithstanding the many advantages of indirect-unobtrusive strategies, this approach also presents shortcomings. Previous literature has pointed out four main problematic aspects:

1. *Handling of unstructured textual data.* Unstructured textual data presents many challenges when converting it to structured network data. Although there have been rapid advances in (semi-)automatic text analyses applied to the coding of protest event data (e.g., Lorenzini, Kriesi, Makarov and Wüest

[8] Realist approaches towards boundary delimitation rely on the respondents' own perception of their belonging within a given field as the key criteria to establish network membership (see Borgatti et al. 2013, 32-5).

2022), which have become even more promising with the proliferation of Large Language Models (LLMs) (Caren, Andrews and Ray 2023), existing techniques are unlikely to deal with technical issues of identification of actor's participation or name disambiguation without significant human supervision. Therefore, computer-aided manual coding remains unavoidable in most cases, which can be time-consuming, resource-intensive, and prone to human errors.

2. *Vulnerability to biases of original sources*. The quality of the data collected through indirect-unobtrusive strategies is necessarily affected by the descriptive and selection biases present in the original sources. Two such biases are particularly menacing for the reconstruction of collective action networks: the non-random misreport of events (Franzosi, 1987, 7-9), and the selective identification of participants (Andrews and Caren 2010; Bearman and Everett, 1993, 179-80). Even when adopting a representational approach (Mueller 1997), a careful selection of original sources should be oriented towards the minimization of these biases as well as towards keeping potential misrepresentations and omissions constant across context and over time.
3. *Edge attribution errors*. In connection to the two previous points, inferring affiliations between organizations based on documentary traces may lead to edge attribution errors due to ambiguous, incorrect, or missing information in the original sources, as well as human mistakes. Even a reduced number of errors of omission (i.e., missing collaborations) and commission (i.e., erroneous inclusion of non-existing or superfluous collaborations) can distort the structure of the resulting network.
4. *Distorted values of some network statistics.* Even when ensuring the reliability of the original data, most indirect-unobtrusive data collection strategies may yield distorted values of some common network statistics, particularly density and clustering (Latapy, Magnien, and Del Vecchio 2008, 34). Therefore, caution should be exercised when contrasting the cohesiveness of interorganizational networks reconstructed through differing strategies and sources.

However, rather than seeing these weaknesses as reasons for dismissing indirect-unobtrusive data collection strategies, it can be more fruitful to use this awareness to improve data collection designs. More specifically, we propose researchers should aim at the minimization of these four shortcomings when making two crucial and intertwined design decisions: the selection of activities used as affiliation artifacts and of data sources.

4. Empirical illustrations

Within collective action scholarship, the few studies leveraging an indirect-unobtrusive approach have examined collaborative networks through various analytical techniques, such as whole-network descriptive analyses (e.g., Pirro *et al.* 2021), node-level comparisons of centrality and brokerage metrics (e.g., Hoffmann *et al.* 2022), analyses of structural equivalence through blockmodeling (e.g., Wada 2014), community detection (e.g., Platek 2024), and QAP regressions (e.g., Steinhilper and Hoffmann 2024). However, in this section, to better outline how indirect-unobtrusive approaches can inform the study of interorganizational networks, we provide two empirical illustrations from our own research on, respectively, the interorganizational interaction dynamics within environmental activism in the Basque Country and LGBTQIA* activism in Madrid and Milan.

4.1 Environmental networks in the Basque Country

The first author conducted a longitudinal study on collaborations within the environmental collective action field in the Basque Country, Spain (Ciordia 2020, 2021). The study aimed to test how the end of a forty-year violent ethnonational conflict in the region in 2011 had transformed everyday relationships among civic

organizations. For this purpose, two datasets focusing on two distinct collaborative interactions were collected, both covering an eleven-year period between 2007 and 2017.

First, a dataset of public environmental events was gathered using four local newspapers as sources to reconstruct event co-attendance patterns over time. The coding was undertaken through a network-oriented open software for the qualitative analysis of texts: Discourse Network Analyzer, DNA (Leifeld 2017), which allowed for unlimited coding of participating organizations for each of the 419 events observed during six alternate years within the 2007-17 period. This approach provided a clear realist criterion of boundary delimitation based on actors' reported involvement in environmental collective action: attendance at two or more environment-related public events in a given year. Moreover, the empirical strategy helped map loosely formalized and unregistered organizations that might have been overlooked and allowed the incorporation of non-environmental actors such as trade unions, political parties, and civic organizations who regularly participated in environmental collective action despite coming from other movement industries. Conversely, inactive and sporadically active environmental organizations were automatically excluded from the analysis. As a result, even if the networks corresponding to each of the six yearly observations present a varying node set, they are still analytically comparable as successive temporal observations of public collaboration within the changing "collective action field" (Diani and Mische 2015) of Basque environmentalism. The analyses of event co-attendance through QAP regressions revealed that before 2011, environmental groups' choices of who to collaborate with were significantly influenced by their identification with Basque nationalism and their different views on the violent activities of the separatist group ETA (Euskadi Ta Askatasuna, or Basque Homeland and Freedom). However, after ETA had stopped its violent activities in 2011, this influence was significantly reduced.

Secondly, this investigation also analyzed co-membership across nineteen issue-specific umbrella groups, using public lists from primary sources produced by umbrella groups and major environmental organizations. These networks of co-participation in "enduring coalitions" (Levi and Murphy 2006) complemented the event co-attendance data and allowed for the creation of a more comprehensive metric of resource exchanges within the analytical framework of the "modes of coordination" (MoC) (Diani 2015). The inductive blockmodeling of multi-relational networks with two types of weighted ties –resource exchanges and boundary interpenetrations— reveals an expansion of relational patterns typical of the social movement mode of coordination following the end of violent conflict. Additionally, incumbents of the social movement mode exhibit a greater diversity in terms of their ideological and organizational characteristics compared to the previous phase.

This longitudinal study showcases the potential of adapting protest event analyses to reconstruct dynamic network structures emerging from co-participation in collective action events at multiple points in time. This could pave the way for more sophisticated analyses of the temporal dynamics of collective action networks, which remains an under-researched area (Crossley and Diani 2018). The digitalization of printed media provides many opportunities to exploit the dualistic logic of two-mode networks of events and participants, making it possible to code detailed information more efficiently and multi-source designs more feasible. Access to multiple and contrasting local sources, which tend to be less selective in their coverage of collective action events (Daphi, Dollbaum, Haunns, and Meier 2024), without a dramatic increase in data collection workload can enhance the quality of the event data used as affiliation artifacts. Multi-source designs can reduce the impact of two sources of bias that are particularly problematic for the generation of event-based collective action networks: the non-random misreport of events (Franzosi, 1987, 7-9), and the selective identification of participants (Bearman and Everett, 1993, 179-80). Indeed, it is worth nothing that in this study the degree of

correspondence between survey self-reports of collaboration and external observations of event co-attendance was notably high, with 69% of evaluated dyads coinciding between the two sources.[9]

4.2 LGBTQIA* digitally-mediated interactions in Madrid and Milan

The second empirical example, conducted by the second author (Perego 2023), refers to a comparative analysis of digitally-mediated interactions between LGBTQIA* organizations active in the cities of Madrid and Milan between 2011 and 2020. The study focused on how these organizations used Facebook to interact with other LGBTQIA* groups (within-field interactions) as well as with CSOs from other collective action fields (cross-field interactions). The study considered three types of digitally-enabled interactions: mentioning the Facebook pages managed by other groups, sharing the content produced by other groups, and promoting the collective action events organized by, or together with, other groups. While mentioning and sharing are digital interactions that signal acknowledgement and endorsement (Mercea 2013), event-promotion is a hybrid interaction (Pavan 2014) that encompasses the use of social media to promote offline collective action events. As such, sharing the links to collective action events created by, or co-created with, another organization functions as a call for action and entails a deeper engagement with other collective actors (Perego 2023).

Data on event-promotion interactions was gathered from the public Facebook posts published by the sampled LGBTQIA* on five alternate years (2011, 2013, 2015, 2017, and 2019). A total of 2,112 posts in Madrid and 3,700 in Milan that promoted other organizations' events were identified. Event-promoting networks were constructed by linking the sampled LGBTQIA* organizations to the organizations whose events were promoted, thus obtaining a directed and weighted network, with tie values indicating the number of times one of the sampled LGBTQIA* organizations promoted an event organized together with or by another organization in a given year. These networks were first examined by calculating network-level measures on network size, cohesion, and activity. Furthermore, the proportion between the within-field interactions (ties linking LGBTQIA* organizations only) and cross-field interactions (ties linking LGBTQIA* organizations to non-LGBTQIA* actors) was examined through the E-I (external-internal) index (Krackhardt and Stern 1988).

This study finds that event-promotion networks steadily increased and became more active both in Madrid and Milan. However, the networks created by Milan-based organizations were overall more numerous, active, and cohesive than Madrid-based ones, except for 2011. In addition, unlike Madrid, Milan's networks showed a higher propensity of external ties, indicating that LGBTIQA* organizations were more inclined to promote joint events with organizations outside of the LGBTQIA* collective action field. These findings suggest that both cities' LGBTQIA* organizations used Facebook to articulate broad calls for action, although organizations embedded in a more conservative context (such as Milan) tended to do so more frequently and actively (Perego 2023). Consistent with previous studies on the nexus between socio-political opportunities and cross-field networking (Van Dyke 2003), this research suggests that LGBTQIA* actors facing external threats, such as lack of public legitimacy and rights, are more prone to join forces with actors from other fields.

This study showcases the potential of using event data to map digitally-enabled interactions. This approach allows researchers to compare the structures of interactions that have been conventionally examined in the digital sphere, such as mentioning and sharing, with the patterns of interactions that entail a deeper level of engagement and hybrid organizational practices. Furthermore, digital event data can also be employed to generate undirected networks of event co-promotion or co-organization, similarly to the first empirical illustration. By providing us with information on which organizations were involved in the offline events that were digitally promoted on Facebook, these networks provide rich insights into how field boundaries are

[9] The data files supporting this cross-validation exercise are available upon request.

defined, negotiated, and spanned by LGBTQIA* organizations across contexts and over time. Furthermore, this approach can help researchers thoroughly examine the role that social media platforms play in fostering or inhibiting interorganizational collaboration.

5. Conclusion: opportunities, challenges, and recommendations

Research on social movements and collective action has extensively analyzed how organizations collaborate with one another using various theoretical and methodological approaches, with a growing use of relational theories and network analysis. Nevertheless, gathering appropriate network data has posed challenges, resulting in limited empirical studies on collaborative networks. In our view, this scarcity is largely due to the difficulties in obtaining the kind of fine-grained relational data required to reconstruct collaborative collective action networks. This article suggests that network-oriented social movement scholars could benefit from using more often indirect-unobtrusive data collection strategies in which collaboration is inferred from documentary traces of co-involvement in the same collective action endeavors. While these strategies have long been used in other research areas, they have not been widely implemented by network-analytic collective action scholarship. This article argues that, with the increasing digitalization of social life, including collective action phenomena, the costs of using these methods have decreased and their practical applicability has expanded. Therefore, the article lays the foundations for the development of a "theory of practice" (Tarrow 2010) of indirect-unobtrusive strategies for reconstructing collaborative collective action networks.

The first step was to situate indirect-unobtrusive strategies within a larger set of available options to collect network data on collaborative collective action. We identified five ideal-type approaches based on whether the ties are directly observed or indirectly inferred and on the degree of obtrusiveness. These are categorized as: direct-obtrusive, direct-unobtrusive, indirect-obtrusive, indirect-unobtrusive, and ethnographic observation, which falls between the other four types. While each of these approaches presents its own strengths and weaknesses, and their suitability primarily depends on their adequacy to the research questions the researcher aims to answer, the rest of the article delved into a more detailed discussion of the merits and caveats of indirect-unobtrusive strategies and their potential applications, highlighting key considerations that analysts looking to implement this data collection approach should consider.

We believe that using this less common approach to collecting network, which has become more cost-effective due to the increasing digitalization and automation of documentary research, offers some crucial benefits for collective action researchers. First, it allows easier comparisons of collective action networks over time and across contexts. It also enables researchers to devise and implement more theoretically-grounded inductive approaches to specifying network boundaries. Finally, but not less important, it can broaden the range of collective action phenomena that can be studied through social network analysis. Compiling a suitable dataset of affiliation artifacts offers a solution to potential issues related to lack of access to the field of interest or low response rates to organizational surveys.

Despite these advantages, indirect-unobtrusive approaches have some limitations that need to be addressed when designing investigations that rely on these strategies. Documentary traces can be unstructured, incomplete, and biased by their authors and/or compilers, thus providing researchers with incomplete or partial information. To help readers understand these constraints, we have discussed how various documentary traces can be used to collect data on different affiliation artifacts. We have provided suggestions on when such sources are advisable for gathering information to reconstruct networks, and when they are not (see Table 1).

In conclusion, we contend that indirect-unobtrusive data collection strategies have the potential to help social movement scholars overcome three main issues when reconstructing collective action networks: the specification of network boundaries, the reliance on static designs that are not able to capture network evolution

and change over time, and the prevalence of single case study that make it difficult to assess the impact of external contextual conditions on relational dynamics. In contrast to conventional strategies for collecting network data, indirect and unobtrusive approaches, despite initially appearing to be a detour from the object of analysis, can enhance our understanding of interorganizational collaboration in collective action, thus helping our investigations to travel farther afield.

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