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## Comment on Nick Crossley/4

(doi: 10.2383/32053)

Sociologica (ISSN 1971-8853)

Fascicolo 1, gennaio-aprile 2010

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# Comment on Nick Crossley/4

by José Luis Molina

doi: 10.2383/32053

## Introduction

The article by Nick Crossley is a brilliant exposition of both advantages and difficulties of using network analysis in social research. It is hard not to agree with him in his account about what a quantitative approach is, what social network analysis (SNA) does well and what are the advantages of incorporating qualitative methods in the research design. Through three case examples based on his previous research, the author points out the fallacies of using a single approach (SNA alone in this case) and how qualitative methods are needed for getting a more reliable understanding of the social world under study.

In this comment I want to suggest other possible interpretations of those supposed fallacies of SNA identified in the cases, to provide an explanation of this divergence and, finally, to discuss what is the nature of the data we are working with and what kind of algebra we are using to represent it. What are networks and how we measure them are, in my opinion, the key issues addressed by the author in the article.

Therefore, in the next pages I shall focus only on alternative interpretations of SNA failures in the given cases in order to address the nature and measurement of social networks more than going through the contributions of this article, which are in my opinion as I said highly valuable.

## **SNA Fails in Identifying Consequences of Network Structure (Brokerage-Closure) on Social Behavior**

In the first case study the author presents a network with two individuals in the center (two outliers in terms of their betweenness) connecting four high cohesive groups. Following the rich literature on brokerage-closure [Coleman 1990; Burt 1992; Burt 2004; Burt 2005 among many others], the author expected to find a highly “balanced” system, with subgroups engaged in supporting activities for their members and brokers ensuring the circulation of new ideas or new information among groups (and gaining at the same time advantage of their structural position).

Against his expectations, the author found conflicting demands over the two brokers at the same time that the cohesive groups developed a growing competence among them in order to ensure identity and autonomy in each group. This finding is especially interesting as far as the empirical evidence of the positive outcomes that rewards brokerage positions and the high level of social support developed within dense networks is overwhelming.

The alternative reality observed by the author were: 1) cohesive but also *competing* groups; 2) brokers *suffering* instead of enjoying (*tertius gaudens*, in Burt’s terms).

After analyzing the case the author concludes that *a given structural configuration (brokerage-closure in this case) does not necessary produce the same behavior’s complex*. In order to support this statement, he relies on an alternative interpretation of brokerage given by Krackhardt [1999] in which brokers can be exposed to public scrutiny and thus put under pressure instead of gaining net advantage of the mediation role (the suggestive title “The Ties That Torture” explains itself).

The first point, cohesive groups developing rituals and exerting a growing pressure over their members for dismissing external ties, is not contradictory, in my opinion, with SNA literature, or with the classical literature on small group dynamics [*i.e.*, Homans 1950; Whyte 1955]. In fact, it was expected. The point here is the existence of conflict in a supposed “balanced” structure. I shall address this point later.

The second point, the negative consequences of brokerage, not only was pointed out by Krackhardt but also by the literature exploring the health consequences of the stress associated with people that interact with different groups with different norms and values [Cornwell 2009; Reyes-Garcia *et al.* 2008]. People who experienced role conflict because of their structural positions among groups have to face high levels of stress and social activity, with negative impact of their health. Therefore, the problem is not with SNA in itself but possibly with Burt’s emphasis on the positive side of brokerage (mostly in terms of earnings and knowledge), concealing the negative side of this role in society.

At risk of playing the Evil Advocate (of SNA in this case), I want to point out that even the “qualitative” perspective of the author doing fieldwork (which allows a richer interpretation of the network under research) is predicted by network theory: *the more central an actor is the better is his/her knowledge about the network structure* [Krackhardt 1990]. This effect was experienced by the same author when he says that “my own position in the network initially obscured my view of other positions and actors but a subsequent change in network structure (...) allowed me to identify them retrospectively.”

### **SNA Misses Dynamics (Even With Simulations)**

In some parts of the article it is suggested that SNA misses the dynamic nature of social relationships. The author argues that even when this evolving nature is simulated with agent-based programs, the set of rules that drives simulation (homophily, transitivity, reciprocity, and so on) misses the unique history of each relationship and the fact that a particular dynamic can be *reproduced* doesn't mean that we have an *explanation* of any kind. Again, it is hard not to agree with the author. Nevertheless, I think that current social network research is addressing those issues with remarkable success.

In this regard, dynamic network models [see for instance Snijders *et al.* 2007] allow us to disentangle effects from structure (influence driven by homophily, closeness, reciprocity, transitivity, and so on) and agency (selection effects driven by individual preferences or characteristics). Following this proposal it is possible to model the diffusion of tastes and behaviors among similar alters, a subset of the active contacts, as the author says: “noticeable, however, that this information seldom made its way through the whole network. Actors operated with typifications of their alters, passing on information only to others who they believed shared their interests.”

At the same time, current theory in social networks [White 2008; Grossetti 2009] presents social dynamics as a series of *encastrements et découplages* of dyadic interactions. For instance, two individuals working in the same workplace can develop friendship feelings (coupling types of ties in a single relationship) or, conversely, remain friends while moving to other jobs (decoupling friendship from workplace) and so on. These processes of coupling and decoupling relationships within social contexts or institutions are continuous and contingent to each dyadic history of interactions. Nevertheless it is true that those theoretical concepts still have to be translated to the network analysis toolkit.

### **Preferential Attachment Avoided**

Another finding in complex networks research is the “preferential attachment” process proposed by Barabási [1999; Barabási 2002]. This process describes the self-organization of a system evolving along time where new vertices are added to the previous with the highest degrees (or, alternatively, to those which are acquiring greater degree at the fastest pace). The result is a power-law distribution where few nodes (hubs) have a high degree and the rest low degrees. This distribution can be found in a wide range of networks.

Again, the experimental support for this process is overwhelming [Newman 1999; Barabási 2009]. Nevertheless, the author points out that this process in some cases produces the opposite effect: some people *prefer* to not attach themselves to those with high popularity. This behavior can be explained qualitatively regarding cultural preferences in a specific context (the Manchester post-punk scene between 1976 and 1980 in this case).

Like in the case of brokerage-closure, the author argues that preferential attachment plays the role of enabling or constraining meaningful behaviors of actors embedded in webs of meaningful relationships more than producing a deterministic effect. His final suggestion is that a mixed method approach allows taking the best of each strategy and getting a more reliable picture of the social works under scrutiny.

After discussing the fallacies of SNA pointed out by the author, two of them remain uncontested so far: conflict and avoided relationships. Those two fallacies are in my opinion the two sides on the same problem, which constitutes the main weakness of the approach: *the current inability to deal with negative relationships*.

### **Conflict, Negative Relationships, and the Nature of Networks**

Conflict has been one of the more popular issues addressed by network analysis from the very beginning. For instance, in the former Zambia, Kapferer [1969; Kapferer 1972] studied the emergence of a strike as the outcome of a two faction’s confrontation. In this case, conflict and negative relationships were the substantive research problem whereas the representation of the network relied in positive tie definitions (who supports whom, who helps whom and so on). The notion that conflict and negative relationships play an important role in social life is common sense [Labianca *et al.* 1998; Labianca *et al.* 2006] but the algebra we use for measuring social networks (centrality measures, for instance) is mainly based on positive numbers. Everett and Borgatti [2004] in the XXIV Sunbelt presented a paper where he tried to apply current network methods to negative data. Although some networks meth-

ods could be applied to negative data only changing interpretation (QAP, P models, structural equivalence) and the analysis of the complement graph can solve some problems, those regarding centrality measures were completely wrong. The reason is that centrality measures (and also cohesive subgroups) are based on “paths and implicit assumptions of flow” which is not the case when some relationship is *avoided* as we just saw. This reveals to us that the algebra we use for reproducing the social world is one of many possible. Also, this is not a problem of network approach in itself but a problem of the graph theory we are currently using for measuring (imperfectly) social worlds. Social networks are not ontological realities but measures of a dynamic reality. Looking at that measure we should be able to identify what are the contributions of structure, history, context and agency in the outcome. As far as our measure is imperfect, we only can address some important issues indirectly and with the aid of qualitative approaches. Is it possible to proceed in a different way?

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## Comment on Nick Crossley/4

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Abstract: Drawn on his own research, Crossley points out some issues in which SNA fails to provide a reliable assessment and also shows convincingly how mixed methods help to overcome those limitations. In this comment I suggest other possible interpretations of those supposed fallacies of SNA, to provide an explanation of this divergence and, finally, to discuss what is the nature of the data we are working with. This reveals to us that the algebra we use for reproducing the social world (mainly based on positive numbers) is one of many possible. Social networks are not ontological realities but measures of a dynamic reality. As far as our measure is imperfect, we only can address some important issues indirectly and with the aid of qualitative approaches.

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*Keywords: Social networks, social dynamics, embeddedness, brokerage, conflict.*

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