# Culture and Social Networks

JAN A. FUHSE

## Abstract

Since the early 1990s, social networks and culture are increasingly seen as intertwined and studied in conjunction. This "cultural turn" of network research is based on the relational sociology of Harrison White and others. It links classical structuralism with cultural analysis. Three approaches to the linkage of culture and social networks can be distinguished: The first traces cultural developments, for example, in science or in art, to network constellations: collective identities arise out of densely connected networks; new styles emerge at the intersection of network clusters from the combination of previously unconnected repertoires. The second approach views social networks themselves as intricately interwoven with culture. Roles in a network (e.g., kinship roles) are built on culturally available blueprints (institutions). As are relationships that varyingly adopt relationship frames such as "love" or "patronage." Styles and collective identities develop from network constellations and shape them in turn. The third approach analyzes culture itself as a network of symbols and concepts. Their meaning lies in the relations to other concepts and symbols. Network analyses of culture have frequently analyzed the meaning of role categories and of relationship frames, thus linking the three approaches. Areas of particular interest for going forward include research on micro-events in networks, the interplay of networks with ethnic categories and cultural differences, and the role of networks in societal fields.

## INTRODUCTION

Network research in the social sciences has traditionally disregarded culture. It views the pattern of social relations as the primary aspect of social structures. Whether individuals occupy central or peripheral positions in networks, whether they are embedded in dense networks or act as brokers between clusters—structural characteristics are used to explain individual behavior and opportunities for action. Or the overall structure of relations in a network leads to community cohesion and collective action or to fragmentation and conflict. In any case, culture—the array of symbols and the meanings attached to them in a social context—is bracketed in this structuralist perspective: no need to study the meaning of relations or the symbols circulating in a network if the explanans lies in formal structural patterns.

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The recent "cultural turn" in the social sciences, however, has led network research to incorporate a systematic concern for culture and meaning. Three different approaches to the relationship between culture and social networks are possible, and have been adopted over the past 20 years:

(a) Cultural developments result from network constellations. For example, new artistic styles develop at the intersection of network clusters with different styles.
(b) Social networks are fundamentally interwoven with cultural forms. Network constellations are imprinted by culture-specific understandings of roles (e.g., kinship roles), by social categories (gender, age, ethnicity), and of relationships (e.g., kinship or patronage).
(c) Culture itself can usefully be studied as networks between symbols or concepts. This approach has reconstructed cultural differences by means of formal analysis.

Approaches (b) and (c), in particular, constitute an emergent and innovative trend in the social sciences. They are theoretically linked in relational sociology around Harrison White, and they deploy similar research techniques.

## CLASSIC FOUNDATIONAL RESEARCH

The network concept was first used in the social sciences in an anthropological article by J.A. Barnes about social divisions on a Norwegian island (1954). Barnes found that the web of social relations (the "network") did not match the predominant self-description. The people on the island conceived of their social structure in terms of three classes. However, the network of relations by and large formed a homogeneous mesh with very few outsiders of lower status. Barnes concluded that the "real" social structure could be identified on the network level. The cultural concepts deployed by the Norwegian fishermen, in contrast, seemed inconsequential and misleading.

This basic stance characterizes most network research: Culture is to be bracketed in favor of thorough structural analysis. Networks show clear structural characteristics that can be computed from quantitative data on the ties within a population. And these structural characteristics have been found to be determinants of a wide variety of social phenomena, from collective action to market opportunities, from political development to individual social mobility.

From around the 1970s onward, a few isolated calls for a systematic incorporation of culture and meaning into network research remained mostly unheard. Prominent anthropologist J. Clyde Mitchell argued for a systematic concern for norms and for the meaning attached to social

relations in social anthropology (1969, 20ff, 1973, 26ff). Gary Alan Fine and Sherryl Kleinman laid out a potential combination of the network concept with symbolic interactionism (1983). They argue that social networks consist of the meaning people attribute to their relationships. This foreshadows the second approach that views networks as sociocultural constructs (b).

The eventual incorporation of culture in network research was triggered by the "cultural turn" in the social sciences. Since the 1970s, institutions, rules, symbolic boundaries, life-styles, narratives, identities, and other forms of culture are regarded as important aspects of social structure: institutions and rules make for regularities of social fields; symbolic boundaries account for durable inequalities. A large part of network research has ignored this cultural turn and focuses on the development and application of ever-more refined algorithms to network structures. An important segment, however, has turned its attention to the various combinations of culture and social networks.

The central figure of the cultural turn in network research is Harrison White. In the 1970s, White and his students developed the sophisticated network analytical technique of *blockmodeling* at Harvard University (White, Boorman, & Breiger, 1976). Blockmodels partition network populations into blocks with similar connections to other blocks. These blocks do not have to be connected among themselves. For example, one block could include a group of "hangers on" to a core clique (a second block). These blocks are interpreted as marking particular *roles* in the overall social structure. And blockmodeling rests on the distinction between different *types of tie*: The ties from the hangers-on to the core clique would be characterized by asymmetrical relations of esteem or even patronage, while core clique members would probably form friendships or even compete among themselves.

Blockmodeling remains true to the structuralist credo: It reconstructs social structures purely by looking at the pattern of relations. But it contains some elements that lead to culture as important in this pattern of relations. First, types of tie are based on cultural understandings of relationships (such as "friendship" or "patronage") and differ in their adoption of these relationship frames (see subsequent text). And roles can be similarly culturally imprinted, for example, with kinship roles such as father or niece as heavily shaped by cultural expectations.

In the 1980s, White and a number of Harvard graduates directly connected to him increasingly saw social networks as intimately linked with culture. One important impulse came from the US reception of Pierre Bourdieu's work from around 1980 onwards, with Harvard graduate Paul DiMaggio as a driving force. DiMaggio's early articles pick up Bourdieu's interest in

cultural forms and connect these to a network understanding of social structures. Eventually this led to an original version of *neo-institutionalism* (DiMaggio & Powell, 1983). Here, the relations (networks) between organizational actors in a field are characterized by institutionalized expectations arising from mutual observation and imitation. Thus, the relations in a field are governed by an emergent culture of rules.

White's student Kathleen Carley developed a simple "*constructural theory*" about the interplay of networks and culture (1991). Culture is here conceptualized as bits of information distributed in a social network. The network provides the channels for the diffusion of information. But the new distribution of information makes for new channels for exchange, because shared knowledge will make interaction likely. Accordingly, the distribution of information (culture) and the pattern of linkages (network) in a population develop in conjunction.

While theoretically simple and elegant, Carley's model has been less influential than DiMaggio's neo-institutionalism and White's *relational sociology*. White combined structuralism with cultural elements in his theoretical treatise *Identity and Control* 1992, and that year marks the take-off of the cultural turn in network research. White conceptualizes social networks as "phenomenological realities," with the *identities* in a network defined in relation to each other in the form of *stories*. Identities vie for control, and these attempts lead to narratives about them and their relationships. Both the stories and the corresponding construction of identities are heavily imprinted with culture. Networks and culture are thus inextricably intertwined; and much network research rests on this basic theoretical architecture.

## AREAS OF CUTTING-EDGE WORK

As sketched in the introduction, three basic stances to the connection between networks and culture are possible and have been adopted in research since the early 1990s. The first approach assumes a more conventional structuralism and treats culture merely as dependent. The other two approaches make for a thorough turn in structuralism, with White's work as a central inspiration.

### (a) Culture as Dependent on Networks

The first strand of research studies cultural developments as the results of network constellations. This includes the development of new academic schools of thought or styles of thought at the intersection of network clusters,

the emergence of cooperative norms and of collective identities in densely connected social networks.

Cooperative behavior is often seen as the result of *cultural norms*. James Coleman, in contrast, argues that norms of cooperation emerge in specific network conditions (1990). In dispersed social structures, defection and free-riding are rational courses of action: Actors do not expect to meet the people they damaged with their uncooperative behavior again soon. Close-knit networks, however, make defection costly. Actors will meet again, so one's defection at one point will lead to defection from the other side in the future. According to Coleman, this is mirrored in norms of cooperation that emerge (and are enforced) in such close-knit network structures.

Densely connected networks also lead to the emergence of *collective identities*, as Roger Gould argues (1995). In the Paris Commune of 1870, mainly the class-spanning personal networks in the suburbs made for strong local identification. High levels of participation in the insurgence against first German, then royal French troops resulted. The collective identity thus depends on close-knit networks among the collective, and on structural separation from the outside. In this vein, separate class networks dominated in the Paris city-center. Here, traditional geographic patterns pitted workers against artisans, and singular professions against others. Both the collective identity uniting a group (and allowing for its collective action) and the social boundaries against other groups have to map network structures—otherwise, these cultural forms cross-cut underlying networks. This contrasts with Barnes's claim that categories are relatively detached of the network of relations.

Randall Collins's grand study of philosophical networks from Ancient Greece to the twentieth-century provides ample evidence for the network conditions of *intellectual creativity* (1998). One core mechanism is that innovation chiefly occurs out of the combination of divergent styles of thought at the intersection of disparate network clusters. For example, intellectual creativity reached one of its heights in Moorish El Andalus with grand figures like Maimonides and Ibn Rushd (Averroës) combining Islamic and Jewish thought with the Ancient Greeks (Collins, 1998, 437ff).

But innovation also needs close intellectual exchange as in the Vienna Circle or among the London-based Royal society. Such "invisible colleges" provide hotbeds of creativity, especially when they combine divergent cultural impulses (as in Maimonides and Ibn Rushd's twelfth century Córdoba). The movement connecting network research and culture also fits this pattern: it is based on close intellectual exchange in the New York area (Mische, 2011), and it combines divergent strands of thought across the divide between culturalist and structuralist perspectives (Pachucki & Breiger, 2010).

All of these examples point to social networks determining cultural change: by providing the basis for intellectual exchange and for the emergence of collective identities, and by breeding cultural norms. This perspective by and large sticks to the structuralist approach: The network structure is seen as the independent variable causing cultural dynamics. Some of these works allow for a reverse causation, with social networks crystallizing around an intellectual style, or with social boundaries fostering structural divisions. To the extent that this reverse causation from culture to networks is allowed for, these studies blend into the second approach.

### (b) Cultural Aspects of Social Networks

The second stance does not simply reverse the causal arrow. Rather it views social networks as fundamentally interwoven with cultural forms, in line with White's account of networks as phenomenological realities (see preceding text). Network structure and culture may be analytically separable. Empirically, however, the two always occur inextricably intertwined. For example, the ties among the members of a family are heavily laden with cultural expectations about the relations between spouses, between siblings, and between the generations.

This could already be seen in the early work on blockmodels (White *et al.*, 1976; see preceding text). This work, however, remains silent about where roles in networks come from. They could emerge endogenously when kids in a school class form a friendship clique, or when intellectual followers group around an academic star. But many role structures follow cultural models; for example, in kinship networks with prescriptions for the various kinship roles and the relations between them. The underlying cultural models (marriage, motherhood, childhood, family) are *institutions* that structure social relationships and vary across social contexts. For example, cultural expectations about the relationship between spouses have changed considerably over the past 50 years. They also differ by social class, by religion, by region, and by country.

Institutions thus make for culture-specific network structures. They emerge and develop through typification of observable behavior, and through the transposition and adoption of these cultural scripts in other contexts (Berger & Luckmann, 1966, 51ff). A core mechanism in this process is the emulation of behavior by others. When actors are uncertain about which action produces desired outcomes, they often imitate others in their vicinity. This leads to the emergence (iso-morphism) of cultural rules in a field of actors carefully observing each other's behavior (DiMaggio & Powell, 1983). Of course, this process does not result in uniform behavior. Rather, some actors are regarded as central role models. Others will imitate them, while still others distinguish

themselves from the mainstream model. The field-specific rules then not only pertain to individual behavior but also to the relations between the types of actors in a field. Following DiMaggio, this role structure and the cultural rules (institutions) guiding the interaction between occupants of roles can be reconstructed by way of blockmodel analysis (1986).

*Cultural blueprints for relationships* such as "love," "friendship," or "patronage" are also institutions that bear an important imprint on social networks. "Love," for example, traditionally calls for exclusivity and heterosexuality and for integration into wider networks of friends and kin. We can observe how people attempt, fail, or succeed in constructing their networks drawing on these relationship frames (McLean, 2007). King-To Yeung's study of communes demonstrates that differing conceptions of relationships dramatically affect the stability of these networks (2005). Communes with a wide and inclusive understanding of "love" proved more short-lived than those with more restricted "loving." According to Yeung, this finding points to the importance of well-defined relationship frames clearly separating important peers from others for informal social structures. The adoption of such relationship frames makes for the differentiation of *types of tie* underlying the methodology of blockmodeling.

Other cultural forms that bear an imprint on networks include social categories and styles. *Social categories* and *collective identities* depend on networks being patterned along their lines (see preceding text). But they also promote such networks by conditioning the formation of ties within and across categories (Tilly, 1998). For example, ethnic categories render friendships and intimate relationships within the category likely and between members of different ethnic categories unlikely. Other categories such as gender do not generate structurally separate interaction groups, but foster particular types of relationships (friendship, love) within and across the categorical divide (Fuhse, 2009, 65ff).

*Styles* also generally make intimate relationships among adherents of the same style likely. However, "cultural omnivores" who like divergent styles (e.g., science fiction and classical music), also display heterogeneous networks with friendships to people from different social milieus (Lizardo, 2006). Just as access to different styles through "weak ties" breeds creativity, adherence to divergent styles allows for more "weak ties." Ann Mische's study of Brazilian youth leaders similarly shows that particular leadership styles can be conducive to more diverse networks, facilitating brokerage within a social movement (2008).

Overall, this perspective has already gathered a thrust of empirical support for its basic assertion: social networks are inherently interwoven with meaning. Therefore, networks are not seen as mere conduits for the development and distribution of cultural forms. They are fundamentally imprinted with

culture, with network structure and composition evidently strongly affected by cultural forms. Institutions such as culture-specific roles and relationship frames, social categories and styles all make for an ordering of networks, but in turn depend on networks for their persistence.

### (c) Cultural Networks

The third perspective switches the network concept from the social to the cultural. Following the structuralist view on meaning of Ferdinand de Saussure, an important aspect of culture lies in the systematic relations between symbols or concepts. Here, the "meaning" of a symbol consists of its position in a network with other symbols, just as the role or identity of an actor depends on her or his embeddedness in relations to others (in the second approach). Network analyses of culture provide an alternative approach to interpretive, hermeneutic analyses of cultural forms and developments. For example, the application of network analytical techniques to the usage patterns of symbols or concepts is able to demonstrate quantitatively that these patterns differ from context to context (Yeung, 2005) or that they change over time (Mohr & Duquenne, 1997).

Network analyses of culture are fruitfully applied in the sociology of science. Here, *concepts* can be related to each other, for example, by examining cooccurrence of keywords in literature data banks (Leydesdorff, 2001). Keywords that feature together in a number of studies are linked systematically, signifying areas of research. For example, the last years have seen a surge in the cooccurrence of the keywords "culture" and "networks" in the social sciences. Before 1991, only five publications in the Social Science Citation Index featured both keywords, in contrast to more than 300 publications every year since 2010. A robust connection between the two concepts has emerged over the past 20 years.

Stephan Fuchs has published an extensive theoretical treatise on cultural networks, in particular in science (2001). According to Fuchs, cultural networks mark particular worldviews. In science, these perspectives are *schools of thought*. Coherent worldviews that see their perspective as the only viable one are characterized by a high degree of "involution" (Fuchs, 2001, 281ff): They are internally densely connected, display few connections to other cultural networks, and draw a strong inside-outside boundary around themselves. Loosely connected networks, in contrast, allow for more flexibility, show more connections to the outside, and do not "essentialize" their own worldviews.

Networks of culture can be theorized and studied in their own right (as in Fuchs's work). When coming from a social network perspective, however, the study of culture is important because (a) cultural developments result

from social network constellations and (b) culture in turn affects social networks. The three approaches discussed here can be linked when cultural forms affecting social networks are studied with network analytical methods.

For example, Yeung reconstructs the differing meanings of the *relationship frame* "love" in urban communes (2005; see preceding text). He analyzes the relations between the qualities seen in a relationship qualities ("loving" being one of them) and the personal qualities attributed to the relationship partner by the respondents in the communes. Yeung uses Galois lattices for this analysis, which yields a network representation of the systematic connections between personal and relationship qualities. Contrasting communes with few "loving" ties with those with many he is able to show that "love" can mean very different things. These divergent cultural understanding of love lead the networks of the communes with less love to persist longer—a finding hard to explain in purely structural terms.

*Role categories* are another sociocultural aspect affecting social networks. John Mohr studies the relations between categories of needy people in New York around 1900 by looking at how charity organizations treat these categories (1994). He shows that charity organizations handle different categories equivalently, for example, soldies and widows. These can be aggregated (by way of blockmodel analysis) to blocks in systematic relation to other blocks of categories. The relations represent the moral order underlying the charity regime: Soldiers and widows are seen as very different than "tramps" or disabled people. This moral order changes over time, making for a rearrangement of the network of categories (Mohr & Duquenne, 1997).

Not only relationship frames and role categories but also *stories* that relate and define *identities* have been studied in network research. Peter Bearman and Katherine Stovel analyze the way events are related to each other in biographical narratives (2000). These networks of meaningful relations between events are much more muddled, with frequent references back and forth, before a major biographical turning point, in this case the decision to become a Nazi (a member of the German National Socialist Party) in 1930. Afterwards, events are clearly related in a direct and straightforward manner; and the narrative elements are much shorter, resulting in a high proportion of disparate components in the narrative network.

The work of Bearman and Stovel deals with the case of individual attachment to a political identity. Tammy Smith furthers this perspective by analyzing the network of symbols and concepts in the construction of ethnic boundaries (2007). Here, two *collective identities* (Istrians of Italian or Croatian descent) are defined in relation to one another. The two narrative networks in Istria are characterized by their structural separation, with divisive concepts such as "ethnic cleansing" or "exploitation" pitting the two identities against each other. Among Istrian migrants in New York, in contrast, the narratives

about their ethnic identities show many points of convergence and connection. Here, the cultural network leans toward a blending of the two ethnic identities in their commonalities.

These diverse studies demonstrate that not only social relationships but also cultural relations between symbols and concepts can fruitfully be studied with network analytical techniques. Many of these studies are directly related to the work of Harrison White, adopting a vision of social networks as sociocultural constructs. The focus lies on the cultural imprint of social networks in stories, individual and collective identities, in relationship frames and in role categories. The second and the third approach are tightly connected here, pointing to the interrelation of social and cultural networks.

## GOING FORWARD

Much of the work surveyed here can be considered cutting-edge in the fields of network research and cultural sociology. However, the research program still leaves much territory uncharted. Three research areas that promise to advance the perspective can be identified:

1. The concepts of culture and networks both suggest a relatively stable social world, with symbols, concepts, ties, and patterns of ties as by and large influencing social events rather than being changed by them. If we concede that culture can shape networks, just as networks can make for cultural developments, we need to arrive at an inherently *dynamic conception of both culture and networks*. This directs attention to the *micro-events* at play in both the reproduction and the change of culture and networks.

   Such micro-events can be conceptualized as social action, as interaction, as exchange, or as communication. Charles Tilly proposes a concept of "transaction" as foundation (2005, 6f). White, in contrast, argues for the importance of "switching" processes in networks (Godart & White, 2010). Both propositions still lack specifics and elaboration. One major area for conceptual advancement thus lies in formulations that link culture and networks in their stability and their change to micro-events.

   Conceptual advances are of little value if not informing and enabling empirical research. Much would be gained by spelling out accounts of sociocultural networks based on the concepts of action, interaction, or communication *and* applying these in empirical work. We already have a few studies looking at the processes in networks. One is David Gibson's work on turn-takings in manager-meetings and their relation to informal networks and to formal roles (2003, 2005). Another one is

Sophie Mützel's analysis of mutual referencing among newspaper editorials (2002).

2. Given that the perspective portrayed here looks at the interplay of culture and networks, it has been surprisingly rarely applied to the field of ethnic and cultural differences (Fuhse, 2012; Smith, 2007). Interethnic networks provide an ideal venue for the study of the interplay of networks, categories, and cultural difference: To what extent do categories map cultural difference and network patterns? Is identification with collectivities directly related to network position and composition? What is the role of language in networks; can we observe processes of linguistic creolization and concurrent network rearrangement? Ideally, if we focus on small-scale contexts such as school classes or Internet forums, we should be able to link this research to the first area of micro-events and their role in reproducing and modifying sociocultural networks.
3. The third area of interest pushes the scope up from the limited contexts usually studied in network research: Is it possible to study *large-scale societal formations* as sociocultural networks? The approaches of White and of DiMaggio view economic markets and organizational fields as network constellations imbued with culture: They are characterized not only by mutual observation, imitation, and emergent rules but also by the interactive negotiation of identities in stories. The identities of organizations in a field are not given by preexistent attributes, but constructed relationally in the course of storytelling in the market. Similar observations can be made with regard to the fields of politics (Tilly, 2002), art (White, 1993), and science (Collins, 1998; Fuchs, 2001).

   While the sociocultural networks approach seems fruitful here, it leaves open the wider question of how to link social networks and societal fields conceptually. This leads to the recent attempts at reviving the concept of fields, stemming from Gestalt psychology and Pierre Bourdieu (Fligstein & McAdam, 2012; Martin, 2003). Network theory does a good job at studying the relations in a field. It is less successful in determining what a field is, or how it is constituted.

   Following DiMaggio, the field would result from the mutual observation of actors and the rules following from it (DiMaggio & Powell, 1983). Most societal fields, however, are built on foundations that lie outside the competition of actors in the field—be it the production of goods and the availability of money in the economy, or the effective monopolization of physical force by the state in politics. Thus, the outside boundary and the institutional basis are not fully negotiable among the actors involved. It may be necessary to complement a

network understanding of fields with other theories of society, for example systems theory.

These three areas push the application of network research into the *micro-sociology* of communicative events: (1), the *macro-sociology* of societal fields (3), and into the *sociology of inequality* and the *anthropology of ethnic groups* (2). Of course, this list of research areas is far from exhaustive. But the extension into these fields should give us insights into both the opportunities and the limits of the emergent trend. The recent record of innovative research flowing out of these attempts suggests that the combination of structuralism with cultural analysis has still much to offer. Particularly its combination with other research traditions—be they micro-sociology, macro-sociology, social inequality, or anthropology—will shed new light on a wide range of social phenomena.

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## JAN A. FUHSE SHORT BIOGRAPHY

**Jan A. Fuhse** is currently a Heisenberg Fellow at the Department of Social Sciences at Humboldt University of Berlin, Germany. He completed his PhD in sociology from Universität Stuttgart in 2007 with a dissertation on the role of social networks for the acculturation and ethnic identification of Italian migrants in Germany. During a post-doc (funded by the Alexander von Humboldt foundation) at Columbia University in 2007–2008, he worked with Harrison White and Charles Tilly on issues in the theory of social networks. From 2009 to 2013 he was an assistant professor of political sociology at the University of Bielefeld, completing his Habilitation there in 2011. His research focuses on communication and meaning in social networks, on social networks in inequality, on interethnic relations, and on political constellations. Recent publications include "The Meaning Structure of Social Networks" (*Sociological Theory*, 2009), "Tackling Connections, Structure, and Meaning in Networks: Quantitative and Qualitative Methods in Sociological Network Research" (with Sophie Mützel, *Quality & Quantity*, 2011), "Embedding the Stranger: Ethnic Categories and Cultural Differences in Social Networks" (*Journal of Intercultural Studies*, 2012), "Networks from Communication" (*European Journal of Social Theory*, 2015).

**Links**

Personal homepage: www.janfuhse.de

Institute of Social Sciences, Humboldt University Berlin: www.social-science.hu-berlin.de

Alexander von Humboldt Foundation: http://www.humboldt-foundation.de/web/home.html (funding research visits to Germany, as well as German researchers abroad)

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