

Cultural Holes: Beyond Relationality in Social Networks and Culture

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Abstract

A burgeoning literature spanning sociologies of culture and social network methods has for the past several decades sought to explicate the relationships between culture and connectivity. A number of promising recent moves toward integration are worthy of review, comparison, critique, and synthesis. Network thinking provides powerful techniques for specifying cultural concepts ranging from narrative networks to classification systems, tastes, and cultural repertoires. At the same time, we see theoretical advances by sociologists of culture as providing a corrective to network analysis as it is often portrayed, as a mere collection of methods. Cultural thinking complements and sets a new agenda for moving beyond predominant forms of structural analysis that ignore action, agency, and intersubjective meaning. The notion of “cultural holes” that we use to organize our review points both to the cultural contingency of network structure and to the increasingly permeable boundary between studies of culture and research on social networks.

Culture: refers in our usage not to national character or ultimate values, but rather to meanings, local practices, discourse, repertoires, and norms

Structuralism: the privileging of structure (as against culture, for example) in explanations of social life and behavior

Structure: refers in our usage to patterning of social connections among individuals, among groups and other aggregates, and between levels

Cultural hole: contingencies of meaning, practice, and discourse that enable social structure and structural holes; four aspects are identified in this review

Structural hole: the lack of ties between contacts of an actor who tend to be connected only through ties to that actor

INTRODUCTION

The oft-proclaimed breakthrough in the 1970s that “firmly established” social network analysis as a method of structural analysis (Scott 2000, pp. 33–37) defined itself in opposition to culture. In the 1970s, the term “culture” implied culture writ large, as national character or the ultimate values of a society, whereas today it is more likely to refer to local practices and meanings, discourse, and repertoires. Although it is more common today to formally analyze social ties within and between social groups with an awareness of and even appreciation for the possibilities and nuances of culture, such ideas were rarely engaged in an explicit fashion during the strong structuralism of the 1970s. In a highly influential paper from the earlier period, White et al. (1976) announced, “[t]he cultural and social-psychological meanings of actual ties are largely bypassed. . . . We focus instead on interpreting the patterns among types of tie” (p. 734). Blau (1977a, p. 245) proclaimed that, “social structure is not culture.” These sentiments have had a long half-life, and a form of historical path dependency combined with the counterproductive and superficial culture-versus-structure dichotomy have contributed to a lack of conceptual clarity.

In this review, we argue that contemporary work on culture (commonly instantiated by, e.g., meanings, local practices, discourse, repertoires, and norms) and social networks (often operationalized by dyadic social ties, homophily, actor nodes, dual networks of persons and groups, and social position) can for important purposes be usefully seen as mutually constitutive and coevolving with common roots in relational thinking. However, much empirical analysis has tended to treat these domains as discrete realms rather than together. Indeed, with few exceptions until recent decades, the perspective advanced by cultural sociologists that sees culture as a dynamic process of meaning-making has not been matched by empirical social network analysis of how this dynamism influences, and is influenced by, the structure of social ties, either at the egocentric or whole-

network level. Likewise, the relational perspective often advanced by social network scholars which privileges dimensions of connectivity and social position typically fails to account for the range in social meanings by which individuals understand and construct their world, or the full range of materials, resources, and ideas that may flow across such connections.

We are far from the first to recognize either the affinities or the disjunctions between culture and social network perspectives, but to date there has not been a synthesis of such ideas.¹ Although our aim in this review is to be as comprehensive as possible, by necessity we restrict ourselves to sociological inquiry that substantially crosscuts culture and network dimensions. We thus narrow our attention to research that explicitly engages formal network methods or social network data in service of the analysis of culture, as well as research grounded in culture that interrogates relational network contexts. With few exceptions, we bypass research that simply incorporates a network attribute, network effect, or similar parameter in a regression modeling framework.

After a review of recent scholarship, we introduce the heuristic of cultural holes, which could be considered as dual to the concept of “structural holes” (Burt 1992), according to which certain types of local mediation in network structure serve to channel information in particular ways. Our introduction of this idea does two kinds of work for us. In the first sense, we explain how each thematic area of intellectual overlap might be thought to serve as a

¹As to affinities, the first chapter of *The Division of Labor* (Durkheim 1933 [1893], p. 54) makes clear that network ties of friendship often span cultural categories, connecting us to “those who do not resemble us.” More recently, Demerath (2002) argues “that there is a connection between network structure and culture. . . and that structurally equivalent network positions will share the same degree of frequency, stability, and impact for network meaning” (p. 222). McLean (2007) explicitly asks, “Where is the culture in networks?” (p. 6). Ikegami (2005) asks incisively, “[W]here and how do the webs of culture and social networks overlap?” (p. 45). As to disjunctions between network and cultural approaches, we discuss (below) work of Fine & Kleinman (1983), Brint (1992), and Emirbayer & Goodwin (1994).

bridge between subcultures of academic scholarship, in effect spanning a disciplinary structural hole. In an alternate sense, however, we provoke the idea that the notion of bridging in the predominant social network definition may be usefully reconceptualized as having a great deal of cultural contingency. Going further, we portray recent work as showing how culture prods, evokes, and constitutes social networks in ways that may be envisioned and modeled by new analytic methods. We close with a discussion of how thinking in this way may help to productively address unresolved questions faced by current researchers.

SPANNING THE BOUNDARY BETWEEN NETWORKS AND CULTURE

To posit antagonistic camps of culture and network perspectives would be to construct a false dichotomy, and so we wish to avoid any such fallacy. Among sociologists, attention to culture has often been accompanied by a deeply relational perspective on social life. This trend could reasonably be traced through to a wide range of theories, such as those advanced by Simmel on social meaning, reciprocity, and interaction (Simmel 1971); Tarde (1899) on homophily, social influence, and diffusion; Von Wiese on action in the context of network relations (Von Wiese & Becker 1932); Blau (1977b) on crosscutting social circles (see also “Blau space” as described by McPherson & Ranger-Moore 1991); Elias (1978) on figurational (or process) sociology; DiMaggio (1987) on genres and structural equivalence; and Bourdieu (1993) on fields and social relations. But not until recent decades has a critical mass of network scholars and sociologists of culture started to become attuned to—and to self-consciously grapple with—the range of challenges faced by one another in empirical analysis. We see these as developments worthy of further investigation.

Explicit critiques of network explanation issuing from cultural discourses have highlighted ideas that network analysis tends to obscure or

simplify. Fine & Kleinman (1979), for instance, stress the need for network scholars of diffusion to take meaning and symbolic interaction into account, utilizing concepts familiar to network scholars—multiple group membership, weak ties, structural roles, and media diffusion—and explain how they function as cultural interlocks. Brint (1992) similarly takes a stand against the minimization of cultural explanation, offering a critique positing that the highly structuralist school of early network thinking tended to defocalize culture in order to make social structure more amenable to analysis. In downplaying the embeddedness of culture in this way, Brint argues, network scholars undermine their ability to make inference from purely structural explanations (Brint 1992, pp. 199–200).

A focus on the roles of discourse has become increasingly prominent in network analysis as well. One claim along these lines is that social networks are essentially discursive and, hence, in essence cultural products that should be analyzed with reference to construction of meaning (Somers 1994, Mische 2003, Spillman 2005). Emirbayer & Goodwin (1994) describe how cultural discourses help to construct networks of relationships, and they take issue with the propensity of network thinking to ignore actors’ identities, agency, and history in accounting for change. In their view, microlevel attention to dynamics of discourse and events is essential to understanding macrolevel structure because cultural discourses are embedded within network patterns of social relationships. Emirbayer (1997) further explicates the need for more finely specified relational methods and challenges scholars to focus on boundaries, network dynamics, and causality [the title of this review is, in part, a dialogue with Emirbayer’s (1997) agenda-setting call to action].

Even amid critiques of deeply structuralist network thinking, some cultural thinkers began to more purposively illustrate affinities between these realms; indeed, some even began to incorporate network methods in theorizing culture. In exploring meaning-making, Fine & Kleinman (1983) advance the claim that a network perspective less burdened with heavy

Boundaries: symbolic and social distinctions individuals draw in everyday life; “boundary work” refers to dynamic processes by which boundaries are engaged

Relationality: an emphasis on dynamic processes of connections and transactions, as opposed to substances and isolated individuals

Tastes: cultural preferences that distinguish and unify both individuals and groups and that can be publicly expressed or privately held

structuralism shares a similarly relational perspective to symbolic interactionist approaches. With attention to this relationality, they suggest that action in causal explanation can be more finely specified by scrutiny of multiple meanings, expectations, and change over time: "Understanding actors' meanings is crucial for any analysis of social structure. Researchers must examine respondents' meanings and the networks of which they are a part" (p. 106). In a foundational piece on culture, classification, and meaning-making, DiMaggio (1987) adopts the network logic of structural equivalence to highlight "processes by which genre distinctions are created, ritualized, and eroded, and processes by which tastes are produced as part of the sense-making and boundary-defining activities of social groups" (p. 441). Both articles illustrate different types of deliberate engagement beginning to take place.

During the same decade, anomalies arising within network analysis pushed investigators to consider taste, cognition, and identity—previously ignored in structural analysis of networks. A concern for understanding patterns of shared tastes led Carley (1986) to develop a "constructuralist" model of relationships between symbols of cultural importance. Subsequent developments have helped to shed light on taste homophily and group formation (Mark 1998, 2003; McPherson et al. 2001). A major intersection of network and cultural thinking was traversed in White's upending and reconceptualization of network theory in *Identity and Control* (1992, 2008). In sharp contrast to 1970s structuralism, White uses the mechanisms of identity formation and narrative to explain how actors in social space maintain and move between social positions. White suggests that scholars should heed how individuals interact with different publics and advocates looking at action in "netdoms" (network domains). In contrast to his earlier research on vacancy chains (White 1970) and structural equivalence (White et al. 1976, Boorman & White 1976), in *Identity and Control* White makes the claims that agency is "the dynamic face of networks,"

that "stories describe the ties in networks," and that "a social network is a network of meanings" (White 1992, pp. 65, 67, 245, 315). Despite critics who claim that, in White's *Identity and Control* approach, it is social structure rather than culture that "often turns out to be the first among equals" (Emirbayer 2004, p. 8), the work has stimulated a great deal of fresh theorizing by White and collaborators about culture and networks (White 2007; White & Godart 2007; Mohr & White 2008; White et al. 2007, 2008).

Other theorists have in their own distinctive work incorporated insights from this approach, such as Fuchs's (2001) advancement of theories of interaction that conceive of networks as helping to construct the world around us, McFarland & Pals's (2005) social psychological analysis of network effects and identity change, and Collins's (2003, 2004) theorization of how interaction in networks is deeply implicated in local microcultures. With respect to our own agenda, we note that White & Godart (2007, pp. 2, 17) explicitly reject conceiving of the relation between structure and culture as "interdependent yet autonomous," preferring instead to view both structure and culture, social networks and discursive forms, as second-order processes that need to be accounted for by the dynamics of identity and control among network domains. Alternative theorization of interaction, local meaning, and networks can be seen in work on group styles, in part extending a Goffmanian perspective (Eliasoph & Lichterman 2002), and in network contexts extending Blau's work (Entwistle et al. 2007).

A significant boon to thinking about culture and networks in terms of one another came from the formation of a working group on "meaning and measurement" within the American Sociological Association's Sociology of Culture section, which led to an important volume of articles (DiMaggio 1994). From this collection, substantive conceptual and methodological discussions have been extended regarding the duality of culture and practices (Mohr & Duquenne 1997, Mohr 1998, Breiger & Mohr 2004, Mohr & White 2008). Although

unquestionably dominated by network scholars, the continued growth since the 1970s of the International Network for Social Network Analysis (INSNA) has provided a venue for the percolation of ideas (for a short history, see Wellman 2000). And network thinking has permeated much of sociology's broader terrain (for reviews, see Gartrell 1987 on social evaluation, Scott 1991 on corporate power, Podolny & Page 1998 on organization, Lin 1999 on status attainment, Watts 2004 and Borgatti et al. 2009 on interdisciplinary network research, Smith & Christakis 2008 on health).

MOVING BEYOND RELATIONALITY

A growing body of recent work has instantiated and developed the core idea we advance here—namely, that networks and culture are mutually constitutive and so deserve deeper analytic consideration in light of one another. We review several areas of thematic focus emergent in the sociological landscape and describe developments in narrative networks and textual analysis; the civic sphere; relational organizing principles, such as fields and actor networks; and taste. Although we strive to delineate major lines of significant contributions, no such effort can be exhaustive. Indeed, recent theoretical syntheses on relational approaches highlight the timeliness of considering culture and social networks in a variety of forums, from modeling institutions and organizations (Mohr & White 2008) to meaning structures (Fuhse 2009).²

²The evolving discourse unfolding on collaborative Internet web logs is a testament to the inexhaustibility of this topic. As a highly relational form of knowledge production, blogs themselves live at the intersection of culture and networks and have been a formative site for social scientific reflection and commentary in recent years. It may seem unorthodox in these pages to acknowledge the fluidity of conversations that take place in these venues [e.g. orgtheory.net (<http://www.orgtheory.net>) or scatterplot (<http://scatter.wordpress.com>)]; such conversations have a different type of permanence than printed media. However, proponents would argue that blogs' contributions to knowledge are as meaningful as other sites of intellectual exchange.

Narrative Networks and Textual Analysis

One area of productive overlap concerns the analysis of cultural discourse using network concepts and relational methods. This perspective sees stories, textual accounts, and conversations as culturally and historically embedded. Scholars in this realm illustrate how narrative can serve to describe, construct, and transform a web of relationships. Franzosi (1998, 2004) explains how a shift toward narrative thinking involving actors, actions, and temporally ordered events departs from more traditional structural analysis methods. He takes pains to specify that the difference is not merely methodological, but epistemological and intimately connected with human agency: "[A] view of social reality fundamentally based on narrative data shifts sociologists' concerns away from variables to actors, away from regression-based statistical models to networks, and away from a variable-based conception of causality to narrative sequences" (Franzosi 1998, p. 527).

Those who analyze text (i.e., stories, narratives, correspondence) share much with those who focus on discursive communication and conversation. Somers's work exemplifies these ideas in a synthetic way, not merely borrowing items from a network approach, but rather creating a new orientation in dialogue with network and other relational approaches. In a study of citizenship practices among eighteenth-century English working communities, for example, Somers (1993) seeks a sociology of relationships among public spheres, community associational life, and patterns of political culture; in her vision, a social network seems a natural way of thinking about these issues. Elsewhere, she explains that narrativity is a relational concept: "A relational setting is a pattern of relationships among institutions, public narratives, and social practices. As such it is a relational matrix, a social network" (Somers 1994, p. 626).

Elements of narrative do not have equal weight—some elements may be more causally consequential than others. Bearman et al.

(1999) examine life stories from Chinese villagers involved in the Communist revolution, coding narrative clauses as arcs connecting elements of a story. By analyzing the temporal dependency of elements within villagers' narratives, the authors provide a compelling account of how certain elements in a narrative have more potential to break the causal flow leading to the observed outcome. Narratives also organize social meanings and, in particular, meanings surrounding social identity. Using life-historical narratives, Bearman & Stovel (2000) explore the process through which individuals adopted a Nazi identity. By examining relationships within and between texts using network methods, they analytically distinguish becoming and being a Nazi, highlighting the implications of this distinction for narrative structure in a way that avoids researcher imputation of motive.

In a comparative analysis of how story fragments vary across Croatian and Italian narrative networks, Smith (2007) illustrates how boundary elements in a common Istrian heritage can reconfigure relationships because of multivocality of meaning. As she writes, "When we communicate personal, organizational or national histories to others, we often employ narratives through which we interpret certain events and cultural dispositions" (p. 24). This type of network analysis demonstrates that an Italian narrative of victimization is both structurally and meaningfully distinct from the Croatian narrative of interethnic harmony and tolerance; nonetheless, as Smith shows, overlapping elements in the two narratives allow them to be bridged.

Cultural cues help us make decisions about how to initiate, or accept, social ties, whose meanings are multiple and change over time; these cues are often observable in discursive patterns. McLean (2007) examines cues surrounding kinship, status, trust, respect, and loyalty in renaissance Italian patronage letters. In McLean's view, individuals do a great deal of active cultural work to mediate relationships and, in turn, their networks. Using these interactive narratives as a site for investigating

cultural frames and practices, he actively seeks to locate culture as it unfolds over time in a highly networked setting. McLean advocates for a more balanced analysis with the claim that "network analysis has often fallen prey to an oversocialized and static conception of networks, treating network ties as simply constitutive of identities, without examining how they become constituted and how they are negotiated over time" (p. 16).

Studies concerned with implications of live conversation, discussion, and interaction also animate the study of discourse (e.g., Bearman & Parigi 2004). Further, actors' awareness of their own positions within discussion networks—and consequences of this awareness—is also timely. By conducting life-history interviews with individuals who make a conversion to evangelical Christianity, Smilde (2005) qualitatively examines how individuals make sense of the roles their network affiliates have in the conversion process. In doing so, he documents how a lucid intersubjective meaning frame and lack of ambiguity in Venezuelan evangelicalism help adherents sync their meaning structures and discourse, providing suggestive evidence that challenges explicitly structural explanations of networks that minimize actor agency.

The analysis of discussion networks over time presents its own set of challenges. In a study of conversation among business executives, Gibson (2005) tackles the problem of relating microinteraction dynamics to network structure by analyzing participation shifts in conversation patterns statistically. In describing how social influence operates at the level of the encounter, he unpacks how discourse can change a relationship, concluding that "the translation of networks into interaction may, and perhaps *must*, entail some simplification or distortion of network relations" (Gibson 2005, p. 1563).

Understanding how interaction and discourse unfold in space further complicates matters. Crossley (2009) uses social network methods to describe the emergence of the punk music scene in 1970s Manchester by enumerating a network of relationships between

musicians, nonmusicians, and corporate actors. Doing so allows him to explore several interacting mechanisms of network formation that may have been responsible for the emergence of the punk scene in that particular historical moment. Neff (2005) analyzes reportage of social events in the spatial context of the Silicon Alley technology sector in New York City between 1996 and 2002. Asserting that “the relational richness of social ties must be studied simultaneously with the structures that organize industries” (p. 150), Neff’s relational analysis of geographic shifts in social events demonstrates that the locus of informal action had changed.

Although these authors point to the challenges of relational analysis of different aspects of narrative, it is also worth remembering that narratives themselves are imperfect sites of a dynamic process connecting reader, writer, history, and text. McLean makes this point in the context of Florentine patronage when he says, “Letters, or sets of letters, like relationships, are not static objects: they flow, they narrate a story, they pose contrasts. In short, they dynamically construct a relationship and an image of the letter-writer” (McLean 2007, p. 121). Ewick & Silbey (2003) echo this sentiment when they explain that, “[c]onstructed through transactions between speaker and audience, text and reader, narratives are always collaborative productions offered within overlapping relational contexts” (p. 1343).

Civic Society

Research on civic life has been an area where sociologists have increasingly gained analytic traction from the use of social network approaches. Like scholarship on narrative, a sizeable amount of work on civic organization is concerned with communication patterns across dynamic relationships, while more strongly emphasizing distinctions between multiple identities, interaction between public and private modes of social life, and emergent publics. One concise way of theorizing this civic concept is to imagine a public as a communicative site that emerges at the points of connection among

social and cognitive networks (Ikegami 2000). In a careful and far-reaching historical study of ancient Japan, Ikegami (2005) illustrates how aesthetic practices surrounding the arts enabled and encouraged the connections made between individuals across social boundaries. These connections also provided opportunities for cross-fertilization of publics and different cultural styles. By tracing shifts in different forms of private and public voluntary associations in and around the period of the rise of the Tokugawa state, Ikegami suggests that the interaction of individuals’ cognitive maps and the stories that collect network relationships contribute to emergent culture. For Ikegami, a tight connection inheres in the coevolution of publics and identities and the coevolution of network complexity and cultural practices: Norms of civility, respectability, and voluntary participation in cultural activities emerged from transformations of associational life.

Situating the creation and demise of publics as issues related to network dynamics and cultural emergence is a key issue for Mische (2007) as well (see Mische & Pattison 2000 for an analysis using an innovative tripartite Galois lattice method to examine relationships between organizations, events, and projects among youth activists). Mische is centrally focused on questions of how individuals and social movement factions make sense of their networks while seeking to transform society. In research that explores tensions between communal civic identity and partisan forms of organization in late-twentieth-century Brazil, she examines the evolution of network affiliations within and between youth activist organizations that often overlap in terms of their membership and ideologies. Mische’s publics are “interstitial spaces in which actors temporarily suspend some aspects of their identities and involvements in order to generate the possibility of provisionally equalized and synchronized relationships” (p. 21), and “clusters of relations linked by their associated histories and projects” (p. 47). These publics are no less agentic than Ikegami’s, but Mische’s contemporaneous setting allows for closer scrutiny of interaction dynamics

and encourages us to consider the cultural conditions that may facilitate bridging attempts between diverse structural positions in networks.

Another example of relational analysis of cultural practices in civic life concerns networks of New Year celebration in urban China (Bian et al. 2005). To test hypotheses about macrosocietal structure, the authors examine household visitation patterns within and between occupational strata. The underlying methods (Breiger & Mohr 2004) used to examine the dual dynamics of political and economic stratification are relevant more generally to network models of the public sphere (see also Walters 2004 on symbolic events and religious networks).

An emphasis on the interplay between social structure and cultural conditions enriches the study of civic networks in the recent work of Baldassarri and colleagues. In a study of civic associations in two UK cities, Baldassarri & Diani (2007) examine both the structure and content of civic association ties to adjudicate between hierarchical and polycentric forms of political organization. They explain that “[w]hile network formal properties are important, they cannot be fully understood without referring to the content of ties. . . it is by referring to the interplay between form and content of network ties that the peculiar structure of civic networks can be explained” (p. 742). By comparing observed networks with randomly rewired network simulations, they differentiate structural effects of social ties from chance to find that “strong identity ties (‘social bonds’) embed associations into dense clusters of interaction, while more instrumental, ad hoc alliances (‘transactions’) operate across clusters, integrating them into broader civic networks” (p. 771). Spurred by a paradox in assumed polarization of political attitudes versus absence of actual polarization, Baldassarri & Bearman (2007) model the evolution of preferences as an interaction of both cultural and political dynamics and explore how social influence is mediated by multiple issues (see also Fowler & Smirnov 2005 for an agent-based model of election participation and political party change).

Research on collective action (e.g., Diani & McAdam 2003) further animates the intersection of culture and social network perspectives. A pioneering force in this area has been the sociological oeuvre of Charles Tilly, one consistently concerned with relational methods in the study of civic life (see Diani 2007 for a review). Tilly (1997) uses formal network modeling to study “networks of contention” and the rise of a Parliament-oriented society in eighteenth- and nineteenth-century Britain. Tilly (2005) uses networks as a heuristic in order to highlight a more general need to pay attention to meaning-making when studying how social ties affect action.

Activist networks are also a key site of investigation. In a study of Palestinian suicide bombers, Pedahzur & Perliger (2006) draw upon published secondary accounts of organizational affiliations in order to identify networks of activists. Although they acknowledge limitations of reliance solely on the observed network, their perspective helps to identify potential causal connections between changes in strategies of activist organizations and local organizational and kinship structure. Drawing upon life histories of guerrilla activist women in El Salvador, Viterna (2006) points to the complexities of the paths that lead individuals toward social mobilization. Suggesting a more strategic examination of how networks and barriers to participation interact, the author reminds us that “networks, biographies, and contexts all shift over the course of a movement. Studies seeking one, generalized path to mobilization cannot capture these processes” (p. 40). In this rich framing, we note affinities with the analysis strategies of publics undertaken by Mische and Ikegami.

Research concerning global civic society illustrates connections between culture and macroscopic structure. Relational methods of network analysis are employed to look at international trade patterns (Erikson & Bearman 2006, Mahutga 2006). Similarly, global interconnectedness in a world system framework is engaged by Alderson & Beckfield (2004), who draw upon economic data to establish structural

similarities between local civic and macrostructural positions in the world economy (see also Polillo & Guillen 2005).

Relational Organization: Fields and Actor-Networks

Like those who give the heuristic of publics a central role in analyses of civic structures, others have used the organizing principles of fields and actor-networks to ground relational analysis of culture. Recent theoretical critiques of field (Martin 2003, Eyal 2005) give insight into how to synthesize meaning-making processes with social structural explanation. By separating out topological, organizational, and relational meanings of field structure in Bourdieu's (1993) influential conception, Martin (2003) explains that a differentiated conception of fields gives us a way to incorporate maximal cultural context and generalizability in scientific explanation. In helping to explicate how field position induces action, Martin reminds us that field theories are conceptually aligned with social network perspectives that formally study positional equivalence (White et al. 1976, Lin 1999). Second, in suggesting an integration of the field level with the level of the situation, Martin brings field theory closer to realizing the benefits of microinteractional frameworks (e.g., Collins 2004). In contrast, Eyal (2005) focuses on "thick boundaries" both within and between fields and discusses how the space between fields can be an important context for understanding action. By neglecting these spaces, we run the risk of missing important aspects of interaction.

A recent wave of attention to boundary processes outside of a field-theoretic context (for reviews, see Lamont & Molnar 2002, Pachucki et al. 2007) focuses attention on social and symbolic aspects of boundaries and their relationship with varieties of inequality. In his comparative study of ethno-racial boundaries in Swiss neighborhoods, Wimmer (2004) demonstrates the value in analysis of boundary work by examining structural features of networks such as relationship type, relationship context, and dis-

tance (social versus topological) in order to theorize group formation and identity processes.

Relational sociologies of knowledge production have also recognized a deep interdependence between cultural and network modes of explanation. Research on the culture of scientific disciplines owes a great deal to relational modes of analysis, as early work on academic affiliations demonstrates (Mullins 1973, Collins & Restivo 1983). Abbott (2001, chapter 1) explains how changes in disciplinary structure might reasonably follow an endogenous fractal pattern of differentiation. In Abbott's model, academic disciplines increasingly converge as scholars in different subfields begin to engage each other's questions with new methods. He points out that sociology might subdivide into a culture-versus-structure dualism, while each of those elements would further subdivide into a culture and structure mode of analysis, yielding cultural methods of studying culture, structural methods of studying culture, and such permutations *ad infinitum*. Eventually, there is some degree of overlap as branches of inquiry both intentionally and independently happen upon similar arguments. In a study of coauthorship networks in the social sciences, Moody (2004) describes how the formation of network ties across such subdisciplines can lead to changes in the structure of the social sciences.

The development of actor-network theory (ANT) has been especially prominent in studies of the sciences (Latour & Woolgar 1979; Latour 1987, 2005; Star & Griesemer 1989; Law & Hassard 1999). In Latour's vision, ANT is best thought of as a sociology of associations (or translation) and is most useful in the early development of a field or social realm. For Latour, the duty of sociologists of associations (versus "sociologists of the social") is not necessarily to bound or stabilize groupings neatly, but rather to point up controversies inherent to the world being studied. Latour's outlook gives actors agency in defining their social world, rather than giving researchers power to impose order. ANT actively recognizes the instabilities in social life—the uncertainties in social connectivity—and it incorporates this

tenuousness into its theory of action. This microinteractive perspective is based upon tracing ties between both human actors and objects; for Latour, the act of hiding behind larger-than-life social forces encourages passivity in questioning the role that actors' ingenuity plays in explaining the social world. Building upon both Latour and White's theories of how actors and actions intersect, Muetzel (2002, Mützel 2007) uses narrative analysis of newspapers in Berlin to analyze shifts in meaning-making and knowledge production. In seeking to recast actions themselves as network actors, and more generally by disrupting the usual assumption that actors and ties are clearly distinct, research in this tradition is a radical effort to rework cultural boundaries and the social networks that both define and span them. Mützel (2009) clarifies similarities and differences between ANT and the cultural turn in social network analysis.

Taste Preferences

An emergent body of literature on taste preferences seeks to understand the causal associations between patterns of cultural affiliations (conceived both as consumption choices and interpersonal ties) and social network properties. The foundations of this research have often involved the specification of mechanisms related to cultural capital transmission and reproduction. For instance, Anheier et al. (1995) see a gap in Bourdieu's theory of how relationships influence social position and use the network method of blockmodeling to show how variance in capital attainment (social, cultural, and symbolic) within social networks of writers influences their social positions. Research has demonstrated how employment networks influence individual experience by illustrating that network ties to people in diverse positions lead to a broader range of cultural tastes (Erickson 1996); that shared tastes and knowledge among elite philanthropists strengthen ties, form a basis for exclusion, and thus serve to strengthen class cohesion (Ostrower 1998); and that it is not simply the types of musical tastes

people exhibit, but how they make choices, that distinguishes them (Han 2003). In his analysis of musical preference boundaries, Sonnett (2004) explains that most individuals' propensities to make ambiguous declarations of taste are not adequately captured by formal models.

Analysis of cultural forms in the General Social Survey has shown that competing mechanisms of taste homophily ("like attracts like") and aesthetic distancing ("I seek to differentiate myself by my choices") can account for observed distributions of cultural forms in a population (Mark 2003). Taste preferences are also fungible and can be transformed into social ties. Lizardo (2006) finds that highbrow tastes in music lead to networks of denser ties, whereas popular tastes lead to an increase in weak ties. For Lizardo, "individual tastes for different types of culture help to create and sustain different types of network relations" (p. 800). This proposition explicitly challenges network analysts' commonplace assumption that networks cause culture, rather than the other way around.

A small but growing literature examines culture and networks longitudinally. An early example is Giuffrè's (1999) research on career patterns of visual artists and gallery affiliations. Using network methods of blockmodeling and optimal matching, the author follows artists' career structures and reputations over a decade, adjudicating between "structural hole" and "weak tie" hypotheses to account for an observed pattern of affiliations. Bearman and colleagues (2004) indirectly examine taste in romantic partner selection in the course of examining social structure to anticipate disease spread. In doing so, they uncover taken-for-granted behavioral norms structuring the observed network (see also South & Haynie 2004 on tastes in friendship using the same data). Centola et al. (2005) use formal modeling to illustrate a mechanism to account for the maintenance of unpopular norms.

Network simulation methods involving the spread of tastes in a longitudinal framework have borne fruit as well. Salganik et al. (2006) examine dynamic patterns in how status

inequalities interact with the emergence of taste preferences by simulating an online music-downloading program and inviting participants to rate the music they hear. The authors find a substantial social influence effect depending on what users know of how other individuals rate a song. Using an agent-based modeling framework, Centola et al. (2007) simulate the formation and dissolution of social ties alongside taste-matching processes to show how social diversity in affiliation structure can be maintained despite high degrees of homogeneity in choice of cultural forms. Together this work highlights the need to look beyond the structure at both the content of what is being transmitted—such as social norms and the credibility of information—and mechanisms of transmission, and more importantly how culturally meaningful individual action can result in drastic changes in the dynamics of social networks in which individuals are embedded.

CULTURAL HOLES

The aforementioned thematic areas of convergence offer some sense of the challenges to analysis across disciplinary divides, but they also suggest the rich rewards yielded when perspectives deeply engage. Within the tradition of productive exchanges between culture and network scholarship, we suggest one last area we feel is ripe for theoretical development and related to the other themes organized herein. As may be anticipated, the heuristic of cultural holes is in dialogue with the immensely influential concept of “structural holes” (Burt 1992, 2005). Burt’s idea refers to strategic bridging ties that may connect otherwise disjoint clumps of social actors; these ties are hypothesized to lead to enhanced information benefits and social capital for those who bridge holes.

Yet although the concept of structural holes has led to advances in explaining network topology and information flow, it has done so largely without attention to cultural meanings, practices, and discourse. And so we ask the following question: Is it possible that structural holes may be more culturally contingent than social

network analysis has recognized? By the term cultural hole we mean contingencies of meaning, practice, and discourse that enable social structure. We identify four aspects in the following discussion.

As we have reviewed, an emergent literature gives empirical support for the cultural contingency of social ties and network structure. Various instances within the literature support the notion that the structural presence—or absence—of ties may have cultural explanations as well. Theorizing cultural holes in this manner, in the context of relational networks, may further help us to situate the range of affinities between social network methods and themes advanced by cultural sociologists and allow us to flesh out substantive points of articulation. We propose four starting points for understanding the shapes that cultural holes might take.

1. Bridging social ties exist because they connect people who both share and reject tastes, as well as those with complementary tastes. Burt (1992, p. 12) recognized that strong (potentially bridging) ties often connect those individuals with shared interests and, more generally, that we “find people with similar tastes attractive.” Burt lost sight of culture, however, as he worked out his more restrictive vision of a calculus for the maximization of interest. Nonetheless, findings on the importance of banal, chatty topics in bonding people who converse with one another about “important matters” (Bearman & Parigi 2004) and on the importance of people’s orientations (including ambivalence; Sonnett 2004) toward tastes in popular and high culture in affecting and structuring their social networks (Erickson 1996, Lizardo 2006) lead us to suggest that it is often forms of popular culture that flow through and evoke those bridging ties emphasized in Burt’s work. The greater implication is that bridging ties are better imagined as spanning cultural holes. An unexpected precursor to these contemporary findings is Homans (1961, pp. 320–23), who

Bridging tie: a social connection between two actors who are otherwise disconnected or tied only through a path of indirect ties

emphasized the importance of tastes (or what he termed “idiosyncrasies” such as “a taste for, say, bird watching”) in supplying the basis for interpersonal network choices of partners for leisure activities. Furthermore, Homans argued that tastes had to be sufficiently wide in scope in order to provide substantial linkages of an individual to the larger network (“the more idiosyncratic were a girl’s values, the fewer people, naturally, she could find to share them,” p. 323).

2. Cultural holes give us a way to explain linkages between diverse cultural forms (DiMaggio 1987, White 1992, Moody 2004, Mische 2007). The notion of cultural holes points to the structuring of boundaries and the lack of complete connections among cultural forms such as musical genres (Mark 1998, Han 2003, Sonnett 2004). In this perspective, the way to empirically identify genres, disciplines, communities of practice, and dimensions of cultural classification is to search for patterned absences of relations, to see these sociocultural forms as patterned around holes. DiMaggio (1987, p. 441) saw this point clearly when he insisted that an important set of methods for identifying artistic classification systems empirically is to locate ritual boundaries and barriers that “make it difficult for artists and entrepreneurs to move among genres.” Because such boundaries between cultural forms are generative of classification systems, we believe that the concept of cultural holes will prove productive of endogenous explanation in the sociology of culture (that is, explanation of culture that is based on cultural processes; Kaufman 2004).
3. If and when structural holes work is fundamentally culturally contingent. Structural holes do not always provide the benefits that Burt hypothesized. There is evidence (Xiao & Tsui 2007) that what makes structural holes work or fail strategically is the culturally contin-

gent behavior of actors, at levels ranging from interpersonal, to cross-national, to intraorganizational (see also Padgett & Ansell 1993, Gould 2003, Podolny 2005).

4. Holes may refer to incommensurabilities in institutional logics (Friedland 2009). For Friedland (pp. 22–23), institutions have a logic because practices, on the one hand, and purpose and value, on the other, are internally in alignment. However, individuals “live across institutional fields,” and situations and organizations involve more than one logic of practice; some of these logics are complicated. A research agenda would be to understand how these partially interdependent, partially divergent logics can be either differentiated, bridged, contested, or mediated. An excellent example reviewed earlier is Smith’s (2007) study of narratives of ethnic conflict, showing how strikingly different narrative deployments of conflicting groups, each with their own understanding of self and others, create a hole in the discursive space that nonetheless manifests some common elements around its edges, creating possibilities for bridging in the stories told by individuals. In what we see as a related theoretical move to Friedland’s, White & Godart (2007) posit that it is precisely when identities do bridging work across network domains that “identities generate some specific meanings, together with forms of discourse” (p. 2).

We see these four possibilities as being at the cutting edge of our discipline and richly deserving of empirical attention in the field. Yet the idea of cultural holes helps bolster emerging areas of research and might also help address longstanding controversies as well.

It may be useful to return to earlier examples in order to further outline some of the contours of cultural holes. The first sense suggests that a broker can bridge structure by sharing culture. Mische (2007) gives a more thickly cultural nuance to this idea than network forebears

(Burt 1992, Marsden 1982, Gould & Fernandez 1989). Mische frames the idea of brokerage in thickly cultural overtones, of entrepreneurial social skill and “performative enactment of selective sets of relations” (p. 48). Mische also advances our instantiation of cultural holes in suggesting that “mediation consists of communicative practices at the intersection of two or more (partially) disconnected groups, involving the (provisional) conciliation of the identities, projects, or practices associated with those different groups. There is a decidedly cultural and performative component to such mediation; it involves negotiating between multiple possible public representations of who one is acting ‘as,’ as well as what one is acting ‘for’” (p. 50).

A corollary of this point is that the cultural bridging of holes may entail reinforcement of the existence of other holes. An important example is Erickson’s (1996) explanation of how talk of sports in the workplace unites men across social class boundaries. At the same time, foreign-born people and women who work in the industry Erickson studied know (on average) much less about sports in comparison to their male colleagues; therefore, sports talk provides a distinctive occasion for the marginalization of women and the foreign-born from the central networks of the workplace, even as it connects men across disparate social classes. This duality of coupling and decoupling has been a prominent concept within White’s (1992, 2008) evolving theory of networks, and it offers a sharp lens for viewing network connections that bridge cultural holes as creators of boundaries.

The bridging of cultural holes is not always a realization of homophily (shared tastes, values, or social resemblance), and it may often imply the opposite. Durkheim began his masterwork, *The Division of Labor in Society*, by posing the question of whether friendship is based on resemblance or dissimilarity among friends. He concluded that “we seek in our friends the qualities we lack, since in joining with them we participate in some measure in their nature and thus feel less incomplete” (Durkheim 1933 [1893], pp. 55–56); moreover, it is this “divi-

sion of labor, which determines the relation of friendship.” This line of thinking illustrates the second phrase in our Point 1, above, namely that culturally constituted ties bridging across structural holes may be based on complementarity as well as on the resemblance of tastes and orientations. More general notions of ambiguity and incommensurability in interaction are also important for analysis of cultural holes. Ambiguity helps to enable relationality, as when an empirically observed structuring of marriage choices simultaneously endorses otherwise incompatible normative systems (Bearman 1997, p. 1395). Leifer (1988) demonstrates that actors’ abilities to sustain uncertainty about when and whether to assume a given role make possible more general relational norms of reciprocity and exchange.

Our second proposition regarding cultural holes follows from the idea that genres and other cultural forms do not fit together seamlessly. Just as Lorrain & White 1971 (and others) said about social networks, so with genre networks, the holes define the structure.³ Ikegami (2000) uses the metaphor of “publics as negative space” much as we intend our second meaning of cultural holes to connote the switching of individuals between publics and cultural forms, “by connecting to and decoupling from their network intersections” (p. 995). For Ikegami (2005), the ritualized space of “mu’en” (a term signifying an absence of relations, a suppression of extranetwork identity) in Japanese aesthetic networks points to the ways cultural holes bridge places, spaces, and people.

The third sense in which we describe cultural holes is to think of Burt’s structural holes as varying by local context. These holes might work one way in China and differently in America; just as networks create culture and are created by culture, networks embody local culture of their own. As McLean puts

³This sentiment has numerous aesthetic parallels; for instance, musician Dizzy Gillespie was famously rumored to have said, “It took me all my life to learn what notes not to play.”

it, "Networks are, ironically, more about flux than stasis. To keep them going takes cajolery, reassurances, and other sorts of artful symbolic effort" (p. 226). Other productive extensions of cultural holes, implicated in part by the fourth sense put forward above, are suggested by attention to boundaries. For instance, Lamont & Molnar (2002) and Pachucki et al. (2007) direct us toward various properties of boundaries and mechanisms related to individuals' boundary work. This perspective could be usefully informed by a vision of cultural holes grounded in well-developed network methods of analyzing social cohesion (proximity, tie strength, frequency, duration, multiplexity), as well as social position (structural and regular equivalence methods). In other words, if we accept that the dynamic configuration of symbolic and social boundaries actively orders social structure and, further, that social structure is constituted by relationships that can be operationalized by ties and measured by social positions, then it stands to reason that attention to these formalized relationships and boundaries may enrich our understanding of their interplay. Looking toward the interaction of boundaries and cultural holes can tell us of social cohesion and equivalence and may also explain how configurations of ties can contain measurable traces of boundary processes.

CONTINUING CONTROVERSIES AND FUTURE DIRECTIONS

Advances in longitudinal network analysis and greater attention to solving statistical conundrums have shed more light on questions of causality in recent years owing to analysts' ability to better understand temporal dependencies (e.g., Stark & Vedres 2006; Moody et al. 2005; Christakis & Fowler 2007, 2008). The promise of computational modeling of social networks suggests a bright future (Breiger et al. 2003, Cederman 2005, Snijders 2005, Handcock et al. 2008, Lazer et al. 2009), especially as large data sets concerned with cultural meaning (e.g., Lewis et al. 2008) are beginning to emerge. These developments hold promise,

but fresh thinking will be required to advance the analysis of huge longitudinal networks beyond purely social structural explanation. Addressing the multiple and dynamic meanings of ties, nodes, and groups also invites continued refinement. Although this has been a persistent issue, we would do well to keep this challenge in the foreground, especially given a growing recognition of ways to manage the fluid and overlapping nature of meaning (Bearman & Parigi 2004, Yeung 2005, Ryan 2006).

The choice to innovate wholly new analysis strategies versus a tried and true method is also a perennial concern. Perrin (2004) challenges the esoteric formal models that network analysts of culture often apply, arguing that by inventing new methods or by adopting obscure ones, analysts marginalize cultural analyses from the rest of sociology. Our colleagues know how to interpret regression coefficients, Perrin writes, but not Galois lattices. His own research (e.g., Perrin 2005) demonstrates the wisdom of his position, in that he makes consequential contributions using standard methods in his study of political microcultures. Sonnett & Breiger (2004) take a very different path, arguing that we need to understand quantitative methods themselves as sets of cultural practices. Breiger (2000) analyzes similarities in the mathematics of Coleman's rational choice theory and the quantitative technique (correspondence analysis) that bolsters Bourdieu's field theory as an aid to understanding them as social theories. Sonnett & Breiger (2004) see the boundaries between standard methods and relational or funky techniques (referring, e.g., to the low repute in which correspondence analysis is often held on this side of the Atlantic) as very slippery boundaries and worthy of analysis in their own right.

A continuing controversy is that of a rational choice perspective against relational thinking in culturally and historically embedded action. Like the other controversies, this one does not admit of easy answers. Network analysis has made important contributions within a rational-actor theoretical frame (Gould 2003). In contrast, Somers (1998) formulates a

“relational realism” that takes the basic units of social analysis to be neither individual entities nor whole societies, but rather the relational process of interaction between and among identities. Somers and in a parallel manner Emirbayer (1997) are, in effect, trying to bridge a cultural hole around which are found contemporary network theory, narrative and sequence analysis, historical institutionalism, the sociology of culture, and what Emirbayer declared to be a burgeoning relational sociology that shows little sign of abating.

CONCLUSIONS

We have argued for multiple reasons why contextually examining networks and culture increasingly makes a great deal of sense. In sum, we have argued that the time is overdue for a conscientious shift beyond cultural explanations for social structure, and structural explanations for cultural outcomes, toward a more integrated vision of social scientific explanation. Social relations are culturally constituted, and shared cultural meanings

also shape social structure. We have discussed progress in key challenges for relational analysis posed by Emirbayer (1997) more than a decade ago (boundaries, network dynamics, causality) and suggested productive advances (narrative, civic life, fields, actor networks, longitudinal and computational modeling, and cultural holes). Future work needs to take more seriously the multivocality of identity and social ties (Yeung 2005, White 2008). Rather than assuming that we have actors first and that their ties result from individuals’ agency, we should recognize that social ties may in fact precede actors [see Latour (2005); also, see recent work in biology and genetics (e.g., Freese 2008) and the operations research model of Pearson (2008)]. Networks can be incisively analyzed as projective in nature (see discussion in Mische 2007). Culture prods and evokes the very existence and constitution of networks in myriad other ways, as well (see in particular Lizardo 2006). If these themes are elaborated with care, the analysis of social networks will look very different than it does today and will gain increased analytical power and theoretical vision.

SUMMARY POINTS

1. Culture and social networks can be usefully seen as mutually constitutive and coevolving, having grown from common sociological roots in relational thinking.
2. Much empirical analysis over the past several decades has tended to treat social networks and culture as discrete realms rather than together. Notable attempts at synthetic engagement are reviewed.
3. A body of recent work shows how culture prods, evokes, and constitutes social networks in ways that may be envisioned and modeled by new analytic methods. Prominent emerging research areas include narrative and textual analysis, the civic sphere, studies of organizing principles such as fields and actor networks, boundaries, and cultural tastes.
4. In dialogue with the influential concept of structural holes, we suggest that cultural holes captures contingencies of meaning, practice, and discourse that enable social structure and structural holes.
5. Four aspects of cultural holes are identified: (1) Bridging social ties often exist because they connect people who both share and reject tastes, as well as those with complementary tastes. (2) Boundaries as well as affinities among genres are productively understood as patterned around absences of ties among cultural forms. (3) The use of structural holes

as distinct from other organizing principles may depend on culture at levels ranging from interpersonal, to intraorganizational, to transnational. (4) Incommensurability in institutional logics prods actors to generate new meanings and forms of discourse.

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