

Formalist and Relationalist Theory in Social Network Analysis

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Abstract: There is a widespread misconception in and about social network analysis that social networks are necessarily relationalist. In current social theory, relationalism has a specific definition. It rejects essentialism, *a priori* categories, and insists upon the intersubjectivity of experience and meaning, as well as the importance of the content of interactions and their historical setting. Formalism, however, is based on a structuralist interpretation of the theoretical works of Georg Simmel. Simmel based his theory on a Neo-Kantian program of identifying *a priori* categories of relational types and patterns that operate independently of cultural content or historical setting. Where relationalists insist on setting, formalists seek to identify patterns that transcend setting. Where formalists seek to identify the locus of social action in patterns devoid of content, relationalists focus on the intersubjective creation of meaning and content. Formalists are engaged in a project of identifying generalizable laws of social interaction, whereas relationalists are more interested in techniques for producing historically-situated explanations. Confusion between the two research programs has generated incoherent research agendas and a widespread misunderstanding of what the field can, should, or is attempting to accomplish. In this paper, I distinguish the two theoretical strains.

Since its inception in the 1930s, social network research has become an increasingly vibrant part of sociology inquiry. The field has grown tremendously over the last few decades: new journals and conferences have been created, programs and concentrations in social network analysis have been created in institutions in both North America and Europe, and large numbers of scholars have been attracted to the field from across a wide disciplinary array, including sociology, anthropology, management sciences, computer science, biology, mathematics, and physics. Additionally, the widespread embrace of the concept of 'networking,' beginning in the late 1970s and the remarkable popularity of social networking web-sites in the first decade of the twenty-first century have magnified public awareness and interest in social network research. For many of the researchers to social network analysis, it holds the promise of revitalizing and unifying sociological research under the banner of theoretical interest in relationships – rather than individuals (as in economics and psychology) or states (as in political science). However, this potential has withered under the sustained criticism that social network research is atheoretical (Granovetter 1980, Rogers 1987, Emirbayer and Goodwin 1994, DiMaggio 1994, Burt 1980). Methods without a theory cannot provide a coherent research agenda; it therefore follows that social networks can offer little to sociology other than technical expertise.

I argue that social network analysis does not lack theory -- it suffers a surfeit of different and even contradictory theoretical frameworks. In this paper I focus on two dominant theoretical frames that animate the majority of works on social

networks within the field of sociology: *formalism* and *relationalism*. Formalism and relationalism have conflicting aims and assumptions that drive analysis and the field into different directions. My goal is to clarify these two distinct strands within social networks in order to help allow a fuller realization of the potential of social network analysis.

Outline:

There are clear theoretical divides within the field of social network analysis; nevertheless, works describing the field consistently present a unified front. I address these past overviews of the field, then introduce *relationalism* and *formalism*. Central differences between the two traditions revolve around their relationship to the content, context, the link between micro and macro levels of social analysis, and agency. I illustrate these differences using classic social network articles and books and consider how research in the two veins differs significantly over the definition of what constitutes a valid explanation.

Past descriptions of social network theory:

Typically, network research is criticized for lacking theory. In one of the best-known papers on social network theory, Emirbayer and Goodwin (1994) array different types of network analysis with respect to their treatment of culture, agency, and value formation; social network researchers are then criticized for neglecting these important concepts. The authors urge network researchers to rectify what they conceive as an oversight. The larger structure of the argument implies that network

researchers show a deeper interest in culture, agency and values – the field will (finally) become theoretical (Emirbayer and Goodwin 1994). Doug McAdam echoes their sentiments: “network theory fails to offer a plausible model of individual action” (1992, p. 60). Early network pioneer J. Clyde Mitchell wrote in a review of network analysis that, “the weak link in the chain at present is the low level of substantive conceptualization: The data collection and the formal analysis [of networks] ought to follow from the conceptual framework” (1975: p. 445). Mark Granovetter argued “that most network models are constructed in a theoretical vacuum” (1979, p. 501). Ronald Burt stated that “the lack of network theory seems to me to be the most serious impediment to the realization of the potential value of network models in empirical research” (Burt 1980).

Somewhat paradoxically, network analysis is also strongly associated with the development of relationalist social theory (Emirbayer 1997, Fuchs 2001, p. 3, 64, White 2008). Social networks is inherently relational, as it focuses on the analysis of relations between actors or objects; however, as I show in my discussion of relationalism, a focus on *relationships* is not the same as *relationalism* as defined in current sociological theory. A focus on relationships is also not sufficient to constitute a social network theory. Several authors have attempted to identify a unified theoretical framework for social network analysis based on the emphasis on relations (Smith 2010, Wellman 1983). This emphasis is vaguely theoretical in that it identifies an important underlying ontological supposition; however it is not sufficiently complex to be considered a theoretical framework, nor does it constitute

a set of logically consistent propositions that can be used to generate hypotheses. It therefore cannot be considered a theory in any useful sense of the word.

I differ from these past approaches by arguing that the great majority of social network research is theoretically informed. Relationalism is closely associated with social network research because it has been incorporated into and driven a large segment of social network research. There is another large segment of social network research that is not relationalist, but instead formalist. Formalism is also theoretically informed; however contrary to the expectations of Emirbayer and Goodwin, a logically consistent formalism will not lead to the embrace of culture and values or other concepts that we have come to identify with social theory. I explain this further in the section on formalism.

Is Social Networks always Relationalist?

Social network analysis takes as its fundamental unit of analysis the relationships between actors. The actors may be individuals, but they may also be organizations, states, animals, or any other of a large variety of collective bodies or individuals. It is often taken for granted that this focus on relationships means that social network analysis is definitively relational. *Relationalism*, however, has a more specific meaning.

The theoretical roots of relationalism are difficult to identify as they are potentially numerous and not often explicitly identified – and in fact radical strains of

pragmatism disavow grand theoretical narratives. The American pragmatist tradition – in particular John Dewey, Charles Henry Peirce, and George Herbert Mead have been influential for many involved in theorizing relationalism. In Europe, the phenomenological tradition seems to have also contributed. A distinct, but still highly influential brand of relationalism grew up around the work of Pierre Bourdieu (Kivinen and Piironen 2006) and other continental theorists, including but not limited to Luc Boltanski and Bruno Latour, who has himself embrace the early work of Gabriel Tarde (2010), contemporary of Durkheim.

Mustafa Emirbayer has perhaps been the most explicit in advocating for a relationalist approach to social science. In his “Manifesto for a Relational Sociology” he defines *relationalism* in opposition to *substantialism*. Substantialists indentify the source of social action and explanation in fixed entities, be they individuals, societies, or social structures. Relationalists instead believe that the “very terms or units involved in a transaction derive their meaning, significance, and identity from the (changing) functional roles they play within that transaction,” (Emirbayer 1997: p. 287). And, “relational theorists reject the notion that one can posit discrete, pregiven units such as the individual or society as ultimate starting points of sociological analysis” (Emirbayer 1997: 287).

In a similar vein, Margaret Somers wrote, “Relational realists believe that, while it is justifiable to theorize about unobservables, any particular theory entailing theoretical phenomena is historically provisional. For a relational realism that

means one can believe in the reality of a phenomenon without necessarily believing in the absolute truth or ultimate reality of any single theory that claims to explain it.” (1998: 744)¹ And, Stephen Fuchs has made a strong case against essentialism, saying “essentialism searches for the intrinsic ‘nature’ of things as they are, in and of themselves” (2001, p. 12). Fuchs argues that an essentialist faith in the fixity of objects is itself the product of a certain type of social structure.

Harrison White, who has been instrumental to the development of social network analysis, has also been at the center of the development of relationalist social theory. In *Identity and Control*, he clearly defined a relationalist agenda (2006). In keeping with the relationalist rejection of fixed entities, White rejects both the conceptual priority of the idea of the individual and meaning or values. For White, relations are prior to persons. “Identities spring up out of efforts at control in turbulent contexts;” Our image of ourselves is an illusion that arises from “efforts at control amid contingencies and contentions in interaction” (White 2006, p. 1).

And meanings and values arise through interactions. Consider White’s work on language. Language is primary to a relationalist theoretical project because language is at its core a communication between individuals -- it only exists within the relationship between them. Walter Benjamin once wrote that a book only truly comes into existence when it has been translated (Benjamin 1969, pp. 69-82). White

¹ *Relationalism* in Emirbayer’s work here should be clearly distinguished from the term ‘relational’ which he uses to describe a branch of social network research concerned with social cohesion in “Network Analysis, Culture, and the Problem of Agency” (1994).

reminds us that all language is an act of translation, from one person to another, and therefore it at its essence relational. Meaning is conveyed, abstracted, and disembedded and made tangible through the relational act of conversing, where it becomes eminently social (White 2008). And all meaning derives from relationships because meaning only occurs when two contexts or identities are linked, in, for example, an act of translation, communication, or abstraction. For example, the experience of not knowing exactly how you feel about something until you tell someone is one of these acts in which meaning is constructed through communication. Meaning was vague, swirling, and chaotic until an actual relationship makes it manifest – if only for the duration of that impermanent and shifting interaction.

Relationships are clearly central to *relationalism* as defined by White, Fuchs, Somers, and Emirbayer; however relationships are conceived as dynamic, impermanent, and contingent. They are made, unmade and reshaped by their social context. If relations are considered to be fixed, independent of context, or prior to social context, this would simply be another version of *substantialism*. Much of social network analysis simply does not fit within this relational framework. It is better described as formalist. Formalism in social networks emerged out of a structuralist reading of Georg Simmel.

Formalism

Georg Simmel is widely considered to be a founding father of the social network tradition and is without any exaggeration one of the most important theorists of the field (Levine, Carter, and Gorman 1976a 1976b, Levine 1989). Many people emphasize the relational aspects of his theory. Ronald Breiger emphasizes his debt to Spinoza (Breiger 2011). Mustafa Emirbayer writes of him as “the classical sociologist most deeply committed to relational theorizing” (Emirbayer 1997: 288). Gary Backhaus has argued that in his later works Simmel was influenced by Edmund Husserl and practiced a phenomenological social science (1998, 2003). The link is not entirely explicit but phenomenology seems to have influenced the development of *relationalism* in the social sciences, and the two certainly share a certain affinity. Simmel also influenced Ernst Cassirer of the Marburg school of neo-Kantians, someone who would later go on to influence relationalists; Cassirer’s influence is apparent, for example, in Emirbayer’s treatment of *substantialism*. However, Simmel’s work is widely acknowledged to contain contradictory elements and is complex enough to sustain different interpretations. In particular, Gary Jaworski has documented a mid-century intellectual struggle between competing interpretations of Simmel’s work, one driven by Robert Merton’s middle-range structuralism and the other driven by the phenomenological orientation of the New School (1998). In Merton’s hands, Simmel’s work was shed of its potentially proto-phenomenological and relational elements (Janowitz 1990). Instead Merton’s Simmel was formalist—a term chosen by Simmel himself.

A formalist reading of Simmel is informed by the Kantian, rather than the phenomenological or Spinozan side of Simmel's work, and I would argue that it is Simmel's formalism, rather than his phenomenology, that has been embraced in social network analysis. Understanding the logic behind this formalism can help explain issues that have puzzled critics of social network analysis, such as many researchers' lack of interest in culture and context.

A neo-Kantian, formalist interpretation of Simmel puts him very much at odds with *relationalism* as described by Emirbayer. In order to explain this I need to briefly point out key elements of Kant's philosophy. Immanuel Kant was part of a Romantic-Conservative movement that both reacted to and carried on the Enlightenment embrace of reason and rationality. Where the Enlightenment philosophers had embraced the idea of the unlimited potential of rational investigation, Kant had reservations about the role of reason in scientific and philosophic investigation. Kant had been deeply impressed by David Hume's radical skepticism about our ability to accurately perceive anything external to ourselves, but he did not take his own skepticism so far. Instead Kant posited that there are certain essential structures of the human mind. These aspects of the mind are prior to our experience of the physical world and in fact structure our perceptions of the universe; for example we cannot perceive objects or movement without the concepts of space and time. For Kant these *a priori* structures answer the question: how is nature possible? *A priori* structures of the mind make nature possible by making our experience of nature possible.

Conceived as part of the neo-Kantian project, Simmel attempted to expand Kant's philosophy beyond the natural sciences to the social sciences. The rhetorical question Simmel posed was "How is Society Possible?" (Simmel 1971). Following Kant, Simmel argues it is "answered by the conditions which reside a priori in the elements themselves, through which they combine, in reality, into the synthesis, society" (1971, p. 8). Further "the sociological apriorities are likely to have the same twofold significance as those which make nature possible. On the one hand, they more or less completely determine the actual process of sociation as functions or energies of psychological processes. On the other hand, they are the ideational, logical presuppositions for the perfect society" (1971, p. 9). And Simmel perceives at least part of his research project as searching out these sociological apriorities (1971, p. 8), or the social forms that constitute society

For Kant the a priori exists outside of nature and experience. A straightforward reading of Simmel implies that social forms are *a priori*, that is, they exist prior to experience.² Social forms do not arise from relationships experienced in the real world. Instead, something much closer to the idea that relationships experienced in the world manifest the properties of ideal forms occurs. As Backhaus has described, Simmel's social forms "transcend the real acts of consciousness through which they

² Positing another a priori outside of the human mind is a significant break with Kant, but that is far beyond the scope of the paper. Gary Backhaus does deal with this issue in his articles.

are constituted" (Backhaus 1998: p. 263).³ They are not constituted by transactions, but instead give form to transactions -- because they posit discrete, pre-given and fixed entities that exist outside of the material plane prior to their instantiation. This approach is nearly the opposite of relational in the sense that is has been defined in contemporary sociological theory.

To be entirely clear, in Simmel's work, the form of associations cannot exist without the actual associations, as form does not exist without content, but form is not determined by actual associations, just as the shape of a vase is not determined by the liquid it contains. It is instead the synthesis of the two which makes society possible. Still, the ontological quality of these forms, their fixity, is in direct contradiction to the relationalist conception of social life.

These metaphysical underpinnings have direct implications for approaches to social network research. The effect can best be seen on three different dimensions: contents, context, and the link between micro-level behavior and macro-social outcomes.

The Content of Ties

For Simmel the *a priori* objects that made society possible were social forms. There is inconsistency within Simmel's work on how he defines social forms (Wolff 1964:

³ Backhaus is emphasizing Simmel's affinity with Husserl's phenomenology in this writing; however his interpretation still emphasizes the importance of local structures over individuals' experience of them and the fact that they predate the local interactions that might otherwise seem to produce them – particularly from a relationalist perspective.

p. xxxix). Forms can be on the one hand, types of associations, e.g. competition, domination, subordination, or, on the other hand, forms are geometric abstractions like the dyad and triad. If we understood Simmel to mean that *a priori* social forms are relational types, Simmel would be positing relationships as an additional primary category of existence, standing alongside Kant's original transcendent subject. This isn't in keeping with contemporary formulations of what *relationalism* should be, although it is making a very significant claim about the importance of relationships and does potentially retain an analytical interest in the content of relationships. However, Simmel's own emphasis on form versus content leads away from this.

Many of Simmel's most famous theoretic contributions are fascinating insights about the ability of form to shape content. For example, dyads produce the characteristics of triviality and intimacy. Triads introduce the possibility of impartiality. And many contents, which could be considered from a relational perspective, Simmel defines as individualistic – not social. “Strictly speaking, neither hunger nor love, neither work nor religiosity, neither technology nor the functions and results of intelligence, are social” (Simmel 1950: p. 41). In “The Problem of Sociology” Simmel argues that the contents of social forms – the interests, values, and beliefs of individuals in society – are not properly sociological.

Instead Simmel focuses on form versus content – and we tend to think of friendship, competition, hatred, and love as the emotional content of relationships we have with

others. Simmel encouraged social structural models of abstracted forms rather than relational types. And this has been Simmel's legacy in social networks, a theoretical groundwork for a formal sociology that focuses on patterns of ties at the expense of the content of those ties.

At the very extreme end of the spectrum this has produced a desire for a sociology entirely drained of individuals. For example, Donald Black in his "Dreams of a Pure Sociology," imagined a field "entirely uncontaminated by psychology or other sciences (compare Ward 1903; Simmel [1908] 1950: 21). It contains no assumptions, assertions, or implications about the human mind or its contents. It completely ignores human subjectivity, the conscious and unconscious meanings and feelings people experience, including their perceptions, cognitions, and attitudes." (Black 2000). But even for those who never intended to exclude humanity from sociology, formal approaches have tended to drain content from research.

Consider a classic article on the diffusion of innovation between physicians written by Coleman, Katz and Menzel (1971). The study reports how relationships between doctors affected the pattern by which the pharmaceutical drug *gammanym* was adopted for use by different doctors. There is no information on what *gammanym* does or perhaps more importantly the risk factors involved in its use. In fact, there is no discussion of its effectiveness, which seems to be simply implied by its adoption by a growing number of doctors. Thomas Valente's 1996 study of the diffusion of

innovations (1996) mentions the innovations under study (tetracycline, hybrid corn, family planning), but variation in the adoption rates of these very distinct innovations is attributed solely to the social structures of the involved communities. This absence is in fact the strength of the research. You can understand a significant amount about the diffusion of innovations without having to research the innovation itself exactly because social structure, at the very least, also affects the rate and progress of the adoptions.

In 2004, Peter Bearman and Paolo Parigi published an article noting that, since its introduction in 1985, the network instrument of the General Social Survey has been used to do a great deal of research on relations based on a question that asks respondents with whom do they discuss important matters. Remarkably none of the research – until Bearman and Parigi – was interested in investigating what people were talking to each other about.

The absence of interest in content is not an oversight within a formalist approach to social networks, it is part of an ongoing research program seeking to identify the effects of patterns of social relationship considered in and of themselves. Specifically this means separating out the effect of content from form – or in this case ignoring the form. Clearly the analytical power of a great deal of social network research comes from the ability to abstract away from the messy details of real relationships. But this tendency should be considered formalist rather than relationalist.

In relationalism, the content of the tie is often at the very center of the analysis. For example, in David Stark's influential article on recombinant property Stark shows that the post-socialist economy of Hungary was creating a new kind of capitalism by mixing together and recombining different types of property (Stark 1996). By evaluating ownership patterns of the top 220 largest Hungarian enterprises, he sees a surprising mix of ties to local government, foreign ownership, private individuals, banks, and other firms. Inter-firm ties proliferated across firms creating a new unit of analysis, the network of firms. This network is a hybrid between market and hierarchy in which increase their value by sharing assets and distributing debt across organizational boundaries. The structure and function of the pattern of ties is dependent upon the content of those ties, and the process is only interpretable not by nature of the pattern of ties, but also through the type of ties – in this case intra-firm ties. As he writes, “change, even fundamental change, of the social world is not the passage from one order to another but rearrangements in the patterns of how multiple orders are interwoven. Organizational innovation in this view is not replacement but recombination” (Stark 1996). Consideration of the multiplicity of types of ties – i.e. their content -- form the basis of any transformation, and therefore are necessary components in any explanation of social outcomes.

The Role of Context

In the essay “The Problem of Sociology,” Simmel wrote, “In sociology, the object abstracted from reality may be examined in regard to laws entirely inhering in the objective nature of the elements. These laws must be sharply distinguished from

any spatio-temporal realization; they are valid whether the historical actualities enforce them once or a thousand times” (1971, pp. 28-29). For Simmel, context is also necessarily secondary to the sociological study of forms. If the forms truly are a priori and make society possible in the same way that cognition makes the perception of nature possible for Kant, then those forms must be separate from any particular realization. The social forms must occur in all societies and all contexts.

This emphasis has generated a desire in social network research to identify fundamental social processes that reoccur across all known contexts. For example, Ivan Chase published an overview of papers on hierarchy formations in small groups (1980). His research is Simmelian in the manner in which it privileges form over content. “Hierarchies emerge from the interaction among group members rather than being generated by differences among those individuals” (Chase 1980: p. 905). But more importantly, his project involves showing that the social process of hierarchy formation (i.e. a process not based on individual attributes but interactions between individuals) occurs not only in human societies, but is so general as to also occur in animal societies. Grounding the claims about hierarchy formation in the animal world, i.e. the natural world, gives it a fundamentally different claim to universality than one confined to human society. Since animals do not ostensibly have cultures, hierarchy formation is a social form prior to and independent of cultural settings.

Similarly, small group studies have a different relationship to context and universality than relationalism. Exemplary, and now classic, research in this vein was conducted by James Davis, Paul Holland, and Samuel Leinhardt. James Davis makes light of the research's association with Simmel (1979, p. 54); however it is also clear that Simmel is both a direct and indirect influence (Moreno 1934). In 1976, Holland and Leinhardt formalized a method for thinking about and identifying local structural processes in networks – i.e. in social groups – called the triadic census.

A network is usually composed of several nodes, which often represent people, and arcs, which represent relationships between those people. The structure of the network may be analyzed through global properties, for example, the degree of clustering in the network, but it may also be investigated through local configurations. The triadic census investigates the pattern of ties between of all sets of three nodes (a triad) present within the larger network. The census gives information about which local interactions are driving the larger structure of the network. Holland and Leinhardt are, I believe, relatively catholic about the uses to which the triadic census may be put, but their emphasis – as exemplified by collaborations with Davis – is on psychological processes, such as balance and transitivity theory that are conceptualized as human rather than cultural (Homans 1950, Davis 1963). The psychological focus abstracts from social, historical and cultural contexts, and the emphasis on local pulls attention away from the larger structural context while providing an elegant solution to describing networks.

Despite the theoretical drive to compare social forms across context, the object of research in network research is particularly resistant to comparison. Many network measures and characteristics (density being perhaps the most prominent example) are highly dependent upon the size of the network and therefore resist comparison across networks of different size. Prominent methodologists have therefore attempted to provide standard procedures for comparing network structure across diverse contexts. Faust and Skovertz provided a method for assessing structural similarities by reducing networks to underlying structural tendencies – i.e. forms that concatenate over time to produce structure (2002). Faust and Skovertz focus on mutuality, transitivity, cyclical triples, and star configurations – social forms so abstract they barely correspond to recognizable relational types or processes. The abstract forms however provide a grounded basis for suitable comparison across all kinds of network types, and therefore network contexts. The focus on form obviates the need to take context into account, which is exactly the method prescribed by a structuralist reading of Simmel.

If we return to relationalism, there is a different relationship to context. Somers strongly states that relationalism embraces historicity, and White emphasizes the contingency of social processes. To explore this I turn to a key moment in the development of middle-range relationalist theory – the development of the conception of robust action. As noted by John Padgett and Christopher Ansell in their extremely influential paper “Robust Action and the Rise of the Medici,” the

inspiration for the idea of robust action arose from the work of Eric Leifer, Harrison White, and John Holland. Eric Leifer's paper "Interaction Preludes to Role Setting: Exploratory Local Action" is therefore useful in understanding the genesis of the idea (1988). In his paper, Leifer observes that there are certain contexts in which roles have not yet been awarded to or claimed by involved individuals. In these very particular settings, such as romantic love, corporate career tracks, or league sports competition, strategically deferring claims on specific roles allows actors to continue to jockey for higher status positions. This deferring of claims is termed 'local action.' Leifer observes (emphasis his) that, "the relentless pursuit of status forces the actors to be *acutely sensitive to the setting* where status is conferred" (1988, p. 874). In other words, in these settings, actions are always interpreted on a local basis, i.e. within the confines of the setting – thus, it is local action. More specifically, actors in these settings are always monitoring actions within local contexts in order to discern their underlying meaning – in particular status and role claims. And further, the setting transcends the individual, i.e. cannot be explained away with reference to individual actor's desires or goals. "The importance of setting is underscored by the ability of the actor to only sustain, but not advantageously manipulate, it" (1988, p. 875). This is an investigation of a particularly important structural setting in which setting is particularly important.

But it was Padgett and Ansell who demonstrated the deep connection between historically-specific circumstances and 'robust action.' In their now classic paper, Padgett and Ansell show the historically-contingent process through which the

marriage, economic and patronage networks of the Florentine Renaissance state evolved into a network of relations that allowed for and sustained Cosimo Medici's rise to power through a strategy of multivocality or "robust action." As described in the article:

"The dynamic underlying Florentine state centralization, we shall show, was this: unsuccessful class revolt (1378-82) and fiscal catastrophe due to wars (1424-33) were the ultimate causes, but these shocks were transmitted through the ratchet mechanism of elite network transformation. A citywide oligarchy, cemented through marriage first emerged from a quasi-feudal federation of patrician neighborhood hierarchies. The very process of oligarchic consolidation, however, also produced the agent of its own destruction: The Medici party... a heterogeneous mixture of contradictory interests and crosscutting networks" (1993, p. 1262).

Because of its involvement in various internal politics, the Medici party had come to occupy a marginal position in Florentine elite society. That very marginality came to mean that the party was able to bridge various factions and take power. However, their ultimate success also depended upon the strategic manipulation of Cosimo Medici himself, whose strategy of rule depended on his ability to take actions that could be interpreted as beneficial by many distinct, and indeed often opposed, factions.

Cosimo's rule, and therefore the centralization of power in Florence, depended upon both a complex and contingent historical process, the particularly fractured structure of alliances it had created in Florentine society, and the strategic genius of one talented individual. Network structures are key mechanisms in the transformation of society, but in the words of Mark Granovetter, "it is in the larger setting that they become particularly relevant" (1980).

The Micro-Macro Link

Finally, *relationalist* and *formalist* perspectives offer very different approaches to the micro-macro issues problematized in sociology for so many years. The micro-macro problem is actually a catch-all phrase for a number of linked theoretical problems in sociology. One part of the micro-macro problem is how do micro-interactive patterns cumulate up into larger social structures; however, one might also ask how do social scientists reconcile the fact that two different styles of explanation occur or appear valid at different levels of social formations. And perhaps most centrally to the development of social theory, how is agency reconciled with a social structural perspective.

Previous theoretical work on social network research has posited that network analysis offers a unique solution to the micro-macro problem (Burt 1980, Emirbayer 1994). To quote Emirbayer and Goodwin, “by thus facilitating analyses at both the individual and group level, network analysis makes it possible to bridge the ‘micro-macro gap’—the theoretical gulf between microsociology, which examines the interaction of individuals, and macrosociology, which studies the interactions of groups or institutions” (1994, p. 1418). Again I would argue that social network research offers two distinct approaches to the relationship between micro and macro levels of analyses.

First consider Emile Durkheim's definition of structural social phenomena, which is entirely consistent with a formalist theory of social networks. Durkheim, along with Simmel, is often cited as a founding father of social networks (Martin 2009, Emirbayer and Goodwin 1994). It is also true that one of Durkheim's central projects – and achievements – was to identify society as distinct object, separate from and entirely different than a mere collection of individuals. More directly, this is to say that Durkheim was not interested in resolving the distinction between micro and macro levels of analysis. He was interested in creating it.

One of the ways in which Durkheim described social structure was “the number and nature of the elementary parts of which society is composed, the way they are arranged, the degree of coalescence they have attained, the distribution of population over the surface of the territory, the number and nature of channels of communication, the form of dwellings, etc.” (Lukes 1973: 9). In this case, society – which in Durkheim's hands is a separate entity, indeed a separate organism, that operates on a different plane of existence than individuals – exerts an influence on individuals through social structure, a social structure composed of networks of communication.

Similarly for Simmel, it was the disjuncture of the individual from the social that is the basis for society, in his words “the a priori of social life consists of the fact that it is not entirely social” (1971, p. 14). It is, in fact, the tension between individuality

and groupness that permeates Simmel's conception of the social.⁴ By comparing individuals against society we are able to see both the individual as distinct from society and society as distinct from individuals – so each conception relies upon the other (1971, p. 6-22). Again and again, though perhaps most explicitly in “The Metropolis and Mental Life” and “Group Expansion and the Development of Individuality” Simmel comes back to the productive tension between the opposite but intertwined notions of individuality and group.

The city cultivates individuality through increasing freedom but decimates individuals under the weight of “depersonalizing cultural achievements.” (1971, p. 338). People are less bound to others, but also less fully realized as their personal development is suppressed by the rational calculativeness demanded by city life. In “Group Expansion and the Development of Individuality” that give and take is part of a general process in which increases in individuality are always compensated or matched by increases in groupness, so that a balance --- the balance that maintains society – is always achieved. Individual's experience interactions, but those interactions are really only a vessel through which individual imperfectly experience the essential categories of the individual and the group. This approach does not so much resolve the micro-macro problem as create the conceptual apparatus that made it an enduring feature of social theory.⁵

⁴ Simmel actually does mention interactions between individuals as a part of the social, but those interactions are an incomplete realization of the social experienced from the limited perspective of the individual (1971, pp. tkkt).

⁵ It is also true that Simmel has been used by others to attempt to dissolve the distinctions between macro and micro levels, for example, Breiger emphasizes Simmel's debt to Spinoza's, arguing that the

We see the preservation of the individual in later formalist works. John Levi Martin's book *Social Structures* is a particularly compelling and sophisticated version of formalism. Martin's debt to Simmel is explicit. The book opens with a quote from Simmel and he is repeatedly cited as an inspiration in the introductory chapter (Martin 2009, pp. 1-25). Martin's project in this book is to identify a small number of local interaction patterns (i.e. social forms) that produce larger concrete patterns, or rules, of interaction (i.e. social structures) across all types of contexts. Further, Martin is relatively uninterested in content for the purposes of this book: "...the structure of relationships is in part a function of their content. But this is hardly surprising. What is more interesting is that the reverse may also be the case" (2009: p. 4).

With regards to the fixity of social forms, Martin implies that interactions may be fluid, but what is sociologically interesting is that they produce concrete structures. These structures are not merely efforts to contain the turbulent mess of interactions produced by social life, as in White's relationalist sociology, they are Durkheimian social facts confronting the individual. They are not fluid, but instead obdurate, defined crystallizations that stand outside of the individuals and interactions that created them (2009: p. 1-25). For these structures to stand outside of individuals, there must be an individual that exists outside of social structure.

duality of persons and groups stems from their essential unity – each is simply a different manifestation of the same substance (Breiger 1974, 2011). That both interpretations are possible is again a testimony to the complexity and multivocality of Simmel's texts.

Martin is thus both internally consistent and consistent with formalist theory when he insists upon that the reification of social structure requires theorists to also reify the idea of the individual, thereby preserving the duality of the individual and society. In his words, “I do not believe there is sufficient analytic ground to treat relations—in this case, interactions—as the things, as opposed to the persons” (Martin 2009, p. 14, f. 18)

Relationalism, on the contrary, seeks to problematize the categories of individual and group through its focus on relations and interactions. In White’s words, “my theory aims not just to sidestep the ‘structure and agency’ problem, but to build on grounds of concepts that eliminate that problem.” (White 2006: p. 15).

Harrison White begins *Identity and Control* with a description of children playing in a playground. The scene begins with children happily and harmoniously engaging in different play activities. When playing, the children are engrossed in their task. In White’s sense, their entire being is involved in their particular play activity, so that when they move from task to task, they become different selves – or are in different states of being. Identity, or the idea of individuality, comes when there is a clash or a mismatch between different activities. White’s example is “when the clothes that classmates insist upon, as their badge of belonging, are disdained by a parent at home” (White 2008, p. 5). Now the child must make sense of the contrary expectations in each setting, and they do so by creating a story, or a sense, of how

they move from sphere to sphere. This story, and the clash of interactions that made it necessary, is the basis for a sense of identity or individuality.

Similarly groups emerge out of interactions and relations. In White's language, "task groups as status systems [are] made up from socially patterned judgments around networks" (2008, p. 63). Production markets are perhaps White's most developed example of group formation (White 2002). Markets are groups, individuals know when they are in the market for something, and producers know who else is in the market, i.e. who their competitors and buyers are. As White shows, markets do not simply emerge from the ether, they are constructed upon and depend upon very real relationships – perhaps most importantly the relationship between producer and consumer. Producers do not create products because they are internally driven to bring something to the market, they make products because they expect consumers to buy them, and those expectations are a crucial part of the price-setting mechanism in White's market model. Intersubjectivity is therefore central to the existence of the market.

For White, and *relationalism*, the individual and the group, or the social, are not essential categories, they are simply different manifestations of similar processes. Both are derived through relations, or the messy interactions of daily life.

Agency

In the end the importance of approaches to the micro-macro problem lies in the way that it preserves or problematizes the existence of human agency. We seem to experience free will, so most people seem to prefer a sociological theory that preserves the notion of agency. However, as sociologists we are deeply committed to the idea that social structure constrains and shapes individual choices and even destinies. Simmel's approach to agency again can be straightforwardly interpreted through the lens of neo-Kantianism. This perspective shows a curious inversion of Kant's approach to free will. Kant showed that because we perceive nature, our perceptions must exist outside of nature, and since they exist outside of nature, they are not subject to the laws of nature. For Simmel, social forms exist within society, and therefore that those forms are subject to the laws of society – which is the proper study of sociology (Simmel 1971, p. 3-35). The forms, however, could have different contents – and it was those contents that were the domain of individuality. Agency is then preserved through individuals' influence over the cultural content of social forms.

It follows that the study of culture should be excised from the science of society, since it is the realm of agency and resistant to scientific study.⁶ There are some logical and empirical problems with this conclusion. For Kant, the mind was free from deterministic laws of nature because it was *a priori*, it existed prior to nature and was therefore different and not subject to the same laws. In “Soziologie” tktkt Simmel asserted that social forms are both *a priori* and subject to deterministic

⁶ Of course it is true that Simmel also studied culture, although perhaps not with the same systematicity as social forms.

laws. Because content is not form, it is associated with the realm of the free, but there is no logical reason that this must be true in Simmel's scheme. Further we might empirically note that individuals seem to be much more likely to direct their interactions with others than to overcome inherited cultural beliefs, and even in Simmel's work, form influences a significant effect on content. In the end, the free-will/cultural-contents vs. deterministic-laws/social-forms dichotomy seems somewhat arbitrary and perhaps cannot really be expanded beyond Kant's original emphasis on the free will of the thinking individual acting within a deterministic universe of nature and society.

Unsurprisingly, relations play a much more central role in the relationalism. Mark Granovetter explicitly addressed the problem of agency in his well-known paper "The Problem of Embeddedness" (1985). Granovetter takes issue with what he calls the oversocialized and undersocialized models of man. The Parsonian 'oversocialized' individual is completely directed by norms and values, and the Hobbesian 'undersocialized' man, is instead completely directed by self-interest. As Granovetter argues, there is a third option: "Actors do not behave or decide as atoms outside a social context, nor do they adhere slavishly to a script written for them by the particular intersection of categories that they happen to occupy. Their attempts at purposive action are instead embedded in concrete, ongoing systems of social relations" (Granovetter 1985, p. 487). Following Granovetter, the effectiveness of relations in resolving this issue is probably best illustrated with reference to criminal behavior or wrong-doing of some kind. A normative

perspective asserts that individuals do not misbehave because they are following an internalized cultural norm. These norms problematize agency because individuals seems powerless to resist the cultural norm. The 'undersocialized' individual misbehaves or behaves because it is in their best interest. In this case, agency is problematic because the context, or incentive structure, entirely determines the course of action taken by the individual. The relational individual, however, behaves or misbehaves because of the push and pull of different relationships that engage the individual. The relationships are local, multiple, and heterogeneous, so individuals are influenced by each relationship, but a space for the agency of the actor is preserved within the intersection of different relationships. Thus *relationalism* can rescue the notion of agency through its emphasis on the type or content of ties – different ties create different opportunities, which are the basis for choice. Pushed further, one can see that in the relationalist version, agency does not actually reside in the individual, but instead in the relations. We have already seen that relationalists believe that the conception of the individual arises from the experience of relations or as David Stark might say, the experience of being human arises through coexistence (Stark forthcoming, p. 37).

In any case, the relationalists emphasize contingency and historically-particular explanation rather than deterministic laws in relational approaches to the social sciences. Kant and Simmel seemed to believe that it was likely that science would produce a thorough explanation of all the parts and processes of the natural and social world. Free will was therefore, in a sense, in danger. Relationalism does not

pose a view of a deterministic universe, therefore agency, and our experience of it, is a much less troublesome concept.

An Example: Weak Ties and Structural Holes

To illustrate the ramifications of each theoretical approach, I introduce two classics of the networks literature that address a very similar empirical phenomenon, but derive different implications from their work that, I argue, follow from their alignment with the two different traditions I have outlined here.

Mark Granovetter's article, "The Strength of Weak Ties" and Ronald Burt's book, *Structural Holes* both explore advantages that can accrue to an individual by virtue of their network position. Building on dissertation work on the process by which individuals get jobs, Granovetter revealed the importance of weak ties, defined as relationships with individual who are merely acquaintances (not friends), in diffusing information. In particular, Granovetter found that professional, technical, and managerial job seekers in a suburb of Boston were much more likely to successfully locate new jobs through rarely seen acquaintances than through good friends (1973).

In Granovetter's theory, there are undeniably formal elements to his analysis. He grounds his findings in transitivity theory: strong ties are transitive ties, so a friend of a friend is most likely also a friend. The end result is dense clusters of individuals with access to similar information. Acquaintances are less likely to be transitive and

therefore relationships with acquaintances may span clusters and serve as important conduits for new information. However, Granovetter does not conceive of the importance of weak ties as independent of context. Rather they are structural patterns created by an individual's past history and the organization of the community they inhabit (1983). "Since people are channeled into jobs via personal contacts made early in their careers, and since each job one holds has an important impact on the structure and contents of one's friendship network, it follows that the pattern of choice is itself dependent on states of the system beyond the immediately previous one" (Granovetter 1979, p. 516). Context is in fact central to his conception of weak ties; context is what determines their existence and effectiveness.

In *Structural Holes* (1992), Ronald Burt elaborates a strategic theory of individuals and even organization can improve performance by accessing information via structural holes. Structural holes are areas of low density in the network of relationships and communications between individuals in a competitive arena. Similar to weak ties, a bridging relationship that spans one of these areas of low relational density is likely to bring new information into the pockets of more densely clustered individuals. Given that this new information is valuable, it can assist individuals those individuals who bridged the structural hole or give them a strategic advantage if they offer to exchange it with others. Burt formalizes his argument and proposes several measures that allow analysts to measure the existence of structural holes and the degree of autonomy they create for individuals. As with Granovetter, there are also relationalist elements to Burt's work. For

example he emphasizes the emergent properties of competition and dramatically undermines the importance of individual attributes. However, his relationship to context is entirely different from Granovetter's.

Burt's structural holes are restricted by context in the sense that they operate within competitive arenas; however the emphasis is on the transposability of the concept of structural holes across many different market contexts. "The manner in which a structural hole is an entrepreneurial opportunity for information benefits and control benefits is the bedrock explanation that carries across player attributes, populations, and time" (Burt 1992, p. 4).

Both Granovetter and Burt are relatively agnostic with regard to content. However, content may be conceived as not only the information passing between individuals, but also the type of relationship that they have with one another. For example, a mother/daughter relationship is a different type of tie, with different contents, than a father/daughter relationship, though many different kinds of information may pass through both. In this regard, Granovetter is much more attuned to differences in the type of tie, and in particular the difference between friends and acquaintances. In fact, he links weak ties to the development of role segmentation and new role relationships in the period (1983). On the other hand, Burt is interested in the strength of the relationship, but is not concerned by the nature of the relationship. Podolny and Baron demonstrate this by showing that if one takes into account role types, structural holes are not universally effective (Podolny and Baron 1997).

Finally, there the authors have a different approach to the relationship between the individual and the social structure they inhabit, i.e. the relationship between micro and macro levels of analysis. In Granovetter, the context, i.e. an individual's past history and the organization of their social world, creates different opportunities through which an individual may act. Agency can be conceived as lying within the relationships themselves, in keeping with a relationalist perspective. For Burt, agency – and the individual – clearly exist outside of the pattern of relationships. This must be so because Burt gives practical advice on how to optimize network connections. This advice posits a much clearer separation between the individual and their social ties than in Granovetter – because in order to manipulate their social ties, an individual must exist outside of those ties. Agency therefore does not rely entirely within the relationships, but also in the actor – consistent with a neo-Kantian embrace of individuality passed to network research via Georg Simmel.

Conclusion:

I am taking the position here that the further development of middle-range theory is not enough to hold a field together. Even middle-range theory is informed by important assumptions derived from larger theoretical traditions and further, that it is useful to make those assumptions explicit. I take an inductive, tradition-based approach to social network theory in the belief that understanding the inter-locking assumptions that made *relationalism* and *formalism* compelling in the first place is a fruitful endeavor. If, following Robert Merton, theory is a set of logically related set

propositions that can be used to generate observation or hypotheses about the world, then considering the full set of implications within a body of theory, should help researchers generate new insights.

Ironically, or perversely, this means that I use the formulation of a set of ideas with its own independent path of logical development (i.e. culture) to defend the consistency of a formalist approach to social research, which suppresses an interest in culture as an object of analysis. And I argue that a grand theoretical framework animates the anti-philosophical, pragmatic relationalist approach.⁷

Previous work on network theory tends to try to build a unified theoretical scaffold for network research. Some argue that all network research is relationalist. As I demonstrate in this manuscript, this assumption is not accurate. Formalist and relationalist approaches to research divide the field.

Assuming one theoretical frame or another frequently leads authors to use goals external to or even antithetical to the assumptions underlying the research they are evaluating. For example Emirbayer and Goodwin argue that network researchers have forgotten the importance of culture, values, and agency. However, seen through the lens of formalist and relationalist theory, it is instead clear that formalist social network analysts work within a theoretical tradition that privileges

⁷ I am not, however, arguing that relationalism and formalism are the only theoretical traditions in social network analysis. There is a strong argument to be made that complexity theory and structural anthropology have also had a strong independent impact on network researchers.

form (most often understood as structure) over content (most often understood as culture). Relationalists privilege the idea of relations over abstract notions of agency and value. In the end, imposing only one theoretical narrative suppresses the philosophically grounded and logically sound reasons why formalists consciously eschew an emphasis on culture or how relationalists problematize the idea of agency and normative values. In the end this simply causes confusion between researchers attempting to communicate or evaluate each other's works and muddies the goals of each strain of research. Perhaps most importantly it hinders the development of the field of social networks, which holds great promise for reinvigorating the field of social science.

It is possible to try to approach the division between *formalism* and *relationalism* by attempting to ascertain which is right. This perhaps takes us down a path exploring childhood psychology and the stages of development in the perception of groups and relationships. But it is also possible to consider what each offers to researchers. I would suggest that although there is certainly a matter of resonance – does this theoretical approach resonate with the researcher and the research problem – there is also a trade off between the two in terms of generalizability and granularity.

In relationalism, the inclusion of contingency in social processes and sensitivity to context, as well as content, all considerably reduce the scope of any research accomplished within the relationalist tradition. The formalist tradition, in contrast, holds out the promise of universally generalizable laws. Whether those

generalizable laws govern outcomes of sufficient granularity for them to matter to us is another question.

Formalism offers a well-defined research program. The end goal being the enumeration of all meaningful social forms, complete with an understanding of their effect on focal actors. Since social forms are local – otherwise they could not be transposable to other contexts – this enumeration is perhaps an attainable goal. Certainly the construction and investigation of the triadic census, a complete enumeration of all possible combinations of relations between three actors, is a beginning (Davis 1979). Research on different types of brokerage roles (Gould and Fernandez 1989; Gould 1989), local motifs in network structures (other, Milo 2002), and network exchange theory (Cook and Emerson 1978; Willer 1999) may also be considered important contributions to what could become an encyclopedic investigation of ego-centric social forms.

Relationalism has a less clearly defined agenda but also is not so entirely moored upon outcomes for individual actors. There are many social processes that are of great interest, not because of their impact on any one person (or actor), but because of their impact on society itself, for example, state formation, social revolution, economic transformation, and collective action. Relationalism, with its focus on historical context, naturally lends itself to research on historical transformation. In fact, the entire sub-genre of historical network research can be reasonably considered to fall within a relationalist framework (Bearman 1993, Erikson &

Bearman 2006, Gould 1995, Hillmann 2008a 2008b, Padgett & Ansell 1993, Padgett & MacLean 2006, MacLean 2007, Van Doosselaere 2009). However there is no reason that a relationalist approach must be confined to the distant past, as work on core-periphery (Breiger 1981), collective action (McAdams 1988), and even voting patterns (Baldessari) demonstrate. The theoretical presuppositions in relationalism drive researchers to explore collective dynamics that emerge only through the complexity of multiple interacting units – not in discrete interactions between individual and collective forces. In fact, the focus on relations rather than identities leads researches away from a focus even on groups, and many of these works locate the source of change in the interstices between groups, rather than through endogenous group developments.

Finally, many readers will note that formalism appears to be aligned with deductive reasoning, whereas relationalism is aligned with inductive reasoning. One question then may be whether this is all there is to the contrast between the two approaches. The emphasis on the *a priori* in formalism naturally lends itself to a deductive mode of inquiry; however deduction does not automatically lend itself to the study of crystallized, locally defined structures of social relations that constrain individual behavior and/or outcomes. And induction does not necessarily lead to a focus on relations between things as a locus of action and meaning, rather than the things themselves. Similarly, universalism and particularism are two poles that also capture something of the diversity of these two approaches, but do not describe the full complexity of each perspective.

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