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Network analysis is a fundamental approach to the study of social structure. This chapter traces its development, distinguishing characteristics, and analytic principles. It emphasizes the intellectual unity of three research traditions: the anthropological concept of the social network, the sociological conception of social structure as social network, and structural explanations of political processes. Network analysts criticize the normative, categorical, dyadic, and bounded-group emphases prevalent in many sociological analyses. They claim that the most direct way to study a social system is to analyze the pattern of ties linking its members. By analyzing complex hierarchical structures of asymmetric ties, they study power, stratification, and structural change.



NETWORK ANALYSIS: SOME BASIC PRINCIPLES

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Network (or structural) analysis mystifies many. Some reject it as mere methodology lacking due regard for substantive issues. Some, not having played with blocks and graphs since grammar school, flee from unusual terms and techniques. Some use network concepts as an extra set of variables added on like a turbocharger to boost explained variance. Some dismiss one portion for the whole, saying for example that their study of class structure has little need for the supposed focus of network analysis on friendship ties. Others scorn it as nothing new,

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Leslie Howard's ideas have been especially invaluable; see also Howard

claiming that they too study social structure. Still others expand its approach to nonhierarchical, nongroup structures into a network ideology that advocates egalitarian, open communities. Some even use it as a verb, *networking*, to mean the deliberate creation of networks for instrumental ends.

These misconceptions arise because many observers (and practitioners) mistake the parts for the whole. They would harden network analysis into a method or soften it into a metaphor. Or else they would limit its power by treating all units as equal in resources, all ties as symmetric, and all content as information. Yet the power of network analysis resides in its fundamental approach to the study of social structure and not as a bag of terms and techniques.

My objective is to present, simply and clearly, an integrated statement explaining the development of network analysis and distinguishing its characteristics and analytic principles—I view network analysis as a broad intellectual approach and not as a narrow set of methods. I shall also demonstrate the current intellectual unity of three distinct research traditions and present the study of asymmetric ties as an intrinsic part of the network approach. Not all network analysts would agree with my views. Indeed, some of those whose work I discuss would not even consider themselves to be network analysts. Nevertheless, as this is the first such attempt in sociology, I offer it *faute de mieux*.

Network analysts start with the simple, but powerful, notion that the primary business of sociologists is to study social structure. While this focus on social structure may seem obvious, notice what it does. It deemphasizes analyses of why people act and emphasizes the

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structural constraints on their actions. It shifts attention away from seeing the world as composed of egalitarian, voluntarily chosen, two-person ties and concentrates instead on seeing it as composed of asymmetric ties bound up in hierarchical structures. This shift has important consequences at all analytic scales. In studying communities, for example, it abandons spatial determinism and does not assume automatically that all communities are bound up in local solidarities. In studying world systems, it moves away from sorting countries into traditional or modern categories on the basis of their internal characteristics (such as level of industrialization) and leads to the categorization of units on the basis of their structural relationships with each other.

The most direct way to study a social structure is to analyze the patterns of ties linking its members. Network analysts search for *deep* structures—regular network patterns beneath the often complex surface of social systems. They try to describe these patterns and use their descriptions to learn how network structures constrain social behavior and social change. Their descriptions are based on the social network concept of *ties* linking *nodes* in a social system—ties that connect persons, groups, organizations, or clusters of ties, as well as persons. This emphasis on studying the structural properties of networks informs the ways in which analysts pose research questions, organize data collection, and develop analytic methods.¹

Network analysts want to know how structural properties affect behavior beyond the effects of normative prescriptions, personal attributes, and dyadic relationships. They concentrate on studying how the pattern of ties in a network provides significant opportunities and constraints because it affects the access of people and institutions to such resources as information, wealth, and power. Thus network analysts treat social systems as networks of dependency relationships resulting from the differential possession of scarce resources at the nodes and the structured allocation of these resources at the ties. Some analyses record multiple types of ties between individuals in order to study the complex ways in which these multistranded ties link specific members of a social system. Other analyses focus on a few types of ties in order to study their overall pattern in a social system.

Network analysis has developed independently from other structural approaches in the social sciences, although it shares their general

affinity for interpretation in terms of underlying deep structures (Mullins, 1973; Parret, 1976).² In sociology, network analysis has had neither a basic programmatic statement nor a standard text. Rather, it has accumulated partial principles and conclusions from empirical studies and oral lore. There have been three distinct research traditions, and most members of each have not known the others' work in detail. Instead of one standard model, network analysts have used a number of fuzzy models with shared family resemblances. Much work is now coalescing, however, and researchers have begun to publish widely, form common groups, and start their own journals.³

Research Traditions

The Concept of the Social Network. Anthropologists usually pay a good deal of attention to cultural systems of normative rights and duties prescribing proper behavior within such bounded groups as tribes, villages, and work units. Normative analyses run into difficulty, however, when studying ties that cut through "the framework of bounded institutionalized groups or categories" (Barnes, 1969, p. 72). To study such crosscutting relationships, several anthropologists have shifted attention from cultural systems to systems of concrete ties (Nadel, 1957; Barnes, 1971). While anthropologists had long used network concepts as partial, allusive descriptions of social structure (Sundt, 1968; Radcliffe-Brown, 1940; Bohannan, 1954), several analysts started developing these concepts more self-consciously and systematically in the 1950s, defining a network as a set of ties linking social system members across social categories and bounded groups.

Researchers began using network concepts to study Third World migrants from rural areas to cities. These migrants were no longer members of solidary village communities, and conventional modernization theory suggested that they would become rootless members of urban mass society (Kornhauser, 1968). Network analysts demonstrated that many migrants continued to maintain ties to their ancestral villages as well as to form new urban ties. The migrants' complex social networks, composed of both rural and urban ties, helped them to obtain resources from both the village and the city in order to cope with the demands of modern life (Mitchell, 1961; Mayer and Mayer, 1974). Hence the network analysts refused to accept the

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