7 POWER, DEPENDENCE, AND SOCIAL EXCHANGE THEORY

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What determines who has power and how power is exercised is a central issue in social life as well as in politics. One of the most significant contributions to the analysis of social power was Emerson's (1962, 1964) early theoretical treatise on power-dependence relations. This work became the focus of a major body of work in contemporary social psychology that builds on the contributions of George Homans and Peter Blau to the development of social exchange theory in sociology.

For Blau ([1964] 1986), as for Emerson (1972a, 1972b), there was a clear connection between power and social exchange. The fact that some actors control more highly valued resources than others can lead to inequality in exchange as social debts are incurred and discharged by acts of subordination. Subjugation by the less powerful or domination by the more powerful often become self-perpetuating, forming the foundation of power inequalities in relations of exchange. Inequality and power differentiation were viewed by Blau as emergent properties of social exchange processes. Differences in the nature of the valued resources among actors result in interdependence and thus the need for exchange. They also serve as the basis for emerging inequalities in exchange outcomes as well as power differentials between actors linked by exchange, often in extended social networks (see Molm and Cook 1995; Cook and Rice 2003).

For Emerson (1962, 1964) these power differentials derive from the relative dependencies of actors on one another for the resources of value they obtain through exchange. His 1962 paper, "Power-Dependence Relations," is a citation classic. It formed the foundation for a large literature on power relations within social psychology and sociology more broadly. It also formed the primary basis for the analysis of power in exchange networks, the direction his work took in subsequent publications (1972a, 1972b, 1976). Emerson's (1972a, 39) initial reason for beginning the work, set forth in the two chapters written in 1967 and eventually published in 1972, was "to formulate a more encompassing framework around previous work on power-dependence relations." Power and exchange were closely interconnected in all of the subsequent work on social exchange.

THE THEORY AND RESEARCH EXAMPLES

Emerson (1962) analyzed power explicitly in relational terms as a function of the dependence of one actor on another. He later used this general formulation to provide a specific definition of power within an *exchange* relation (Emerson 1972a, 1972b), conceived as a "temporal series" containing opportunities for exchange that evoke initiations of exchange that result in transactions. An *exchange network* is a set of actors linked directly or indirectly through exchange relations. An actor is conceived as "a point where many exchange relations connect" (Emerson 1972a, 57). In an exchange relation between two actors, *A* and *B*, the *power* of actor *A* over *B* in the *Ax–By* exchange relation (where *x* and *y* represent resources of value) increases as a function of the value of *y* to *A* and decreases proportional to the degree of availability of *y* to *A* from alternative sources (other than *B*). These two factors—resource value and resource availability—determine the level of *B*'s dependence on *A* and thus *A*'s power over *B*. The more dependent *B* is on *A*, the more power *A* has over *B*. This postulate, that power is based on dependence, became the defining element of Emerson's formulation: $P_{AB} = D_{BA}$.

This relational conception of power generated a large body of research on social exchange relations and exchange networks.[1] We focus on only that work that has derived explicitly from Emerson's conception of exchange and power. However, we also suggest ways this work ties to other current research on social exchange and exchange networks more generally. Two traditions of work seem most closely linked to Emerson's perspective: work by Linda Molm and her collaborators, especially their work comparing negotiated and reciprocal exchange (see Chapter 2 in this volume), and the work of Edward Lawler and his collaborators, primarily their work on power, relational cohesion, and affect (see Chapter 9).

From Dyads to Networks

Although Emerson's original formulation focused on the dyad, the dyadic *A–B* exchange relation is typically embedded in a network of exchange opportunities with other actors, *C*, *D*, . . . *N*. This social structure of exchange opportunities formed the basis for Emerson's (1972b, 1976) structural theory of power.[2] One of the two major determinants of power is the structure of the available opportunities for exchange embodied in networks. Networks are composed of exchange relations that are *connected* to the extent that exchange in one relation affects or is affected by the nature of the exchange in another relation. The connection can either be positive or negative. A *negative* connection means that exchange in one relation reduces the amount or frequency of exchange in another exchange relation involving one of the same parties (e.g., the *A–B* and *B–C* exchange relations are negatively connected at *B* if exchange in the *A–B* relation reduces the frequency or amount of exchange in the *B–C* relation). A connection is *positive* if the amount or frequency of exchange in one relation increases the amount or frequency of exchange in an exchange relation involving at least one of the parties to both exchanges (e.g., the *A–B* relation is positively connected to the *B–C* relation if exchange in the *A–B* relation increases the frequency or amount of

exchange in the *B–C* relation). More complicated mixed networks may involve both positive and negative exchange connections (Yamagishi, Gillmore, and Cook 1988). The connection between the specific structure of the networks and the distribution of power in the network became the central focus of research in the social exchange tradition for several decades beginning with the empirical work of Cook and Emerson (1978). Structural features of networks such as centrality, density, range and clustering are all factors which have implications for power that have been studied empirically.

Emerson initially adopted operant psychology as the behavioral foundation for his theory because he viewed it as a more *social* micro-level theory. This was useful since he focused on the relatively enduring social relations between particular actors rather than what he viewed as the dominant focus in economics, the transaction, in which actors were viewed as interchangeable. Later, Cook and Emerson (1978) included cognitive concepts such as risk, uncertainty, and the rational calculation of benefits and costs in their theory of exchange. The actors could thus be motivated by future gains, avoidance of anticipated losses or costs, or simply pursuit of behaviors that they had learned through past interactions were rewarding (or avoidance of those that had aversive consequences).

The main assumptions of exchange theory, summarized by Molm (1997; Molm and Cook 1995, 210), are that (1) behavior is motivated by the desire to increase gain and to avoid loss, (2) exchange relations develop in structures of mutual dependence (both parties have some reason to engage in exchange to obtain resources of value or there would be no need to form an exchange relation), (3) actors engage in recurrent, mutually contingent exchanges with specific partners over time (i.e., they are not engaged in simple one-shot transactions), and (4) valued outcomes generally obey the economic law of diminishing marginal utility (or the psychological principle of satiation). On the basis of these core assumptions, predictions are made about the behavior of actors engaged in exchange and the effects of different factors on exchange outcomes. The power-dependence principle, in addition, allows for the formulation of predictions concerning the effects of altering the value of the resources in the exchange and the availability of resources from alternative sources (i.e., the network structure) on power and power use.

In addition to power, several key concepts define factors that are significant in understanding exchange relations. These include reciprocity, balance, cohesion, and power-balancing operations. Reciprocity, for Emerson, was primarily a description of the contingencies intrinsic to all social exchange. Norms of obligation emerge to reinforce reciprocity. Reinforcement principles and their link to initiation of exchange provide sufficient explanation for the continuity or extinction of exchange relations. Emerson, like Homans, focused primary attention on the microfoundations of exchange (see part I of his formulation [1972a]).

Lack of balance in an exchange relation is typically reflected in differences in initiation probabilities and defined as differences in relative dependencies of the actors. An exchange relation is balanced if $D_{AB} = D_{BA}$, that is, if both parties are equally dependent on the other for exchange. The concept of balance is important in Emerson's formulation since it set the stage for understanding the balancing operations that explain changes in exchange relations

and networks. Subsequently, Cook and Yamagishi (1992) developed the notion of equidependence to describe the point at which two actors are equally dependent on the relationship, creating power balance. However, as Emerson made clear, since actors are motivated to maintain or to increase their power in exchange relations to increase benefits and to minimize losses, power conditions are rarely stable. Change is likely to occur even when actors are initially power equals. Today the concept of power balance is used primarily to refer to power equality in exchange relations. It is not used as much as a motivating factor. Even though the concept was generally a cognitive concept when Emerson developed his theory of exchange (based on Heiderian balance theory), Emerson used the concept in a different sense to refer to structural tension or pressures at the system or network level for change stimulated by actors' efforts to gain or to protect power advantage. Such tensions also exist due to efforts by those in power disadvantaged positions to gain power or, at a minimum, to limit the use of power over them.

Cohesion represents the strength of the exchange relation as well as the propensity of the relationship to survive conflict. Relational cohesion is the average dependence of the two actors in the relation: the higher the average mutual dependence, the higher the relational cohesion (Emerson 1972a). Subsequently, Molm (1985) and others (e.g., Lawler, Ford, and Blegen 1988) referred to cohesion as average total power (or simply total power). The concept represents how much is at stake in the relation (not the relative power of each actor within the exchange relation, which is treated separately in further developments in the theory). Molm and Lawler have examined the impact of total power, as well as relative power, on exchange relations.

Emerson, as did Blau ([1964] 1986), viewed the fundamental task of exchange theory to be building a framework in which the primary dependent variables were social structure and structural changes. Social structures were viewed as emergent properties of exchange processes as well as factors that constrained and enabled specific types of exchange. While Cook and Emerson (1978) investigated other exchange outcomes, particularly commitment formation, it was the connection between power and the structure of social networks that became the main focus of the experimental work in the 1980s and 1990s. Subsequently, theorists turned back to the study of the dynamics of power and the variables that alter the nature of the exchange outcomes: commitment, cohesion, trust, and collective action. We turn to work on these topics that derives from Emerson's perspective after summarizing his collaborative work with Cook and others on the determinants of the distribution of power in exchange networks.

Power in Networks

Interactions that extend beyond the dyad form *social networks* that contain nodes (i.e., individuals) interconnected by ties (i.e., relationships). Two nodes have a tie if an exchange relation is possible. Cook and Emerson (1978) describe a specific type of social network, the *exchange network*, as a system that connects three or more individuals who exchange goods or services. In fact, a meaningful discussion of power requires *networks* rather than

dyads—precisely because dyadic relationships lack the alternatives central to Emerson's conception of power (Cook and Emerson 1978).

The existence of power in exchange relationships depends on more than just the presence of three or more actors. In a three-person network with relations *A–B* and *B–C*, the exchange network *A–B–C* does not exist unless the exchange relationships are contingent on each other—positively or negatively (Yamagishi, Gillmore, and Cook 1988). As described earlier, negative relationships reduce exchange frequency with alternative partners, while positive relationships increase exchange frequency with at least one other alternative partner. The convergence of investigations regarding negatively connected networks is likely due to the fact that these systems involve the principle of competition that can lead to exclusion. Competition is fundamental to many types of economic and market relationships.

Network location clearly affects power for exchange relations connected negatively, positively, or a combination of both (mixed networks). As Yamagishi, Gillmore, and Cook (1988) demonstrate, the factors that create power differentials in networks with these three connection types are distinct. In negatively connected networks, access to alternative exchange partners with valued resources decreases dependence on others and therefore increases individual power. In positively connected networks, however, alternative partners are not competitive. In these systems, alternative partners facilitate one or more additional exchanges in the network. Using empirical research and computer simulations of positively connected networks, they find that local scarcity of valued resources determines relative power. In mixed-type networks, positive and negative exchange relations exist in the same exchange system. In these hybrid networks, the combined function of scarce resources and network position determines an individual's relative power.

Cook and Yamagishi (1992) identify three classes of relations in exchange networks that can emerge from a potential set of exchange opportunities: (1) *exchange relations* (connected in various ways to form networks) that represent ongoing exchanges, (2) *latent relations*, which are links in the network opportunity structure that remain unused (hence "latent"), and (3) *nonrelations*, which are potential links within the network that are never used. The difference between the latter two categories is that latent relations affect the predicted distribution of power when they are removed from the network. Nonrelations have no such effect. Cook and Yamagishi (1992) demonstrate through simulations (and subsequently empirically) the significance of latent relations that can modify the distribution of power in the network if they are ever activated as an alternative source of valued resources. The simple existence of a latent tie that can be accessed, even if not frequently, has clear power implications.

The relative position of actors in an exchange network is the main factor producing differences in the use of power. Changes in the relative position of nodes and ties alter the distribution of rewards throughout the network. Subsequent empirical work by Willer (1991), Markovsky and colleagues (1988), Skvoretz and Willer (1993), Friedkin (1992, 1993), and Bienenstock and Bonacich (1992, 1993) developed more precise predictions concerning features of networks and exchange relations that determine the exact distribution of power in networks of different types (e.g. Willer, Chapter 8 in this volume).

Much of the work following from Emerson's power-dependence formulation focused on the effects of variations in the network structure and in the types of connection as determinants of power, specifically, power inequality. Whitmeyer's research was the first to investigate the importance of *individual preferences* for power dynamics in exchange networks. His research shows that varying the interests (or values) of the actors can have effects on the distribution of power independent of the network structure (1999b) and power inequalities are created when individual preferences are convex (1999a). The analysis of power dynamics and the associated mechanisms that alter the very structure of the networks under study facilitated the investigation of the effects of variation in values and preferences (see also the work of Bonacich and Friedkin [1998] on this topic). However, the role of value and preference ordering remains a key topic for further theoretical and empirical development.

Power Dynamics. An important part of Emerson's theory was his identification of power balancing operations, though there has been less empirical work on this topic (but see State, Abrahao, and Cook 2016). Balance is used to refer to factors that alter features of the dyadic exchange relation or the structure in which it is embedded. An exchange relation in which power (and conversely dependence) is unequal was defined by Emerson as unbalanced. Power imbalance creates strains in exchange relations and provides an impetus for structural change as noted above. He claimed that four distinct balancing operations existed that might stabilize relationships, though perhaps not for long.

Focusing on the two variables that affect dependence, Emerson proposed four processes that would make power more equal in unbalanced relations in which, for example, A is more powerful than B (i.e., $P_{AB} > P_{BA}$ and $D_{BA} > D_{AB}$). To balance this relation, (1) B can reduce motivational investment in goals (or value of the resources) mediated by A (a form of *withdrawal* from the relation); (2) B can locate alternative sources (e.g., actor C) for achieving the goals mediated by A (referred to as "*network extension*"); (3) B can increase A's motivational investment in goals B mediates (e.g., through *status giving* to A); and (4) B can work to eliminate A's alternative sources for the goals B mediates (e.g., engaging in *coalition formation* or another form of *collective action* with other actors, particularly other suppliers of the resources A values).

With these power-balancing principles Emerson was able to predict the types of changes in exchange networks produced by actors attempting to gain power or to maintain power in the network. For example, a division of labor could occur if actors who were once competitors in a negatively connected network specialize in the production of different resources of value to the powerful actor. Or they could coalesce and bargain collectively with the more powerful actor to gain advantage in setting the terms of trade (see later discussion). Other network-level processes were also predicted to result from the strategic use of positional power. Various researchers, including Emerson, later noted that the coalition of the powerful with the less powerful could also occur to thwart the collective action or power-balancing efforts of the power-disadvantaged. Such action is often referred to colloquially as "divide and conquer."

Differences in types of exchanges occurring in a network might alter the power dynamics in the network. Different levels of commitment may translate into more stable dyadic

exchange relations within networks, which has implications for those connected to these relatively committed dyads. In the extreme, strongly committed dyads might become isolated from the network over time, changing the structure of the alternatives for those remaining in the network. Research on generalized exchange (Cheshire 2007) and productive exchange (Lawler and Yoon 1993, 1996, 1998; Lawler, Ford, and Blegen 1988) has provided further insights into the nature of power dynamics in networks involving other modes of exchange. Negotiated exchange was the primary focus of much of the early empirical research on networks of exchange relations, followed by subsequent work on reciprocal, productive, and generalized exchange—all types of exchange identified in the original work of Emerson (1972a, 1972b).

Emerson predicted other network-level changes to be a function of the types of resources involved in the exchanges (Whitmeyer and Cook 2002). For example, he predicted that network closure was more likely to occur when one dominant type of resource is exchanged (e.g., approval). He referred to this as intracategory exchange, as when friends exchange approval with one another. Social circles form in this way and tend to become closed, maintaining their boundaries. Examples include exclusive social clubs or associations that limit membership to those who meet certain criteria, often based on social class. The logic behind closure is vague, involving pressures to maintain exchange relations and levels of appropriate exchange. With too large a group the process breaks down and the group loses the status it might gain as an exclusive network.

Emerson also discussed the emergence of stratified closed classes within intracategory networks. For example, subgroups based on different ability levels or levels of exchange might emerge as in the game of tennis when actors tend to associate only with those of similar ability levels over time. Networks form into stratified elements based on resource magnitude as well. Exchange stratification also occurs with intercategory exchange. Emerson notes, for example, the tendency for initiations to flow upward in interclass exchange and for transactions within such relations to be initiated from above. Many of these specific theoretical insights in part II of Emerson's (1972b) formulation have never been fully developed theoretically or tested empirically.[3]

Coalitions and Collective Action in Exchange Networks. In power-imbalanced networks, coalitions of the power-disadvantaged occur under various circumstances to create a more equal distribution of power. Those with power, however, may thwart such collective action, while those who stand to gain work to create a sense of shared fate and cooperation to promote coalition formation. This is only one strategy that actors with a power disadvantage may use to gain power. Cook and Gillmore (1984) demonstrated that coalitions of the power-disadvantaged can form, especially in relatively simple networks in which several powerless actors coalesce against a more powerful actor to balance the power differential. Coalitions in this case bring about a balance of power and a more equal distribution of exchange profits. However, in larger networks in which there are more power-disadvantaged actors to bring into the coalition, collective action is less effective because of the transaction costs required to coordinate the activity of a larger number of actors. Coalitions that did not include all of the disadvantaged actors in the networks investigated failed to attain power

balance because the powerful actors retained access to alternative sources of the resources they valued when some potential members of the coalition did not join. This factor mitigates the gains that coalitions might produce in some circumstances as free riding occurs or there is a failure of coordination of the relevant parties due to the costs involved. Such factors clearly undermine the potential effectiveness of coalition formation as a power-balancing mechanism. Cook and Gillmore (1984) demonstrated that coalitions in simple networks that did include all of the power-disadvantaged actors were relatively stable, whereas those that did not tended to deteriorate over time since actors competed for access to the more powerful party. Such results reproduce findings obtained in organizational settings outside the laboratory and replicate what we know about the difficulties of collective action in general (see Cook and State [2017] on social dilemmas).

More often the tensions generated by power inequality can result in network extension as actors seek new exchange partners. Power-disadvantaged actors, rather than banding together to form coalitions to balance power, may seek out new relations, thus reducing their dependence on a given actor. This solution to power imbalance has been investigated in a limited set of studies. Leik (1992), for example, proposed a theory of network extension and contraction based on principles derived from network exchange theory, formalized by Markovsky, Willer, and Patton (1988). Empirical work by Lawler and Yoon (1998), however, suggested that emotional responses to inequality may be an important factor motivating network extension (see also Cook and Rice 2003). In the Lawler and Yoon (1998) study, after exchanging with a limited number of partners, actors are allowed to interact with all other participants in their network. Actors in power-balanced relationships continued to solicit exchange with their previous partners. In power-imbalanced relationships, however, the power-advantaged actors sought out their previous disadvantaged partners, but those disadvantaged actors tried to find new partners who had not behaved opportunistically. Thus, low levels of reward coupled with negative affect regarding the power-advantaged actor appear to motivate network extension by those who would gain the most from it.

Before discussing specific applications of power-dependence and exchange network theory, we discuss work derived from Emerson's formulation of generalized exchange, a topic that has received less attention until recently. Work on generalized exchange connects to Molm's research on reciprocal exchange since the structure of generalized exchange is similar to reciprocal exchange networks, although in Molm's early work the relations she examined were typically dyadic and not chain generalized across a larger network as in the classic case of the generalized exchange of necklaces and armbands in Malinowski's Trobriand Islands (see also Bearman 1997).

GENERALIZED EXCHANGE AND PROBLEMS OF COLLECTIVE ACTION

Unlike negotiated direct exchange, in *generalized exchange* "the reward that an actor receives . . . [is] not directly contingent on resources provided by that actor" (Yamagishi and Cook 1993, 235). Generalized-exchange systems are a type of indirect exchange

(Emerson 1972a, 1972b; Blau 1964). In these exchanges, one actor gives resources to another, but resources are reciprocated not by the recipient but rather a third party (Molm and Cook 1995). Thus, generalized-exchange systems inherently involve a minimum of three actors. From the perspective of the recipient, the obligation to reciprocate is not necessarily directed to the benefactor but instead to one or more actors who are "implicated in a social exchange situation with his benefactor and himself" (Ekeh 1974). Inspired by the early descriptions of generalized exchange by anthropologists (e.g., Malinowski 1922; Lévi-Strauss 1969), Emerson (1981) suggested the importance of generalized exchange, but he never had the opportunity to pursue it further. His colleagues and former students, e.g., Gillmore (1987) and Yamagishi and Cook (1993), conducted the initial studies that became the foundation for laboratory research on generalized exchange (see chapter 2 by Molm in this volume).

Ekeh (1974) identifies two main types of generalized exchange. The first type he calls *chain-generalized exchange*, which is synonymous with network-generalized exchange (Yamagishi and Cook 1993). In this type of exchange, each individual gives goods or services directly to other individuals, and they can receive goods or services from others in the same network. The Kula Ring trade studied by Malinowski (1922) is the most famous example. The Kula Ring involved the exchange of necklaces of red shells in a clockwise fashion between islands, while bracelets of white shells were exchanged in a counterclockwise direction. These exchanges of symbolically valued objects solidified social cohesion and the continuation of exchanges of various types that were central to the economy of the islands. Another empirical example of a near-perfect cyclic chain is the exchange of women in a 1940's Aboriginal population studied by Bearman (1997).

The second major type of generalized exchange involves individuals who contribute to a public good and receive benefits from this public (or collective) good. Ekeh (1974) calls this *group-focused generalized exchange*. Yamagishi and Cook (1993) refer to this type of system as "group-generalized" exchange, in which individuals pool their resources centrally (in contrast to the decentralized nature of network-generalized exchange). Examples include villagers who pool resources to build a school or construct a bridge (Yamagishi and Cook 1993), combining resources for business ventures (Ruef 2003), and sharing digital music in peer-to-peer Internet systems (Cheshire 2007).

Generalized exchange, like coalitions, presents a collective-action problem. That all generalized-exchange systems require a minimum of three actors means that coordination issues are likely to emerge. Since rewards are not reciprocated directly, individuals must rely on the goodwill of a third party. And because receiving is not conditional on one's own giving, it becomes possible to free ride (i.e., to receive without giving). Thus, generalized exchange systems produce *social dilemmas* (Yamagishi and Cook 1993; Cook and Rice 2003; Cook and State 2017). In generalized exchange, people do better by not giving to others while receiving from others, but if all refuse to give, everyone does worse than if they all gave (Yamagishi 1995). Several authors have attempted to explain how such complex exchange systems emerge (Bearman 1997; Takahashi and Yamagishi 1996, 1999; Ziegler

1990; Takahashi 2000; Mark 2003; Cheshire 2007) and how they differ from other types of exchange networks.

The production of collective action is difficult in generalized exchange because the interests of individuals and that of the collective persistently diverge. One solution to this problem is to allow individuals to pass along reputation information about previous exchanges. For example, networks that allow individuals to be held accountable by sharing information about previous interactions can successfully produce cooperative behavior in repeated Prisoner's Dilemma games (e.g., Axelrod 1984; Macy and Skvoretz 1998). Using a series of simulations, Takahashi (2000) shows that when self-interested actors can pass along information about the behaviors of others, network-generalized exchange does emerge. This occurs when individuals employ a fairness-based selective-giving strategy (see also Mark 2002). He assumes individuals in generalized exchange want to give more often to those with higher ratios of giving or receiving. Although this explanation works in situations in which reputations exist, it does not apply when individuals are anonymous or when reputation information cannot be transferred to others (Yamagishi 2009). Also, it only applies to network-generalized exchange.

Research on online generalized exchange examines the development of pooled resources on the Internet, such as collections of digital information goods (Kollock 1999a). Shah and Levine (2003) and Cheshire (2007) argue that digital goods have near-pure jointness of supply (i.e., they are nonrival goods). Specifically, digital goods can be enjoyed by many, and contributors need not lose much (if any) of their value when they make a contribution, because digital goods can be perfectly *replicated*, so the contributor keeps a copy when she makes a contribution (Kollock 1999a; Cheshire and Cook 2004; Cheshire 2007). This line of research demonstrates how important the *nature of the good* is in the development of various types of exchange systems.

Large systems of network-generalized exchange on the Internet continue to grow, and now involve online sharing of many different goods and services. Websites such as NetCycler.com, ShareTribe.com, and Freecycle.org ask individuals to share or give unneeded goods to others in need of those same goods or services. In many cases, direct negotiation or payment is explicitly prevented in order to encourage a unilateral gift economy or generalized exchange system. Social scientists continue to examine how these forms of online generalized exchange can foster group identity, solidarity and community among participants over time (Willer, Flynn and Zak 2010; Suhonen et al. 2010). Without the reassurance of direct negotiation and sanctions for failed agreements, these online systems foster perceptions of uncertainty that can be difficult to overcome for some users. The relative risks and sources of uncertainty are sometimes lessened when online and offline exchanges take place in small, local communities (Suhonen et al. 2010), but the risks may be significantly higher when individuals must meet in-person to complete an exchange. For example, in online systems such as Couchsurfing.com or Airbnb.com where travelers link to hosts who provide space in their own homes for visitors, the personal risks to safety and security are especially salient (Lauterbach et al. 2009; Lampinen and Cheshire 2016).

Commitment, Relational Cohesion, and Trust

Research on social exchange has focused special attention on the effects of important factors such as uncertainty and risk on the nature and structure of social exchange. Facing uncertain environments, actors involved in exchange are more likely to form committed exchange relations (Cook and Emerson 1978; Kollock 1994; Lawler and Yoon 1996) or networks of trusted exchange partners (Cook 2005; Molm, Takahashi, and Peterson 2000). A significant effect of the emergence of commitment is that it reduces the extent to which actors seek exchange with alternative partners and thus reduces power inequalities within the exchange relation and the network in which it is embedded (Rice 2002). Kollock (1994) demonstrated that uncertainty not only results in commitment as a means of reducing uncertainty but also tends to be correlated with perceptions of trustworthiness of the actors involved in the exchange. Research on trust (Cook 2005; Molm et al. 2000; Molm 2009) in social exchange relations treats trust as an emergent property in certain types of exchange settings. Power differences in exchange relations have implications for trust. Schilke, Reimann and Cook (2015), for example, find that those in powerful positions often place less trust in others than do those with less power. Trust may be correlated with interpersonal commitment which can reduce power inequalities.

Cook and Emerson first studied commitment in exchange relations and its impact on power inequality in 1978. They found that under conditions of relatively low uncertainty some actors formed commitments (measured as the extent to which two actors engaged in repeat exchange with one another in the face of more profitable alternatives) over time. More interesting, they found that dyadic commitment reduced power use by the high-power actors in power-imbalanced networks. Commitment in this situation reduced the economic exchange outcomes of the high-power actors because they reduced their exploration of alternatives. The exchange outcomes of the low-power actors increased as a result, suggesting that commitment was advantageous for them. This finding provided some support for the argument of Leik and Leik (1977) that low-power actors foster commitment to reduce outcome disparities that derive from power imbalance.

Cook and Emerson (1984) early on explicitly explored the role of uncertainty in exchange networks. They conceived uncertainty as the subjective probability of concluding a satisfactory exchange with any partner. They found that commitment varied directly with uncertainty, increasing when uncertainty was high. As the likelihood of concluding a transaction decreased, an actor was more likely to exchange with one partner exclusively, ignoring possible alternatives. They also found that commitment formation reduced this uncertainty. Cook and Emerson (1984, 13) argue that commitment behavior in this context is rational because it increases the frequency of exchange and thus improves benefits for those within the relationship.

Kollock (1994) subsequently investigated commitment formation under low uncertainty and high uncertainty. He conceptualized uncertainty in terms of the unknown quality of the goods being exchanged, thus focusing on a different source of uncertainty than Cook and Emerson (1978, 1984). Kollock (1994) argued that committed relationships were more

likely to form under conditions of high uncertainty about quality to reduce risk and assure profit. Kollock's work (and subsequent research) viewed commitment as a strategy for reducing uncertainty in exchange situations, testing the argument posed originally by Cook and Emerson (1978, 1984). In addition, Kollock investigated the role of trust. He found that perceived trustworthiness of a partner was directly related to increased rates of commitment (under uncertainty) and reduced rates of malfeasance.

Yamagishi, Cook, and Watabe (1998) report that trust emerges in exchange relations under conditions of high uncertainty when actors begin to form commitments to exclusive exchange relations in an attempt to avoid the possibility of exploitation by unknown actors who enter the exchange opportunity structure. Given low uncertainty, actors are more likely to continue to play the market and avoid forming commitments to specific partners to maximize access to valued resources. Uncertainty in these experiments refers to the likelihood of being exploited by a new partner in a network of exchange opportunities that changes over time. Uncertainty and vulnerability to exploitation are often defined as two key elements in situations in which trust becomes paramount (Heimer 2001).

Lawler and his colleagues (e.g., Lawler and Yoon 1993, 1996, 1998) and Molm and her colleagues (e.g., Molm, Takahashi, and Peterson 2000) subsequently explored commitment between exchange partners in greater depth. In his theory of relational cohesion, Lawler builds on the notion of *cohesion* derived from Emerson's work (1962, 1972a, 1972b). He defines cohesion as the total mutual dependence of both partners in an exchange relation; the stronger the mutual dependence, the more cohesive the relation. He also investigates the emotional processes that derive from positive and successful exchange that form the basis for affective commitment. This research extends Emerson's original formulation emphasizing the exchange relationship as the focus of analysis.

A key feature of Lawler's theory of relational exchange is the idea that instrumental exchange relations become transformed over time based on the nature of the exchange dynamics so that the relationship itself becomes a valued object worthy of commitment. In his studies of gift giving, for example, he measures this transformation by testing the strength of the commitment between the exchange partners. Commitment, if it is meaningful, is expected to precipitate gift giving as a symbolic gesture. In subsequent work Lawler (2008) emphasizes the significance of commitment to larger social units based on positive exchange and affective bonds as an important component of the production of social order.

Molm and her colleagues (e.g. Molm, Takahashi, and Peterson 2000; Molm 2003a, 2003b; Molm et al. 2004, 2013; see also Chapter 2, this volume) examine the effects of *type* of exchange (reciprocal or negotiated) on affective commitment and trust. They argue that reciprocal exchange is inherently more uncertain than negotiated exchange. Because exploitation is always possible, actors in reciprocal exchange risk giving benefits unilaterally while receiving little or nothing in return. Moreover, Molm, Takahashi, and Peterson (2000) emphasize that affective commitment is more likely to form in reciprocal exchange than in negotiated exchange. Because of the inherent uncertainty, actors are likely to attribute a partner's positive behaviors to personal traits and intentions, which results in the emergence of stronger positive feelings in reciprocal exchange than in negotiated exchange.

Molm, Takahashi, and Peterson (2000) also argue that trust should be higher in reciprocal exchange compared with negotiated exchange, precisely because the fear of exploitation should be stronger in reciprocal exchange. The salience of conflict is also reduced in reciprocal exchange relations, compared to negotiated exchange. In these lines of research Lawler, Molm, and their colleagues explicitly incorporate emotions into the theory, an aspect that is distinctly missing in Emerson's early work on exchange but much less so in the work of the anthropologists who studied more primitive forms of exchange (e.g., Mauss [1950] 1990; Malinowski 1922).

Molm (2003a, 2003b; Molm, Collett, and Schaefer 2006, 2007) further demonstrate that the indirect form of reciprocity and the unilateral flow of resources are key to explaining the different effects of reciprocal versus negotiated exchange on integrative outcomes. All things being equal, their work consistently confirms the prediction that reciprocal exchange tends to lead to greater positive affect and higher levels of trust and solidarity compared to negotiated exchange. The main reasons behind these findings are further developed in an updated theory of reciprocity (Molm 2010). The core mechanisms that explain differences in exchange outcomes include the increased risk of the failure of reciprocity in reciprocal (rather than negotiated) exchange, the increased expressive value of reciprocating, and the decreased salience of the conflictual aspects of reciprocal exchange compared to direct negotiation.

Largely building on Molm's theoretical arguments, several different researchers use laboratory experiments to further examine the effects of different types of exchange and the transitions between different forms of exchange on outcomes such as trust, commitment and fairness (Cheshire, Gerbasi, and Cook 2010; Molm, Whitham, and Melamed 2012; Savage and Sommer 2016). Cheshire, Gerbasi, and Cook (2010) examine shifts in one form of exchange to another with the same partners. They demonstrate that when cooperation rates between partners remain consistently high, overall assessments of trust decrease when partners shift from a higher-uncertainty form of exchange (reciprocal) to a lower-uncertainty form of exchange (negotiated exchange). Molm, Whitham, and Melamed (2012) take a slightly different approach by embedding one form of exchange within another. For example, two partners might interact two-thirds of the time in reciprocal exchange, and one-third of the time in randomly interspersed negotiated exchanges. The researchers find that the positive outcomes of primarily reciprocal exchanges can transfer to the embedded form of exchange. For example, when negotiated exchanges are randomly embedded in primarily reciprocal exchanges, the negotiated exchanges produce higher commitment than a relation of pure negotiated exchange. Finally, Savage and Sommer (2016) examine the effects of exit opportunities in different forms of social exchange, showing that while integrative bonds are higher in pure reciprocal exchange compared to pure negotiated exchange, reciprocal exchange can also increase the likelihood that disadvantaged actors may adopt an attachment to reciprocity that inhibits structural change and reinforces preexisting disadvantages. Together, these studies reinforce the point that relationships are dynamic, and social exchange theory is in a good position to examine the complex changes in relationship trajectories and shifting forms of social exchange over time. Before discussing future

directions, we comment on some of the applications of exchange theory, in particular those based on power-dependence principles derived from Emerson's research program.

SUBSTANTIVE APPLICATIONS OF POWER-DEPENDENCE AND EXCHANGE NETWORK THEORY

Emerson's work on power, dependence, and exchange networks has been applied to a wide variety of social phenomena. Interactional dynamics in all types of settings frequently involve exchange and power. To the extent that power and power use is responsible for outcomes, Emerson's approach proves useful in analysis and explanation. Substantive areas of study in which exchange theory has been applied include the study of personal and family relations and, more broadly, organizations and economic relations. There is clear overlap with developments over time in social network theory and research (Cook and Whitmeyer 1992) and economic sociology. We will briefly mention only a few areas of application given space constraints. We begin with some of the earliest applications in organizational theory and research before examining some of the uses of exchange theory in economic sociology.

Power-dependence theory is the basis for an important theoretical approach in the field of organizational studies, known as the *resource dependence* perspective (e.g., Pfeffer and Salancik 1978). According to this perspective, organizations have a fundamental need for resources from both outside and within the organization. Those entities—individuals, subunits, or other organizations—that exclusively provide the most needed or valued resources will have the most power in the organization. This key postulate comes directly from the main principle in power-dependence theory concerning the relationship between dependence and power. Resource dependence theorists note that for power actually to be exerted other factors come into play. Molm, Lawler, and others have studied the specific determinants of power use that extend beyond structural sources of power.[4] They include the strategic use of power, commitment, type of power (reward or punishment power), and normative considerations (e.g., fairness concerns), as well as trust.

Since organizations are not self-sufficient they must engage in exchanges with other organizations and entities in their environments to assure survival. Organizations thus spend much of their time and energy involved to manage these "strategic dependencies." As Scott (1992, 115) argues, "One of the major contributions of the resource dependency perspective is to discern and describe the strategies—ranging from buffering to diversification and merger—employed by organizations to change and adapt to the environment." The application of power-dependence theory to the analysis of organizational exchange and interorganizational relations was first pursued by Cook (1977) and subsequently by Cook and Emerson (1984). Many of the strategies available to organizations to manage their critical dependencies can be understood in terms of the balancing operations spelled out in power-dependence theory, since the goal is to acquire necessary resources without increasing dependence. Such strategies include, under different circumstances, joint ventures, long-term contracting, specialization, consolidation, reduction in production arenas, and vertical integration of various types, among others. As Scott (1992, 193) puts it, "Unequal

exchange relations can generate power and dependency differences among organizations, causing them to enter into exchange relations cautiously and to pursue strategies that will enhance their own bargaining position."

The work of Emerson and his colleagues also informs research and theory in the field of organizations beyond the resource dependence perspective. In particular, it has contributed to the network perspective on organizations (e.g., Mizruchi 1993, 2000; Knoke 1990; Knoke and Guilarte 1994; Powell 1990).[5] A number of organizational theorists have extended the analysis of exchange networks to examine network processes within and between organizations in addition to investigating the role of networks more broadly in the economy (e.g., Powell 1990; Powell et al. 1999; Lincoln, Gerlach, and Ahmadjian 1996; Lincoln, Gerlach, and Takashi 1992). Much of this research is consistent with power-dependence principles. Networks have been examined as significant determinants of labor practices, informal influence, and the organization of business groups and networks of companies that cross national boundaries (Powell and Smith-Doerr 1994). Central to these efforts is the attempt to analyze the relative power of the economic actors in the network and the strategies used to enhance network-wide power or to alter the distribution of power within the network. The focus of attention is on the structural location of the actors in the network and how that influences strategy. Exchange theory and the resource-dependence perspective (e.g., Pfeffer and Salancik 1978) based on power-dependence arguments are commonly used for analysis in these investigations of economic impact. Other topics of investigation include strategic alliances, collaborative manufacturing enterprises, vertical integration of firms, interlocking directorates, network diffusion of innovative practices, and mergers.

Another substantive application of social exchange and power-dependence is the user-corporation relationship, where personal information is the primary object of exchange. Many different industries, including online search, social networking, biosensing wearables for health and fitness, and genetic analysis now implicitly and explicitly involve the decision to share personal information with companies in exchange for useful services (King and Cheshire 2015). While many forms of personal information collected by companies are rarely described as having monetary value, the companies that collect, merge, and analyze these data recognize their economic value. Such issues raise important questions about power-dependence among users and service providers, as well as information asymmetries regarding the perception of the current versus future value of personal information. Ongoing research demonstrates that there is often a mismatch between how the company frames an exchange relationship (e.g., as reciprocity, or perhaps altruism) versus how the exchange of information-for-service operates in practice as an explicit negotiation of rights to one's personal information in exchange for a service (King 2017).

IMPLICATIONS OF EXCHANGE THEORY FOR ECONOMIC SOCIOLOGY

Work on power, dependence, and exchange networks also has significant implications for economic sociology (Cook and Rice 2003; Cook and Gerbasi 2005). Uzzi and Gillespie (1999), for example, examine how firms hierarchically stratify their dependence on different

sources of financial capital to reduce uncertainty. They use network theory to explain how the organization's network of exchange relationships to outside suppliers of capital affects the firm's capital structure. The pecking order predicted by economic models can be modified, depending on the firm's network ties. All relationships are not equal. Certain ties are viewed as more dependable, thus firms use these ties more often. These ties also affect the dispersion of capital sources within tiers of the pecking order. The uncertainty inherent in the market serves to structure an organization's networks and thus modifies its market choices, underscoring the importance of research on the effects of uncertainty and risk on social exchange, discussed earlier.

Uzzi's (1996) research on the apparel industry demonstrates that network ties in the industry are clearly embedded in an exchange system involving social relations that create unique opportunities in contrast to the standard vision of purely economic markets. Importantly, firms embedded in networks involving personal relations have higher chances for survival than do firms that maintain arm's-length, more asocial market relationships. The positive effect of embeddedness, however, reaches a threshold after which the positive effect reverses, becoming negative. This finding suggests the wisdom of maintaining a diverse set of relationships: up to a point it is wise to rely on one's personal relations, but it is equally wise to maintain some arm's-length ties to secure access to more diverse opportunities.

Moving from organizations to individuals engaged in economic transactions, DiMaggio and Louch (1998) use exchange network theory to explain why and to what extent people make significant purchases from others with whom they have prior noncommercial relationships. They argue that engaging in transactions with social contacts is effective because it embeds commercial exchanges in a web of obligations and holds the seller's network hostage to appropriate role performance in the economic transaction, especially under uncertainty. They find that in-network exchanges are more common for risky transactions that are unlikely to be repeated and in which uncertainty is high.

Biggart and Castanias (2001) similarly argue that under uncertainty social relations provide assurance that an economic transaction will proceed as agreed by the parties involved. Commitment (Rice 2002) between exchange parties helps to provide this assurance, especially when there is risk of opportunism or malfeasance. Committed social relations may be more effective than actual contracts in this respect (see Malhotra and Murnighan 2002). DiMaggio and Louch (1998) also find that, in terms of preferences for exchanges within one's social network, uncertainty about product and performance quality leads people to prefer sellers with whom they have noncommercial ties. The converse is true as well: people prefer to avoid selling to social contacts under the same conditions that lead buyers to seek such transactions. Thus, there is an interesting asymmetry. Under conditions of uncertainty (especially when the quality of the good is of concern), buyers prefer to interact with a known seller, but under those same conditions, sellers prefer to exchange with an unknown buyer.

When risks increase, commitment and trust become even more important (Heimer 2001). Under high risk people will often engage in exchange only with those they trust.

Cook, Rice, and Gerbasi (2004) identify the types of economic uncertainty that lead to the formation of trust networks for exchange. Trust networks, if they become closed networks, actually may retard the transition to market economies under high economic uncertainty such as that characteristic of eastern European countries and other countries that made the transition from socialist to capitalist economies. Other implications of social exchange theory for economic relations are explored in Cook, Rice, and Gerbasi (2004). Applications of social exchange theory to macrolevel social structures and processes reflect Blau's enduring influence on the development of exchange theory, despite his subsequent skepticism about linking microlevel theories of exchange and macrolevel social structures and processes.

Applications of exchange theory in fields like health care at the organizational and network level are less common. As early as 1974 Shortell used exchange theory to analyze physician referrals when fee-for-service was the primary mode of financing physician services. Grembowski et al. (1998) subsequently examined physician referrals using an exchange model to analyze referral decisions and the network of providers involved in the delivery of health services under varying types of managed care in comparison with fee-for-service (a much smaller segment of the health-care market over time). Issues of power and dependence are investigated as they apply to physician-patient relations, the relations between various categories of providers (e.g., physician to physician, primary care provider to specialist, physician to alternative health-care provider, and physicians to hospital administrators or other managers within the health-care system), as well as relations between organizations involved in the delivery of health-related services (e.g., insurance carriers, suppliers of goods and services, other health and community agencies).

Grembowski et al. (2002) developed a general model of the power relations between purchasers, managed care organizations, providers, and patients in the health-care system in the United States at three levels: exchanges between purchasers (primarily large health insurance policy buyers) and managed care organizations, exchanges between managed care organizations and physicians, and exchanges between physicians and patients. Their research supports Emerson's (1972) hypothesis that imbalanced exchanges tend to move toward power balance. Grembowski and his colleagues found that collective action is one of the most common strategies for reducing dependence, thus increasing power in the exchange relations at stake.

Research based on models of exchange and power-dependence principles in the arena of health care holds the promise of providing a more general theory of the processes involved. The major shifts that have occurred over recent decades in the delivery of health care have involved significant changes in the distribution of power among the key players in that organizational system. For example, there has been a shift in power from relatively autonomous physicians to the hospitals in which they practice and, more significantly, the insurers that pay them, and who now exercise a great deal of control over the nature of the practice of medicine as well as remuneration and working conditions. Even the Affordable Care Act, initiated by the Obama administration and passed by Congress, was not able to reduce the power of the health insurance industry by moving to a single-payer option, even though it did improve access to care. New applications of exchange theory and power-dependence

principles in arenas such as the health-care industry may offer important directions for future theoretical development. In addition, a number of directions for theory development and research derive from unanswered questions and lines of inquiry, many derived from Emerson's fruitful formulation, that have never been fully explored.

FUTURE DIRECTIONS OF THEORY DEVELOPMENT AND EMPIRICAL RESEARCH

We have identified several areas of research for further development. These include power dynamics, additional determinants of power such as differential values or preferences, exploration of more complex forms of exchange, analysis of mechanisms of network change beyond the strategic use of power, and continued investigation of emotions in exchange relations and the networks they form. In addition, exploring further possibilities for applications of exchange theory outside the laboratory is important to extend the range and scope of the theory. New methodologies for studying exchange networks and emerging markets on the Internet (such as those involved in the "sharing economy") should make this possible. For example, the study of systems of buying, selling, and trading on various Internet sites, in addition to other forms of Internet exchange, allows for the collection and analysis of large data sets on the emergence and maintenance of exchange relations and network connections (see Santana, Parigi, and Cook 2017). Let us comment briefly on some of these opportunities for further theoretical development and research.

The significance actors give to resources, services, or other outcomes is central to understanding the behavior of individuals in social exchange networks and power-dependence relationships. Emerson's (1987) last published paper, though unfinished, emphasized the importance of developing a more comprehensive understanding of actors' preferences and values. As power-dependence and social exchange theories continue to be expanded to apply to real-world exchange systems (in which value is not as easily controlled or measured as in the laboratory), there is a clear need for a more complete theoretical treatment of the social origins of value and the role of individual preference evaluations in social exchange. Informative for these endeavors are Hechter's (1992) call for the endogenous use of values in behavioral explanations and Thye's (2000) status value theory of power in exchange relations, among others, which signal the importance of sociological analyses of values and preferences in social exchange.

Most experimental research on social exchange involves one or perhaps two types of pure exchange (usually binding *negotiated* exchange or *reciprocal* exchange), but real-world examples (such as Uzzi's [1996] work on the apparel industry) show us that exchange relationships are not always that simple. Often relationships start out as one type of exchange (for example, as a contractual relationship), and as the parties get to know one another, the relationship changes. For example, the same individuals may begin exchanging favors or gifts, transforming the negotiated exchange relationship by including elements of reciprocal exchange. On the other hand, some relationships begin with the exchange of favors, such as picking up mail for a neighbor who is away for a weekend in exchange for having one's cat

fed. Eventually this relationship might involve formal, direct negotiation over other goods or services (such as lending tools or the loan of a car for a short time). Several factors may increase or decrease the likelihood of these transitions occurring between different types of exchange, including perceived trustworthiness, the emergence of obligation, and considerations of fairness (Cheshire, Gerbasi, and Cook 2010).

In addition to transitions or the evolution from one type of exchange to another, social exchange systems can also overlap and interact to produce more complex structures. Social roles and interpersonal interactions in the real world are often multiplex—that is, they may involve different intersecting modes of exchange (for different goods and services and among positively, negatively, or mixed types of exchange). The real world is dynamic, such that an exchange relationship between individuals in one small network may affect one or more other exchange relationships among the same (or different) actors embedded in a larger system. For example, managers within an organization might lobby to produce a collective good such as billets for new hires. This creates a positively connected, group-generalized exchange system in which the collective good is a limited number of new employees. As new billets become available, the same individuals who lobby for them may also engage in negotiated exchanges with each other to acquire one of these scarce resources. Thus, a portion of the same system simultaneously takes the form of a negatively connected negotiation network where favors and resources are exchanged for billets. Much like the mixed-type exchange systems explored by Yamagishi, Gillmore, and Cook (1988), the relative power of the managers to obtain the billets may be determined by several interrelated factors such as the network position relative to scarce resources as well as the number of alternative exchange partners. Furthermore, behavioral reputation from one exchange system (such as the lobby for new employees) may affect one's exchange success in the other negotiated exchanges. Clearly, such complex systems are taken for granted in everyday life. Much of the future of social exchange theory and power-dependence theory may involve the investigation of these complex systems and the specification of the determinants of power within overlapping and compound forms of exchange.

Computer-mediated interaction situations, such as those that emerge on the Internet, have become a particularly relevant area for theoretical development and empirical research in social exchange and power-dependence relationships (e.g. State, Abrahao, and Cook 2016). As discussed earlier, one avenue of empirical research on contemporary generalized-exchange networks involves the exchange of digital goods (music, movies, software, information, etc.) in Internet peer-to-peer systems (Shah and Levine 2003; Cheshire 2007). Another significant and growing area of social exchange is online peer-to-peer exchanges of valued physical goods and services. Often referred to as the "sharing economy," these systems enable a range of sharing, exchange, and co-use practices, such as hospitality exchange, ridesharing, and recycling of used goods. These are important sites of research for sociologists and social psychologists because they often involve collaboration, reciprocity, negotiation and trust in the presence of risk and uncertainty (Lampinen et al. 2015, 2016), as well as the potential for developing community solidarity through bridging and bonding ties (Lampinen, Huotari, and Cheshire 2015). Because many peer-to-peer and

sharing economy systems are positively connected, the structure of power differentials may have less to do with the numerous exchange partners in the system than with the relative scarcity of valuable goods throughout the networks. Understanding how such systems emerge, overcome the inherent social dilemmas (and potential power differentials), and produce persistent structures of exchange represents an area ripe for continued research.

Finally, pure economic exchange on the Internet is another arena in which Emerson's conception of exchange and power has renewed significance. Online auction sites (such as eBay) and sites providing services (e.g., Snijders and Weesie 2009) are interesting to sociologists and economists, especially with respect to the nature of reputation systems in these networks (e.g., Kollock 1999b; Houser and Wooders 2000; Yamagishi and Matsuda 2003; Resnick et al. 2000). The focus on reputation systems is because they serve to *reduce the risk and social uncertainty* that are created when individuals interact anonymously across the Internet. The role of reputation in online social exchange relationships is, however, just one of many possible ways that anonymity can be reduced in online interactions. The reduction in anonymity (and hence risk) largely depends on the continuity of the online exchange system (i.e., whether one's partners are fixed or random) and the frequency of the interactions (i.e., iterated or onetime interactions; Cheshire and Cook 2004). While widely described in the popular media and increasingly so in academia, Internet trading, virtual communities, and other forms of computer-mediated social interactions are still largely uncultivated arenas for research on social exchange processes, trust formation, collective action, and power dynamics. In many ways, the world itself has become a fertile laboratory for the study of social exchange networks and power dynamics.

NOTES

1. Emerson was the first exchange theorist in sociology to extend the theory to networks of connected exchange relations. Homans's theoretical work remained at the dyadic and group level. Blau's framework extended into the macro realm of social life and more complex forms of association, but he did not propose networks as the basis for the extension of exchange concepts beyond the micro level as Emerson did. The significance of this theoretical move is that it connects exchange theory directly to important developments in the analysis of social networks.

2. The relationship between social structure and power is broader than the concern with relations of exchange. Willer and his collaborators (e.g., Willer and Anderson 1981; Willer 1999), for example, deal with exchange as well as other types of social process (e.g., coercion) in what they view as a more general theory of social structure and social process often referred to as the "elementary theory of social behavior." We limit our concern to relations of exchange.

3. As a part of his theory of structural change and group formation, Emerson speculated on norm formation. The link between types of exchange (negotiated or productive) and the emergence of norms of fairness was empirically examined by Stolte (1987).

4. See also Cook and Emerson (1978) on commitment and fairness as constraints on power use in exchange networks.

5. Knoke acknowledges the significance of laboratory research on exchange and power for research on organizational relations, but he argues that application of the theory has been hindered by the complexities inherent in naturally occurring networks.

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