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Risk and Trust in Social Exchange: An Experimental Test of a Classical Proposition[1]

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The classical exchange theorists proposed that trust is more likely to develop between partners when exchange occurs without explicit negotiations or binding agreements. Under these conditions, the risk and uncertainty of exchange provide the opportunity for partners to demonstrate their trustworthiness. This study develops the theoretical implications of this proposition and conducts an experimental test that compares levels of both trust and commitment in two forms of direct exchange, *negotiated* and *reciprocal.* The results support the classical proposition, showing that reciprocal exchange produces stronger trust and affective commitment than negotiated exchange, and that behaviors signaling the partner's trustworthiness have greater impact on trust in reciprocal exchange.

> Social exchange . . . involves favors that create diffuse future obligations, not precisely specified ones, and the nature of the return cannot be bargained about but must be left to the discretion of the one who makes it. . . . Since there is no way to assure an appropriate return for a favor, social exchange requires trusting others to discharge their obligations. (Blau 1964, pp. 93–94)

For Blau and most of the other classical exchange theorists, "social" exchange referred to reciprocal acts of benefit, in which individuals offer help, advice, approval, and so forth to one another without negotiation of terms and without knowledge of whether or when the other will reciprocate. These exchanges necessarily entail uncertainty and risk: the other

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might never reciprocate or might do so very minimally. But rather than endangering social exchange, Blau, Lévi-Strauss, and others argued that the risk and uncertainty inherent in these reciprocal exchanges are essential for the development of trust and commitment. Another's trustworthiness can be demonstrated only when exchange occurs without the explicit "quid pro quo" of transactions that stipulate returns, and without the assurance of binding agreements (Blau 1964; Ekeh 1974; Lévi-Strauss 1969).

Contemporary theorists have continued to emphasize the link between risk and trust (e.g., Gambetta 1988; Kelley and Thibaut 1978; Luhmann 1979), and some, like Coleman (1990), have distinguished between reciprocal and negotiated exchange on these dimensions. But despite increasing recognition of the importance of trust in society (and concerns that it may be declining, e.g., Putnam [1995]), empirical examinations of trust in social relations are rare (see Kollock [1994] for an exception). Consequently, the prediction of the classical theorists—that trust is more likely to develop in reciprocal exchanges than in negotiated exchanges—has never been tested. Instead, studies of negotiated exchange, in which actors bargain over the terms of strictly binding agreements, have increasingly dominated social exchange research (e.g., Cook et al. 1983; Markovsky et al. 1993). The terms of these exchanges are known in advance and guaranteed, and consequently trust is unnecessary (Bonacich 1995).

In this study, we report the results of an experiment testing the classical prediction that trust is more likely to develop in reciprocal than in negotiated exchanges. This work is part of a larger research program, the first to compare these two forms of exchange and their effects on power, trust, and related processes.

Our analysis draws on Yamagishi and Yamagishi's (1994) distinction between *trust,* expectations of benign behavior based on inferences about a partner's personal traits and intentions, and *assurance,* expectations that are based, instead, on knowledge of an incentive structure that encourages benign behavior. We propose that negotiated exchanges with binding agreements provide assurance, while reciprocal exchanges enable trust. Whether trust actually develops depends on the partner's behavior and the information it conveys about the partner's trustworthiness. In support of these predictions, our results show that reciprocal acts of individual giving produce significantly higher levels of trust than the joint negotiation of binding agreements, even when exchanges of equivalent value, in equivalent structures of power and opportunity, are compared. And, when the risk of reciprocal exchange provides the opportunity to demonstrate trustworthiness, actors' behaviors—their commitments to one another and the equality or inequality of their exchanges—strongly influence the level of trust that develops.

We link the development of trust to recent work on commitment in exchange relations (Kollock 1994; Lawler and Yoon 1996), both *behavioral commitment* (repeated exchanges between the same actors) and *affective commitment* (feelings of positive affect and commitment toward the partner). We propose that trust is one aspect of a broader nexus of feelings toward the partner, which also includes affective commitment. We show that reciprocal exchanges produce both higher levels of trust and stronger feelings of affective attachment and commitment to the partner than negotiated exchanges. Behavioral commitments, on the other hand, are primarily influenced by the structure of power. Power affects trust and affective commitment through these behaviors, which build trust by signaling the other's trustworthiness and reducing the inequality of exchange.

The signaling effects of behavioral commitments are largely restricted to reciprocal exchanges, however. Even when negotiated exchanges occur within a continuing relation, rather than on "one-shot" transactions, they generate less trust than reciprocal exchanges. Thus, ironically, the very mechanisms that were created to reduce risk in transactions—the negotiation of terms and strictly binding agreements—have the unintended consequence of reducing trust in relationships.

BASIC CONCEPTS AND ASSUMPTIONS OF SOCIAL EXCHANGE

Social exchange occurs within structures of mutual dependence, in which actors are dependent on each other for valued outcomes. We assume that actors are motivated to obtain more of the outcomes that they value and others control, that actors provide each other with these valued benefits through exchange, and that exchanges between the same actors are recurring over time (rather than "one-shot" transactions). These three assumptions constitute the scope conditions for our analysis.

The simplest exchange relation consists of two actors, A and B, each of whom controls resources of value for the other. Questions of trust and commitment, however, are primarily of interest when A and B are embedded in a network of social relations that provides them with choices of alternative exchange partners. Our analysis focuses on *negatively connected* networks, in which each actor can choose among partners who are *alternative* sources of the same resource. In these networks, an actor's exchange with one partner is negatively correlated with her exchange with another.

Emerson's (1972*a*, 1972*b*) theory of power-dependence relations proposes that each actor's dependence is a source of power for the other; thus, A's power over B increases with B's dependence on A, and vice versa. B's dependence on A increases with the value of the outcomes that

A controls for B and decreases with the availability of those outcomes from B's alternative exchange partners. Inequalities in power and dependence create *power imbalanced* relations, in which the less dependent actor has a *power advantage* over the other that tends to produce a corresponding inequality in exchange benefits. We examine the development of trust within power imbalanced relations, comparing networks that vary substantially in the amount of imbalance they create and that provide opportunities for both benevolent and exploitative behavior.

Forms of Exchange

The mutual or reciprocal dependence in relations of exchange can be either direct (A provides value to B, and B to A) or indirect (the recipient of the benefit does not return benefit directly to the giver, but to another actor in the social circle). Our focus here is on direct exchange relations and the distinction that Blau (1964), Emerson (1981), and Lévi-Strauss (1969) all made between forms of direct exchange that are *reciprocal* or *negotiated.*

In *negotiated exchanges,* actors engage in a joint decision process, such as explicit bargaining, in which they reach an agreement on the terms of the exchange. Both sides of the exchange are agreed upon at the same time, and the benefits for both exchange partners are easily identified as paired contributions that form a discrete transaction. The flow of benefits in these exchanges is bilateral; that is, neither actor can obtain benefit without making an agreement that benefits both (however unequally). Most economic exchanges other than fixed-price trades fit in this category, as well as some social exchanges (e.g., agreements about the division of household labor). Research studying negotiated exchanges includes the work of Cook and associates (Cook and Emerson 1978; Cook et al. 1983); Friedkin (1993); Lawler and associates (Lawler 1992; Lawler and Yoon 1996); and Willer, Markovsky, and Skvoretz (Markovsky et al. 1993; Skvoretz and Willer 1993). In all of these programs, the agreements are also strictly binding; that is, the distribution of outcomes automatically follows an agreement.

In *reciprocal exchanges,* actors' contributions to the exchange are separately performed and nonnegotiated.[2] Actors initiate exchanges individually, by performing a beneficial act for another (such as assistance or ad-

[2] Fixed-priced trades, in which a price for a commodity or service is either explicitly set or implicitly assumed by convention, are also "nonnegotiated" but otherwise have the general characteristics of negotiated exchanges (bilateral flow of benefits and known terms). They have been of little interest to social exchange theorists and are excluded from our analysis.

vice), without knowing whether, when, or to what extent the other will reciprocate in the future. Because choices are made individually, benefits can flow unilaterally. Exchange relations develop gradually—or fail to develop—as beneficial acts prompt reciprocal benefit. Because the same act can complete one exchange and initiate another, discrete transactions are difficult to identify. Instead, the relation takes the form of a series of sequentially contingent acts; for example, your neighbor cares for your house while you are gone, you invite him to dinner, he gives you advice on buying a car, and so forth. The equality or inequality of these relations is established only over time, by the ratio of actors' individual giving to one another. Reciprocal exchanges are the focus of Molm's research program (e.g., Molm 1990, 1997) as well as much of the research on mixed-motive games; for example, Axelrod's (1984) work on the evolution of cooperation also studies how social interaction develops when actors make choices individually, without knowing each other's intentions and without negotiation.

Although negotiation is more typical of exchange in some settings (e.g., work) than in others (e.g., families), both forms of exchange are observed in a wide range of social contexts. Even in politics, business, and international relations, unilateral initiatives are common, and the expectation of future reciprocity is often left implicit. Similarly, even in interactions among family and friends, some exchanges of favors, household work, and choices of activities are negotiated. Thus, analytically, it is possible to distinguish the *form* of exchange from the actors, resources, or context of exchange. This is the strategy we take in our analysis.

The distinction between negotiated and reciprocal exchange is closely related to game theorists' distinctions between cooperative and noncooperative games. In cooperative games (and negotiated exchanges), strictly binding agreements are made jointly by actors who can communicate; in noncooperative games (and reciprocal exchanges), actors make choices individually, without knowledge of others' choices (Heckathorn 1985). Both types of games have been studied extensively by economists and rational choice theorists (e.g., Budescu, Erev, and Zwick 1999; Kagel and Roth 1995.).

Uncertainty and Risk

All forms of social exchange involve uncertainty and risk, but the amount and kind of risk vary. In reciprocal exchanges, actors initiate exchange without knowing what they are getting in return, and with no guarantee of the other's reciprocity. They may be able to infer the other's intentions once the relation is established, but their initial exchanges must take place

without that knowledge.[3] Even in established relations, exploitation is always possible.[4] Consequently, actors in reciprocal exchange relations risk giving benefits unilaterally while receiving little or no return. This is the type of risk—the risk of incurring a net loss—that is most critical to the development of trust, because it provides the opportunity for exchange partners to demonstrate their trustworthiness.

In negotiated exchanges, the bargaining process itself is a source of uncertainty; actors' choices of how hard to bargain, what tactics to use, and so forth all affect the terms of agreements and the likelihood of reaching an agreement. But once actors agree on the terms of an exchange, much of this uncertainty is eliminated: actors know what they are getting for what they are giving, and they can choose to engage in the exchange or not. The terms may be unequal and unsatisfactory to one or both parties, but unless both benefit more from the exchange than they would without it, it should not take place. If, in addition, the exchange is secured with conditions that make the agreement binding—conditions assumed in experimental research on negotiated exchange and characteristic of many negotiated exchanges in natural settings—the actors face no risk that the other party will not honor the terms of the agreement.

In natural settings, other sources of risk may make negotiated exchanges less secure. Agreements may not be strictly binding (Heckathorn 1985), time lags between promise and delivery may create opportunities for defection (Coleman 1990), and resource values may be uncertain (Kollock 1994). When these conditions hold, negotiated exchanges are also risky. In our analysis, we assume conditions that eliminate these sources of risk and that equate reciprocal and negotiated exchanges on these dimensions. First, we assume that exchange actions and agreements produce immediate benefits for actors in both forms of exchange (thus, in negotiated exchanges, agreements are binding); second, we assume that the value of benefits received from exchange is known and certain, and that the potential values of benefits from both forms of exchange are equal. These assumptions allow us to compare the development of trust in negotiated and reciprocal exchanges under the conditions that most contemporary exchange researchers have studied, and that represent most clearly the contrast in risk that the classical exchange theorists posed.

[3] For this reason, Blau (1964) argued that the initial offer of a favor has special significance, because the person who makes the first overture risks not only the chance that the act will not be reciprocated, but rejection of the offer itself, i.e., the offer to enter into a relationship.

[4] An excellent illustration of this point is the story that Hardin (1991, p. 185) relates from *The Brothers Karamazov*.

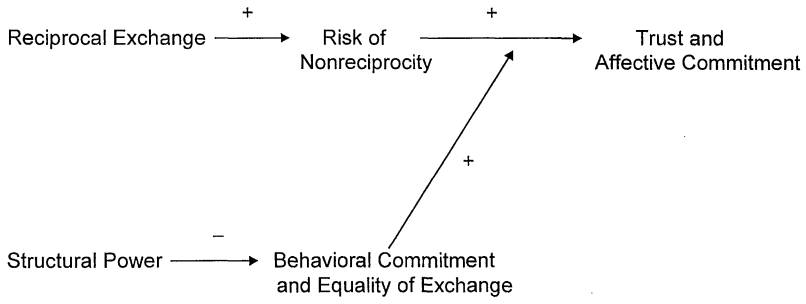

FIG. 1.—The theoretical model

TRUST, COMMITMENT, AND THE FORM OF EXCHANGE

We conceptualize trust and commitment as emergent phenomena that arise in response to uncertainty and risk. Blau (1964) proposed that they evolve together, beginning with minor transactions in which little trust is required because little risk is involved, and gradually expanding as partners prove themselves trustworthy and exchange with each other more frequently. Like Blau, we see trust and commitment as closely linked, but we distinguish between affective commitment and behavioral commitment and conceptualize their relations to trust somewhat differently.

Figure 1 illustrates the theoretical logic that we develop below. As the upper set of arrows shows, reciprocal exchange increases the risk of nonreciprocity that provides the opportunity for both trust and related feelings of affective commitment to develop. Whether trust actually develops, however, depends on behavioral indicators of actors' trustworthiness: their frequencies of exchange with each other rather than with alternative partners (behavioral commitment) and the equality of their exchange. The lower set of arrows proposes that these behaviors are influenced by the structure of power. We develop these arguments below.

Risk, Trust, and the Form of Exchange

We define *trust* as expectations that an exchange partner will behave benignly, based on the attribution of positive dispositions and intentions to the partner in a situation of uncertainty and risk. The conditions that promote trust occupy the middle regions between completely correspondent and completely noncorrespondent interests (Hardin 1991; Kelley and Thibaut 1978). If actors' interests are extremely noncorrespondent, there is little basis for the development of trust (or exchange), but if interests

are completely correspondent, there is no risk and no basis for inferring trustworthiness. Acts of trust, and attributions of trustworthiness, can be made only in situations in which the partner has both the incentive and the opportunity to exploit the actor, but instead behaves benignly. If, under these conditions, A behaves in a *trustworthy* manner, then B's *trust* in A should increase. A's untrustworthy behavior, on the other hand, should lead to B's distrust of A.

In one of the few empirical tests of this proposition, Kollock (1994) examined whether uncertainty in negotiated exchanges, produced by allowing sellers to deceive buyers about the quality of goods they were buying, promotes the development of trust. He found, as predicted, that ratings of partners' trustworthiness were greater when subjects negotiated exchanges under conditions of uncertain rather than certain quality. Disparities in trust were also greater, presumably because variations in trustworthy behavior affected the development of trust.

We use this same logic to test the prediction of the classical exchange theorists: that trust is more likely to develop in reciprocal exchanges than in negotiated exchanges. In developing this proposition, we draw on Yamagishi and Yamagishi's (1994) distinction between "assurance" and "trust." Unlike trust, which refers to expectations based on inferences about a partner's personal traits and intentions, *assurance* refers to expectations of benign behavior from an exchange partner based on knowledge of an incentive structure that encourages such behavior rather than exploitation.[5] Mechanisms that provide assurance include legal or normative authorities that impose sanctions for violations of agreements or failure to fulfill one's obligations, guarantees such as collateral that protect against loss, warranties that assure certain standards of quality, and so forth. As long as an "assurance" structure is present, there is little opportunity for trust to develop, because there is little opportunity to learn about the partner and the partner's own dispositions and intentions.

Yamagishi and his associates (e.g., Yamagishi and Yamagishi 1994) use this distinction to explain why Japanese are less trusting of others than Americans (unlike American society, Japanese society has extensive assurance structures that guarantee mutual cooperation) and why Japanese subjects in social dilemma experiments are less likely to stay in the experimental group when given the opportunity to exit (in the absence of the typical Japanese assurance structures, Japanese subjects are less likely to trust that group members will not free ride). Similarly, we propose that trust is more likely to develop in reciprocal exchanges than in negotiated

[5] Others have made similar distinctions. For example, Hardin (1991) distinguishes between "trust" and "reliance," and Dasgupta (1988) between "trust" and "confidence."

exchanges, because negotiated exchanges provide "assurance," while reciprocal exchanges enable "trust."[6]

In negotiated exchanges, joint decision making informs actors of the benefits they will receive from the exchange, and agreements, when binding, guarantee that those benefits are delivered. Although uncertainty in the bargaining process itself remains, that form of uncertainty should have less bearing on the development of trust. If actors in negotiated exchanges offer too much and strike a poor bargain, or lose out to a competitor who has offered more, they are more likely to make inferences about the bargaining skills of the actors than about the trustworthiness of the partner. Even when actors make agreements that are less favorable to themselves than they had hoped, they do so knowingly, and trust is not an issue to the extent that agreements are binding.

In reciprocal exchanges, the only form of assurance comes from the expectation of future interaction. When exchanges between the same actors are recurring over time, as our analysis assumes, then the "shadow of the future"—the knowledge that the other can respond contingently and in kind to one's own behavior—provides some protection (Axelrod 1984; Schelling 1960).[7] As long as actors value the continuation of a relation (or fear retaliation), they are less likely to exploit one another. This form of assurance, however, is weaker than binding agreements with known terms, and it develops only over time.

We propose that the weaker assurance and greater risk of exploitation in reciprocal exchange provides greater opportunity for actors to demonstrate trustworthiness to one another. To the extent that they do, then levels of trust in reciprocal exchanges should be greater, on average, than in negotiated exchanges. But the development of trust also depends on how the partner responds to the opportunity to exploit or reciprocate. Trust should increase with the partner's reciprocity and, more generally, with the development of frequent, stable exchange between the two actors (Dasgupta 1988; Lawler and Yoon 1996). While these behaviors might be expected to increase trust in both forms of exchange, they should have a stronger effect in reciprocal exchanges. Actors in reciprocal exchanges are more likely than those in negotiated exchanges to attribute the partner's behaviors to personal traits of the partner (such as trustworthiness/untrustworthiness) rather than to the assurance structures that surround the exchange.

[6] Our analysis focuses on the development of trust in specific exchange partners, however, whereas Yamagishi's analysis applies to the development of trust in general others.

[7] When the same actors repeatedly engage in reciprocal exchanges with each other, they can employ conditional strategies such as "tit-for-tat" that reward the other's exchange and punish their defection, thus reducing risk and increasing assurance.

Because the "shadow of the future" provides some assurance, it should make trustworthy behaviors at least as likely as untrustworthy ones. Thus, under the conditions of recurring exchange assumed for our analysis, levels of trust should be higher in reciprocal than in negotiated exchanges. Under other conditions, however—such as a very short shadow of the future, combined with structural incentives that encourage exploitative behavior—*un*trustworthy behavior might be the norm, and trust might then be lower in reciprocal than in negotiated exchanges. Transient exchanges between strangers, for example, are particularly risky (Macy and Skvoretz 1998).

In our study, we examine actors' trust in their exchange partners, and its relation to the partners' trustworthy or untrustworthy behavior, under structural conditions that vary in the incentives they provide for benign or exploitative behavior. As long as future interaction between the same actors is expected, we predict that trust will be greater, on average, in reciprocal than in negotiated exchanges, although the levels of trust should vary with structure.

Commitment and Trust

Exchange theorists have conceptualized the development of commitments between partners in two ways: (1) as purely *behavioral* patterns of exchange in which pairs of actors choose to exchange repeatedly with one another rather than with alternative partners, primarily as a means of reducing uncertainty (Cook and Emerson 1978; Kollock 1994), and (2) as *affective* bonds that develop from repeated experiences with successful exchanges between the same partners (Lawler and Yoon 1996).

We propose that both forms of commitment are related to trust, but in different ways. As figure 1 illustrates, behavioral commitments are one form of "trustworthy" behavior that should encourage the development of trust in a context of uncertainty and risk. An actor who repeatedly exchanges with another, forgoing alternative partners, signals his or her trustworthiness as an exchange partner; one who defects repeatedly does the opposite. Repeated exchanges with the same partner also provide information about the other that reduces uncertainty and makes the other's behavior more predictable. More generally, they are part of the process of "embeddedness" that Granovetter (1985) has addressed, in which ongoing social relations can contribute to the production of trust. As we discuss in more detail below, behavioral commitments can also reduce power use and inequality (Cook and Emerson 1978), which should provide further indication of the partner's trustworthiness—particularly for powerful partners.

Whereas behavioral commitments contribute to the development of

trust, we propose that affective commitments emerge from the same processes that produce trust (fig. 1). We define affective commitments as feelings of liking for, and attachment to, a specific exchange partner, which are indicated by expressions of commitment to the partner and positive evaluations of the partner.[8] Affective commitments may be more or less closely related to actual behavioral commitments. We propose that these feelings of affective attachment to the partner are generated through the same processes that produce trust. That is, in the absence of assurance structures that can explain a partner's positive behaviors, actors are more likely to attribute the behaviors to the partner's personal traits and intentions. If so, then positive feelings of affect and commitment toward the partner will, like trust, tend to be stronger in reciprocal than in negotiated exchanges. They will increase with the partner's behavioral commitment and with the equality of their exchanges, and these behaviors will have a stronger effect on feelings of affect and commitment in reciprocal than in negotiated exchanges.[9]

Power, Behavioral Commitments, and Inequality

At the same time that behavioral commitments reduce uncertainty and reduce transaction costs, they *increase* opportunity costs. Actors who are committed to a single partner obtain security and predictability at the cost of forgoing the opportunity to explore other, possibly better alternatives. For this reason, commitments are more likely to be used as a means of reducing uncertainty when alternatives are limited and opportunity costs are low (Yamagishi, Cook, and Watabe 1998). Consequently, as figure 1 proposes, behavioral commitments should vary inversely with power (Cook and Emerson 1978; Lawler and Yoon 1996; Tallman, Gray, and Leik 1991). Low-power actors (who have few or poor alternatives) should be more likely to make commitments than high-power actors (who have more or better alternatives), and high-power actors should be more likely to make commitments the weaker their power advantage.

To examine the effects of power on commitment and to produce systematic variations in both commitment and equality (our indicators of trust-

[8] Our conceptualization differs slightly from Lawler and Yoon's (1996). They define affective commitment as an emotional or cathectic attachment to the relation or group, characterized by positive emotions of pleasure and satisfaction, or interest and excitement. In contrast, our focus is on attachment to a specific other, characterized by positive evaluations and feelings for the other.

[9] Our linkage of trust with affective bonds is similar to Gambetta's (1988, p. 232) notion of "thick trust": trust that is reinforced by feelings of liking and affection. Lewis and Weigert (1985) argue that all types of trust have an affective component, although this component is most intense in close interpersonal trust.

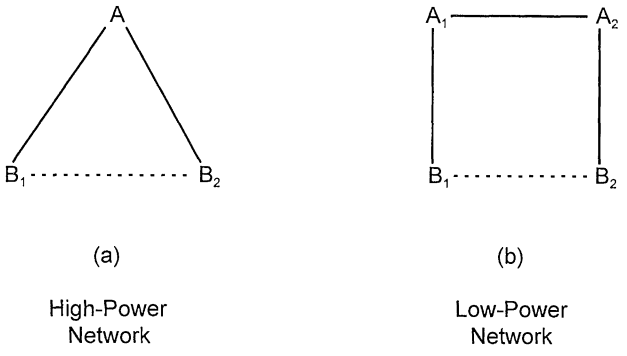

FIG. 2.—Networks varying A's power advantage over B. Following Cook and Emerson's (1978) convention, solid lines indicate potential relations with high exchange value, and dotted lines indicate potential relations with low exchange value.

worthy behavior), we compare the development of trust among actors whose exchange relation is embedded in one of the two simple networks shown in figure 2. In both networks, actors occupy one of two structural positions, A and B. The exchange relation *between* A and B—the behavioral commitment, trust, and affective attachment that develop between A and B—is the focus of our study. This power-imbalanced relation offers "mixed motives" for interaction; that is, both A and B can benefit from exchange with one another, but their interests are not perfectly aligned. The extent to which they are aligned varies with the actors' positions (A and B) within each network and with the variations in structural power across the networks. These differences in power and position create variations in opportunities and incentives for trustworthy or untrustworthy behavior.

Within each network, we create a power advantage for A over B, by giving A a high-value alternative to exchange with B (the other B in fig. 2a, and the other A in fig. 2b), while B has only a low-value alternative to exchange with A (the other B in both networks). Across networks, we vary the strength of A's power advantage by varying the *availability* of A's alternatives (Cook et al. 1983). In figure 2b, the addition of a fourth actor to the network reduces the availability of A's alternative to B; that is, A's alternative to B in figure 2b (another A) is less available than A's alternative in figure 2a (another B), because the other A, unlike the B, has a high-value alternative and is less dependent on A. Consequently, A's power advantage is weaker in 2b than in 2a.[10]

[10] Markovsky et al. (1993) refer to networks that differ in the availability of alternatives for powerful actors as "strong power" networks and "weak power" networks.

Because A has a more valuable alternative to B than B has to A in both networks, the formation of a commitment between A and B is more costly for A than for B. Consequently, although A's and B's commitments to each other are necessarily related, A's behavioral commitment to B should be lower than B's commitment to A in both networks. Reducing A's power advantage reduces the opportunity costs for A of making a commitment; consequently, commitments between A and B should be more likely to form in the low-power networks than in the high-power networks, and exchanges between A and B should be more equal.

The Form of Exchange, Behavioral Commitment, and Inequality

Finally, we consider whether the form of exchange affects behavioral commitments and inequality. We know from earlier work that reciprocal exchanges tend to be more equal than negotiated exchanges (Molm, Peterson, and Takahashi, in press). We might also expect that if behavioral commitments reduce uncertainty and risk, then actors in reciprocal exchanges—who face greater risk of exploitation—might be more likely to form committed relations than those engaged in negotiated exchanges. But two considerations make this prediction unlikely.

First, behavioral commitments reduce not only the uncertainty of reciprocity in reciprocal exchange, but the uncertainty of bargaining processes in negotiated exchanges. Actors who bargain repeatedly with each other become familiar with each other's tactics and come to terms more quickly and easily. Even more importantly, behavioral commitments eliminate the risk that actors will lose out in competition with others who are negotiating for an agreement with the same partner. A supplier who secures a regular contract with a buyer, for example, is in a more advantageous position than one who has to compete with other suppliers.

Second, behavioral commitments are more costly, in general, to actors in reciprocal exchanges than to actors in negotiated exchanges. Because actors in reciprocal exchanges make choices individually and benefits can flow unilaterally, it is possible for them to receive benefits from multiple partners at the same time. Consequently, these actors will maximize their benefits to the extent that they can maintain exchanges with multiple partners, by intermittently reciprocating their giving. Thus, in reciprocal exchanges, commitments are costly for powerful actors even in low-power networks like figure 2b.

For these reasons, we do not expect behavioral commitments to be more common in reciprocal than in negotiated exchanges. To the extent that the form of exchange affects either the frequency or inequality of exchange, however, these effects could contribute to a relation between exchange form and trust and must be controlled in our analysis.

Hypotheses

Our central predictions, shown in figure 1 and discussed above, can be summarized in the following hypotheses:

HYPOTHESIS 1.—*An actor's trust and affective commitment for an exchange partner will be greater, on average, in reciprocal exchange relations than in equivalent (structurally and behaviorally) negotiated exchange relations.*

HYPOTHESIS 2.—*An actor's trust and affective commitment for a partner will increase with the partner's behavioral commitment to the actor and decrease with the inequality of their exchange; these relations will be stronger in reciprocal than in negotiated exchanges.*

HYPOTHESIS 3.—*Actors' behavioral commitments to their partners and the equality of their exchange will vary inversely with their power.*

3a.—*Behavioral commitments will be greater, and inequality lower, when the power imbalance of a relation is low (fig. 2b) rather than high (fig. 2a).*

3b.—*Within relations, the behavioral commitment of the less powerful actor will be greater than that of the more powerful actor.*

METHOD

We test these hypotheses in a laboratory experiment designed to meet the traditional scope conditions of social exchange theory (Molm and Cook 1995) and our analysis: actors are mutually dependent on one another for valued outcomes (operationalized as money), they are recruited on the basis of their interest in acquiring more of those outcomes, and they engage in repeated exchanges with one another over time. All actors have alternative exchange partners, thus allowing variability in commitments—both behavioral and affective—to a given partner and offering the opportunity for both benign and exploitative behavior.

Experimental Design and Basic Procedures

A 2×2 factorial design crossed the form of exchange (reciprocal or negotiated) with the power advantage for the powerful actor (high power or low power). In each of the four resulting conditions, 10 networks were run, with 140 undergraduate students randomly assigned to conditions and to positions within networks. All networks consisted of same-sex subjects, with gender balanced within experimental conditions for control purposes.[11]

[11] Because preliminary data analyses found no effects of gender on the measures examined here, gender is omitted from these analyses.

Subjects participated in one of the two networks shown in figure 2, and they engaged in either reciprocal or negotiated exchanges to earn money.[12] To provide the opportunity for commitment and trust to develop, subjects remained in the same network positions throughout the experiment and interacted repeatedly with the same two partners. All interaction occurred through computers; subjects were seated in isolated rooms and never met each other. To provide subjects with alternative partners, relations in the networks were negatively connected, and these connections were operationalized in the traditional way (Cook and Emerson 1978): in negotiated exchanges, an agreement with one exchange partner precluded an agreement with another on that opportunity, and in reciprocal exchanges, initiating exchange with one actor precluded initiating exchange with another on that opportunity.[13]

Following detailed instructions and practice trials, subjects participated in a series of exchange opportunities. At the end of each opportunity, they were informed about the source and amount of any points gained, and their total earnings (points $\times$ cents) were cumulated and shown on their computer screens.

Subjects were not informed in any of the conditions about the amounts of money their partners received from exchanges with them or others, the outcomes of their partners' exchanges with other actors in the networks, or their partners' cumulative earnings. These restrictions on subjects' information, along with other restrictions discussed below, served several purposes: they reduced competition and equity as motives, they enhanced the uncertainty in which all exchanges—both negotiated and reciprocal—were conducted, and they created conditions more similar to those of exchanges in natural settings.[14]

[12] Money is used as the valued outcome in our experiment (and in virtually all exchange experiments) solely because of its advantages for experimental control: money is widely valued, it can be quantified to produce a ratio level of measurement, and it is resistant to the effects of satiation or diminishing marginal utility (which would alter value). The exchange resource in the experiment is not money per se—money is not transferred from one actor to another, as in economic exchanges—but rather the capacity to produce valued outcomes, operationalized as money, for another.

[13] The ability of actors in reciprocal exchanges to *receive* rewards from more than one partner at the same time does not negate the negative connection. Because rewards received are always some function of rewards given—even when reciprocity is intermittent—increased exchange in one relation still reduces exchange in another, thus satisfying the definition of negatively connected relations.

[14] Power-dependence researchers (e.g., Cook and Emerson 1978; Lawler and Yoon 1996) commonly reduce subjects' information about their partners' outcomes to minimize their concerns with either equity or competition, and to focus their attention on their own outcomes. In natural settings, actors rarely know exactly how much benefit each is receiving from an exchange, and so precise comparisons with others' outcomes are impossible. This is true even in most economic exchanges. For example, when

Manipulations

The form of exchange.—Two different exchange settings were created to manipulate the form of exchange, negotiated or reciprocal. The settings were designed to be as comparable as possible to one another on all dimensions other than their defining differences.

The negotiated setting shares many of the features of other negotiated exchange settings but is most similar to Lawler and Yoon's (1998) setting. Actors negotiated the division of a fixed amount of benefit within relations on each of a series of exchange opportunities, and each opportunity consisted of up to five rounds of negotiation. On each round, all actors in the network simultaneously made offers to all alternative partners. After the first round, actors could accept another's offer, repeat their last offer, or make a counteroffer. Negotiations continued until all potential agreements were made or the five rounds were up. As soon as an agreement was reached, both actors received the amounts they had agreed upon (thus, agreements were binding).

Subjects knew the range of points they could request from agreements and that, in general, the more they received, the less the other person received. They did not know that a fixed amount of profit was divided, however, nor did they know how many points the other subject received from an agreement. Subjects made offers by *requesting* the number of points they wanted to receive from an agreement, and each subject's *request* for points was then converted, by the computer, into an *offer* of the remaining points for the other subject. Subjects were told that they would not know how many points the other person received and that they should be concerned only with their own points.

The reciprocal exchange setting is similar but not identical to the setting used by Molm in previous work (e.g., Molm 1990, 1997). Each actor in the network gave points to one of his or her exchange partners on each of a series of exchange opportunities. To hold constant the potential joint benefit of reciprocal and negotiated exchanges, the number of points that each actor could give to any partner on any single opportunity was fixed and equal to one-half the total points that actors in the negotiated exchange setting could divide on each opportunity. If, for example, subjects in a negotiated exchange relation could divide 16 points on an exchange opportunity, subjects in an equivalent reciprocal exchange relation could

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purchasing a car from a dealer, most buyers do not know exactly how much profit the dealer receives, and the dealer does not know exactly how much the buyer values the car. What actors do know, typically, is that the more they offer or give, the more the other receives and the less profit they receive. And that is what our subjects knew, as well.

give each other 8 points on an opportunity.[15] Inequality in these relations thus resulted from unequal reciprocities over time, rather than from unequal benefits within agreements.

As in the negotiated exchange conditions, subjects knew only the number of points they could receive from others, not the number of points they could give to others. On each opportunity, all subjects simultaneously and independently chose a partner to give points to, without knowing how many points they gave and without knowing whether or when the other would reciprocate. Subjects were then informed that each of their partners either added to the subject's earnings or did not act toward the subject, and their cumulative points were updated.

Subjects in the negotiated exchange conditions exchanged for 100 opportunities (the maximum that could be completed in a two-hour session); those in the reciprocal exchange conditions, for 400 opportunities. Both sessions took roughly the same amount of time, and subjects were not informed of the number of opportunities in either. More opportunities were run in the reciprocal exchange conditions to allow for the possibility that reciprocal exchange takes longer to stabilize than negotiated exchange, which consists of multiple behaviors—up to five rounds of offers—and more information on each opportunity. The monetary value of points was adjusted so that subjects in the reciprocal exchanges earned the same amount as subjects in the negotiated exchanges for comparable behaviors.

The structure of power.—We manipulated power by comparing the two networks shown in figure 2. In both networks, A's more valuable alternative to B gives A a power advantage over B. The strength of A's advantage is greater in the high-power network (2a) than in the low-power network (2b), and therefore the opportunity costs to A of a behavioral commitment to B are higher in 2a than in 2b. All other variables affecting power are held constant; in both networks, all actors have two alternative partners, the potential value of the A–B relation is high and constant, and the potential values of A's and B's alternative partners are the same.

"High-value" relations in the networks were worth 16 points, and "low-value" relations, 4 points. Actors in the negotiated exchange conditions negotiated the division of 16 or 4 points, while actors in the reciprocal exchange conditions could give 8 points to partners in high-value relations and 2 points to those in low-value relations.

Because our interest was in the effects of the *behaviors* produced by

[15] This procedure assured that the expected values of exchange benefits were equal in the negotiated and reciprocal conditions under baseline conditions (equal division of resources and equal probability of agreements when exchange is negotiated, and equal probabilities of giving by all actors to all partners when exchange is reciprocal).

these structures on attributions of trust and evaluations of the partner, we eliminated the structure itself as a source of attributions.[16] In all conditions, subjects' information about the structure of the networks was restricted to knowledge of their own access to their two exchange partners and their potential benefits from these partners. Because this information was identical for both networks, subjects' perceptions of the network structures should be identical (at least initially).

Measures

Subjects' evaluations of the partner: trust and affective commitment.—At the conclusion of the experiment, subjects responded to a series of seven-point bipolar semantic differential scales, measuring evaluations of their exchange partners and relations. We derived three measures of trust and affective commitment from these items, using A's evaluations of B and B's evaluations of A.

We measured trust with a single item asking subjects, "How much did you trust Person X during the experiment (very much/very little)?" We assessed affective commitment with two measures, one a single item asking subjects how committed/uncommitted they felt toward the partner, and the other a five-item scale measuring their affective evaluation of the partner. The first four items of the scale asked subjects to evaluate their partner's behavior as good/bad, nice/awful, cooperative/uncooperative, and helpful/unhelpful; the fifth item asked subjects to describe their general feelings toward the partner as positive/negative. With responses to the five items averaged, the resulting scale has alpha reliabilities of .97 and .95 for A and B, respectively. All three measures range in value from 1 to 7, with higher values indicating stronger feelings of trust and commitment and more positive affect.[17]

Partner's behavior toward the subject: behavioral commitment and inequality.—We measure the "trustworthiness" of the partner's behavior with two indicators: the partner's behavioral commitment to the subject and the equality or inequality of exchanges between the partner and the subject.

[16] When actors know the relative power positions that they and others occupy, that knowledge alone might influence their expectations of the partners' trustworthiness or interpretations of the partners' behavior. Because subjects in our experiment were unaware of the power positions of actors in their network, such expectations and inferences were impossible.

[17] Correlations among the three variables range from a high of .87 for the relation between A's feelings of commitment to B and A's positive affect toward B, to a low of .53 for the relation between B's trust in A and B's feelings of commitment to A. All correlations are higher, without exception, for the reciprocal exchanges than for the negotiated exchanges.

We used a modified version of Cook and Emerson's (1978) measure to examine the partner's (P) behavioral commitment to the subject (S); this measure computes how often P chose to exchange with S rather than with an alternative partner. For negotiated exchanges, P's commitment to S equals:[18]

$$C_P = [\Sigma(T_{PS} - T_{Palt})]/T_P,$$

where T_{PS} = transactions (agreements) between P and S; T_{Palt} = transactions between P and P's alternative partner; and T_P = the total number of transactions that P completes with both S and P's alternative partner. For reciprocal exchanges, T_{PS} and T_{Palt} are replaced by the frequency of P's giving to S (G_{PS}) and to P's alternative partner (G_{Palt}), and T_P is replaced by the frequency of P's giving to both partners, which equals the number of exchange opportunities. The commitment measures have a maximum value of +1 when all of P's transactions or givings are with S, a minimum value of −1 when all of P's transactions or givings are with the alternative partner, and a value of 0 when P's transactions or givings are equally distributed between both partners.

We also measured the inequality (IE) of the value of the exchanges between A and B:

$$IE_{AB} = (V_{AB} - V_{BA})/(V_{AB} + V_{BA}),$$

where V_{AB} = the total points A received from B, and V_{BA} = the total points B received from A. The measure has a potential range of −1 (maximum inequality in B's favor) to +1 (maximum inequality in A's favor), with 0 indicating equal exchange.[19] Although subjects were not informed of the absolute inequality of their exchanges, those in reciprocal exchanges knew whether their giving was reciprocated, and those in negotiated exchanges knew that the more points they received from an agreement, the fewer points their partner received.

Analytic Strategy

Our analysis takes account of the dependencies in our data (between actors within networks, and between behaviors across exchange opportunities) in two ways. First, the statistical unit for all of our analyses is the exchange network; thus, all analyses are based on an N of 40. Second, our measures of behavioral commitment and inequality consist of overall

[18] For subjects in the A position, P refers to B; for subjects in the B position, P refers to A.

[19] Although the potential range of our inequality measure is −1 to +1, its practical range is 0 (equality) to +1 (inequality in favor of the power-advantaged actor). Inequality favored the power-disadvantaged actors in only a few cases (10%), and their advantage was small.

TABLE 1

MEANS AND STANDARD DEVIATIONS OF SUBJECTS' TRUST AND AFFECTIVE COMMITMENT TOWARD THE PARTNER, BY EXPERIMENTAL CONDITION

	RECIPROCAL EXCHANGE		NEGOTIATED EXCHANGE	
MEASURES	High-power Network	Low-power Network	High-power Network	Low-power Network
Trust in partner:				
A's trust in B	4.20	6.00	3.80	4.25
	(1.48)	(1.68)	(1.48)	(1.44)
B's trust in A	3.80	5.90	3.40	3.65
	(1.62)	(.77)	(1.78)	(.91)
Positive affect for partner:				
A's affect for B	4.78	6.17	4.34	4.64
	(1.44)	(1.37)	(1.25)	(1.46)
B's affect for A	4.36	6.02	3.10	3.75
	(1.43)	(1.06)	(1.16)	(.57)
Feelings of commitment to partner:				
A's commitment to B	4.80	6.00	4.00	5.20
	(1.69)	(1.81)	(1.41)	(1.90)
B's commitment to A	5.30	6.00	3.40	4.80
	(1.49)	(1.13)	(1.90)	(1.58)

NOTE.—Higher values indicate greater trust, more positive affect, and stronger feelings of commitment, on a scale of 1 to 7. SDs are given in parentheses.

frequencies or values, computed for the entire exchange period or (when specified) for the last half of the exchange period. In the low-power networks, measures of all evaluative and behavioral variables were computed for each A and each B and then averaged for the two actors in each position. In the high-power networks, A's relation with one of the two Bs was randomly selected for the analysis, and measures were computed for that relation.[20] Mean values of these measures, computed for the entire exchange period, are reported in tables 1 and 2.

RESULTS

Analyses of Behavioral Commitment and Inequality

We first examine whether our manipulation of power created the effects on behavioral commitment and inequality predicted in hypothesis 3. As

[20] In the high-power networks, in which a single A chooses between exchange with the two Bs, A's behavior toward one B is perfectly and negatively correlated with A's behavior toward the other B. Therefore, averaging A's behavior toward the two Bs, or the Bs' evaluations of A, would be misleading.

TABLE 2

MEANS AND STANDARD DEVIATIONS OF SUBJECTS' BEHAVIOR TOWARD PARTNER, BY EXPERIMENTAL CONDITION

BEHAVIOR	RECIPROCAL EXCHANGE		NEGOTIATED EXCHANGE	
	High-power Network	Low-power Network	High-power Network	Low-power Network
A's behavioral commitment to B	.05	.32	−.07	.61
	(.32)	(.32)	(.34)	(.37)
B's behavioral commitment to A	.32	.43	.30	.65
	(.29)	(.27)	(.47)	(.35)
Inequality in the A-B relation	.12	.05	.39	.15
	(.08)	(.05)	(.33)	(.20)

NOTE.—SDs are given in parentheses.

table 2 shows, the mean values for behavioral commitment varied considerably, from a low of −.07 for A in the high-power negotiated condition, to a high of .65 for B in the low-power negotiated condition. A multivariate analysis of variance on these means, using power and form of exchange as between-subjects variables and actor (A or B) as a within-subject variable, found significant main effects on commitment of both power and actor, as well as a significant interaction between the two ($F[1,36] = 11.35$ for power, 37.83 for actor, and 15.24 for power × actor, all significant at $P < .01$). As hypothesis 3a predicted, behavioral commitments between A and B were more frequent in the low- than in the high-power network; not surprisingly, this effect was stronger for A than for B. And as hypothesis 3b predicted, B's commitment to A was greater than A's commitment to B in all conditions (see table 2).

As expected, the form of exchange had no significant main or interactive effects on behavioral commitment. These commitments tended to be somewhat weaker in the low-power networks when exchange was reciprocal rather than negotiated, but the difference was not significant. As figure 3 shows, however, this condition—the low-power network with reciprocal exchange—differed markedly from the other three in the *change* in commitment that occurred over the course of the exchange period. The average commitment of A and B to each other increased significantly over time in this condition ($t = 2.34$; $P < .05$, two-tailed test), but not in any of the others. We return to this difference in our analysis of trust and affective commitment.

The inequality of exchange in the A–B relation is significantly influenced by both power and form of exchange, in the directions expected ($F[1,36] = 6.26$, $P < .05$ for power; $F[1,36] = 8.74$, $P < .01$ for form).

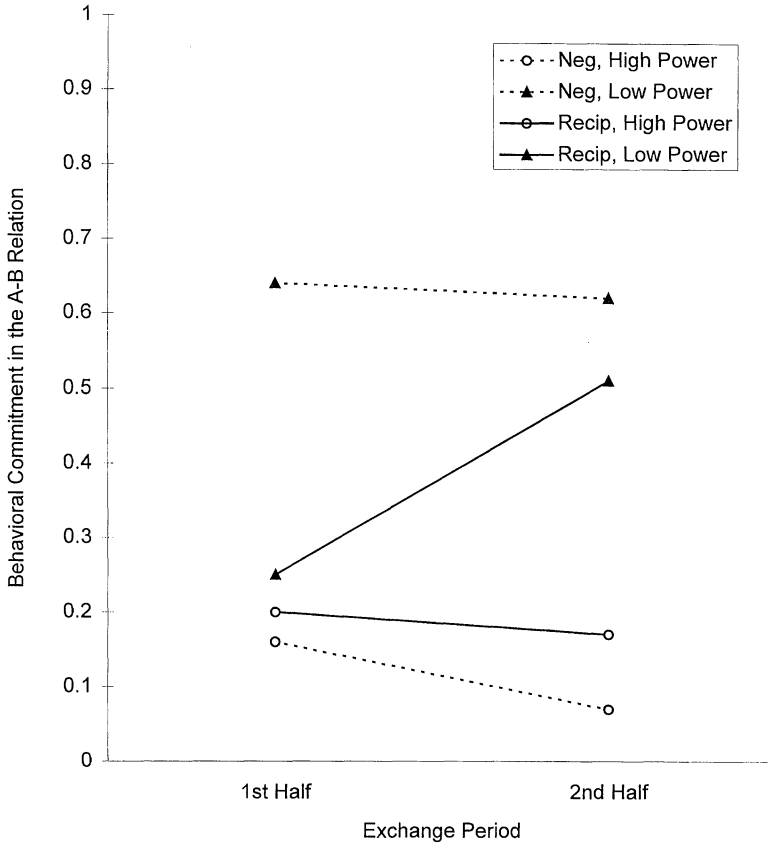

FIG. 3.—Behavioral commitment in the A-B relation

Inequality is greater when A's power advantage is greater, as virtually all theories of power in exchange networks predict, and greater when exchange is negotiated rather than reciprocal, as Molm et al. (in press) found previously. The average negotiated agreement between A and B in the high-power networks gave A twice as many points as B (11 points for A and 5 for B); in the low-power networks, both reciprocal and negotiated exchanges were more equal. Unlike behavioral commitment, inequality did not change significantly over time in any of the conditions.

The relationship *between* behavioral commitment and inequality varies substantially by the form of exchange. Theoretically, commitment should reduce the use of power and inequality in both forms of exchange; empirically, a negative relation between commitment and power use holds only

for reciprocal exchanges.[21] Behavioral commitment and inequality are negatively correlated when exchange is reciprocal ($r = -.73$ for A and $-.36$ for B) but unrelated when exchange is negotiated ($r = .08$ for A and $-.06$ for B). Because only one of these correlations is significant, we examine the effects of both variables in our remaining analyses. For these analyses, we use measures of behavioral commitment and inequality during the last half of the exchange period, the interval that is most likely to affect measures of subjects' trust and affective commitment at the conclusion of the exchange.

Analyses of Trust and Affective Commitment

Our central hypotheses concern the effects of the form of exchange and the partner's behavior on the development of trust and affective ties to the partner. We predict that trust in the partner and related feelings of affect and commitment will be greater, on average, in relations of reciprocal exchange than in relations of negotiated exchange (hypothesis 1), and that the partner's behavior (their behavioral commitment and the inequality of exchange) will have stronger effects on trust and affective commitment in reciprocal exchanges than in negotiated exchanges (hypothesis 2).

Table 3 reports the results of analyses of variance on each of the three dependent measures (trust, positive affect, and feelings of commitment) for both the more (A) and less (B) powerful actors. For each measure, we first present the results of a standard analysis of variance on our factorial design, and then present the results of an analysis of covariance in which the two behavioral measures—behavioral commitment to the partner and the inequality in the relation—are entered as covariates before the effects of the experimental variables are assessed. The analysis of covariance allows us to test whether the form of exchange still affects trust and affective commitment after controlling for any differences in behavioral commitment and inequality between the two forms of exchange, as hypothesis 1 predicts.

The results in table 3 strongly support hypothesis 1: trust in the partner and related feelings of positive affect and commitment are greater in reciprocal exchange relations than in negotiated exchange relations, for both A and B. As table 1 shows, this is true for every comparison of means for the two forms of exchange (only the effect of the form of exchange on A's

[21] Although exchange theorists typically assume that commitment drives this relation, our experimental design does not allow us to determine the direction of causality. Both behavioral commitment and inequality are measured variables that develop throughout the exchange period, and it is quite possible that actors who use power less are more likely to form committed relationships.

TABLE 3

ANALYSES OF VARIANCE AND COVARIANCE ON SUBJECT'S FEELINGS OF TRUST, AFFECT, AND COMMITMENT TOWARD THE PARTNER

	TRUST IN PARTNER				POSITIVE AFFECT TOWARD PARTNER				FEELINGS OF COMMITMENT TO PARTNER			
	A's Trust in B		B's Trust in A		A's Affect for B		B's Affect for A		A's Commitment to B		B's Commitment to A	
SOURCE	ANOVA F(1,36)	ANCOVA F(1,34)	ANOVA F(1,36)	ANCOVA F(1,34)	ANOVA F(1,36)	ANCOVA F(1,34)	ANOVA F(1,36)	ANCOVA F(1,34)	ANOVA F(1,36)	ANCOVA F(1,34)	ANOVA F(1,36)	ANCOVA F(1,34)
Covariates:												
Commitment	...	18.25***	...	2.90*	...	23.82***	...	12.40***	...	27.39***	...	12.92***
Inequality	...	2.28*	...	2.75*	...	.22	...	9.07**	...	3.41*	...	.12
Main Effects:												
Form of exchange (F)	4.99*	6.23**	9.74***	8.14**	5.08*	9.31**	25.74***	23.28***	2.18	2.43	9.99**	12.57***
Structural power (P)	5.47*	1.08	7.66**	3.60*	3.74*	.66	11.02***	1.90	4.90*	.28	4.58*	.40
Interaction Effect:												
F × P	1.97	3.96*	4.74*	5.43**	1.56	2.95*	2.11	5.01*	.00	.27	.51	.23

NOTE.—The analyses of covariance are conducted using the classical experimental approach; i.e., all covariates are entered first, then all main effects, then the interaction term.

* $P < .05$.

** $P < .01$.

*** $P < .001$, one-tailed tests.

TABLE 4

CORRELATION COEFFICIENTS BETWEEN PARTNER'S BEHAVIORS AND SUBJECT'S FEELINGS TOWARD THE PARTNER, BY FORM OF EXCHANGE

	A's Feelings toward B			B's Feelings toward A		
Partner's Behavior	Trust	Affect	Commit	Trust	Affect	Commit
Behavioral commitment:[a]						
Negotiated exchange	.48*	.44*	.55**	−.07	.27	.51*
Reciprocal exchange	.75***	.89***	.86***	.60**	.71**	.55**
B for interaction[b]	2.21*	2.51**	2.23*	2.16**	1.63**	−.25
Inequality between A and B:						
Negotiated exchange	.15	.33	.01	−.01	−.02	.17
Reciprocal exchange	−.80***	−.74***	−.91***	−.43*	−.65***	−.31
B for interaction[b]	11.39***	9.94***	12.35***	5.20*	7.18***	4.13

[a] B's commitment to A is correlated with A's feelings for B, and A's commitment to B is correlated with B's feelings for A.

[b] Unstandardized regression coefficients for the interaction between form of exchange and behavior. The multiplicative interaction terms were entered along with their component terms in each equation.

* $P < .05$.

** $P < .01$.

*** $P < .001$, one-tailed tests.

feelings of commitment to B fails to reach significance in table 3; $P = .06$). When exchanges are reciprocal, all but one of the mean ratings of subjects' trust, affect, and commitment for the partner are above the neutral point of 4.0; when exchanges are negotiated, half of the means are below 4.0. Even in the condition that produces the lowest levels of trust—B's trust in A in the high-power networks—the mean value for reciprocal exchange, while below the neutral point of 4.0 (3.8), is still higher than the comparable mean for negotiated exchange (3.4).

As comparisons of the two sets of analyses in table 3 show, the effects of the form of exchange are still significant—and, in some cases, stronger—after controlling for the effects of the partner's behavioral commitment and the inequality of exchanges in the relation. In contrast, the effects of structural power are greatly reduced, as we would expect.

Hypothesis 2 predicts that trust and affective commitment increase with the partner's behavioral commitment and decrease with the inequality of their exchange, with these relations stronger in reciprocal than in negotiated exchanges. The results of the covariance analysis in table 3 support the predicted effects of these behaviors (particularly behavioral commitment) on the development of trust and affective ties; table 4 examines whether their effects interact with the form of exchange. Because of the significant correlation between the two behavioral variables in reciprocal exchanges, we examine the effects of each behavior separately, re-

porting both their zero-order correlations with trust and affective commitment, and the regression coefficients for the interaction between each behavior and the form of exchange.

The results strongly support hypothesis 2: all of the correlations between the partner's behaviors and the subject's feelings of trust, affect, and commitment for the partner are stronger for reciprocal exchanges than for negotiated exchanges. Regression coefficients for the interactions of behavior with form of exchange show that all but two of these differences are significant. In reciprocal exchanges, the development of trust and affective ties are strongly influenced by the partner's behavior, increasing with the partner's behavioral commitment and decreasing with the inequality of their exchange. In negotiated exchanges, inequality has no significant effects on trust or affective commitment, and the effects of behavioral commitment are weaker and primarily affect A's feelings toward B.

The interaction of power with the form of exchange.—Finally, we turn to an unpredicted but intriguing finding: the interaction between power and the form of exchange on feelings of trust and positive affect (table 3). Power and the form of exchange interact significantly in their effect on B's trust in A in the original analysis of variance and in their effects on both actors' trust and affect for the other once the behavioral covariates are controlled. The means in table 1 illustrate the pattern that produces these effects: power has a stronger effect on both actors' trust and affect when exchange is reciprocal than when it is negotiated; in particular, the means in the low-power networks are much higher when exchange is reciprocal.[22]

What explains the much higher levels of trust and positive affect in this one condition, if the partners' behaviors do not account for them? We believe the answer lies in the *change* in the relation that subjects in this condition, but none of the other conditions, experienced. As figure 3 shows, whereas actors in the low-power network settled into committed relations between A and B almost immediately when exchanges were negotiated, those engaged in reciprocal exchange did not. Instead, the initial level of commitment in these relations was quite low—a pattern that was potentially more profitable for the powerful As, who could receive greater benefits in the low-power networks by exchanging primarily with each other while giving to the Bs only intermittently. But this pattern was also riskier

[22] This pattern is weaker and nonsignificant for feelings of commitment, primarily because the mean values in the low-power, negotiated-exchange network are higher than those for the other measures. It is likely that the high levels of behavioral commitment in this network produced stronger feelings of commitment, even though they had less effect on trust and affect.

and more uncertain. Consequently, the As gradually formed committed relations with the Bs, opting for the stable and certain benefits that the more dependent Bs provided.

This change meant that both actors in these relations experienced their early exchanges as uncertain and risky, whereas their later exchanges were stable, predictable, and mutually beneficial. The unpredictability of the early exchanges should heighten actors' awareness of risk and the potential for exploitation, thus increasing their positive evaluations of their partners' subsequent commitment. These conditions are probably closest to those envisioned by the classical theorists, in which exchange relations evolve slowly as actors first test each other's trustworthiness and gradually increase the frequency and regularity of their exchange.

CONCLUSIONS AND IMPLICATIONS

Our results offer strong support for one of the most intriguing propositions of classical exchange theory: that reciprocal forms of exchange, in which actors individually provide benefits to each other without knowing what returns they will receive, provide a more fertile ground for the development of trust than negotiated exchanges with binding agreements. As we predicted, trust in the partner and related feelings of affective commitment were significantly stronger when exchanges were reciprocal rather than negotiated. In addition, exchange behaviors that should influence whether actors come to trust or distrust their partners—the partner's behavioral commitment and the equality or inequality of their exchange—had stronger effects on trust and affect when exchanges were reciprocal.

These findings support the underlying logic of our theory: that risk is a necessary condition for the development of trust, which then depends on the partner's behavior. Although both forms of exchange entail certain kinds of ambiguity and risk, only reciprocal exchange involves the type of risk—the risk of giving without reciprocity—that requires trusting another and that allows the demonstration of trustworthiness. In negotiated exchanges, known terms and binding agreements provide "assurance" that one will not be exploited, without enabling trust.

A controlled experiment was a valuable tool for testing these predictions; it allowed us to compare reciprocal and negotiated exchanges under equivalent conditions, holding constant other factors that might affect trust, so that we could disentangle the effects of the form of exchange from other, potentially confounding factors. We physically equated the structure of the exchange networks, the relative power of the actors, the type and value of benefits exchanged, the general physical conditions under which exchanges occurred, and actors' information about all aspects of exchange except those that are part of the defining differences between

the two forms of exchange. We then statistically controlled for the frequency and equality of actors' exchanges with each other. With nothing left to vary but the form of exchange itself, we still found strong and consistent differences in trust and affective commitment.

That the form of exchange made such a difference for emergent properties like trust and affective commitment is particularly remarkable given some of the restrictions of our study. Although our experimental setting allowed a far more unambiguous test of the effects of the form of exchange than would comparisons in a natural setting, creating reciprocal and negotiated forms of exchange in the laboratory also meant that many features that typically surround reciprocal exchanges, and that serve to further differentiate them from negotiated exchanges, were absent. Unlike reciprocal exchanges in natural settings, individuals in the experimental setting never met each other or interacted face-to-face. The benefits they exchanged were as quantified as those in the negotiated exchanges, and there was no inherent "symbolism" of friendship in their nature. Delays in reciprocity were minimal; that is, exchanges that would normally take place over weeks or months in natural settings were necessarily compressed into a two-hour period, so that actors were not left in uncertainty about the other's reciprocity for very long. And the fixed benefits that we used to control the value of exchanges in the two settings meant that actors could not follow Blau's prescription of beginning with minor exchanges in which little value is involved and then gradually expanding to exchanges of greater value as partners prove themselves trustworthy. *Despite all of these limitations, our subjects still came to trust their partners and to feel positively toward them to a much greater degree in the reciprocal exchanges than in the negotiated exchanges.*

We believe these findings result from the key analytical distinctions between the two forms of exchange that the classical theorists originally identified, and that—despite limitations—we created in our laboratory settings. In reciprocal exchanges, actors choose, individually, to give to one another, without any formal assurance of reciprocity. No matter how established the relation, how predictable the other's behavior, and how long the "shadow of the future," each act of giving still remains a declaration of trust that the other will reciprocate, and each act of reciprocity confirms that trust. In contrast, the negotiation of deals, even in committed relations in which such deals are made quickly, conveys the opposite message. It is an implicit statement that knowledge of what the other will do (and, under the conditions we studied, a binding agreement to assure they will do it), is necessary before exchange can proceed. Under these conditions, trust is irrelevant and trustworthy behavior is difficult to detect.

Our work also shows the important role that behavioral commitments

play in the development of trust, particularly when exchanges are reciprocal. For both forms of exchange, the partner's commitment—the frequency of their exchange with the actor, to the exclusion of other alternatives—was more important than the equality of the exchange in subjects' evaluations of the partner's character, although it had far greater impact on evaluations of partners engaged in reciprocal exchange. Not only were relations between the inequality of exchange and evaluations of the partner relatively weak, but subjects' evaluations of their partners were not correlated with their exchange benefits in any consistent way. The subjects who earned the most money in the experiment, for example, were powerful actors in the high-power, negotiated exchange networks, yet these subjects reported the lowest levels of trust, positive affect, and feelings of commitment toward their partners of any of the powerful actors in the experiment. These findings support the emphasis in much of the literature on the importance of long-term relations and repeated interactions for developing trust (Dasgupta 1988; Lawler and Yoon 1996, 1998). Lawler and Yoon, in particular, have emphasized the importance of repeatedly and successfully completing agreements—regardless of the specific terms—for creating strong affective ties between partners in negotiated exchange relations. Our results show that such commitments have even stronger effects in reciprocal exchange relations.

Our findings also suggest that behavioral commitments may be more effective when they develop gradually. The highest levels of behavioral commitment occurred in the low-power networks, which reduced the opportunity costs of commitments for both negotiated and reciprocal exchange. But the speed with which actors formed these commitments varied markedly. In negotiated exchanges, committed relations formed early and changed little over time; in reciprocal exchanges, commitments were formed gradually, in a step-by-step process. We believe the slow transformation of the reciprocal exchange relations, from uncertainty and instability to mutual predictability and benefit, produced the particularly high levels of trust and affect observed in this condition. Further study of how the speed and process of commitments affects the development of trust is clearly warranted.

In many discussions, commitment and trust have been treated as paired processes, interrelated through either their reciprocal effects on one another (Blau 1964) or their common roots in uncertainty and risk (Kollock 1994). In contrast, our study suggests that although risk and uncertainty are implicated in the development of both behavioral commitment and trust, their relations to the two are quite different. Behavioral commitment is a means of reducing the uncertainty of both reciprocal and negotiated exchange, and it is no more likely to be used in one than in the other. A more important determinant of commitment is the structure of power

and its effects on the opportunity costs of commitment. Trust, on the other hand, does not reduce uncertainty so much as it frees actors to take the risks associated with uncertainty, risks that may lead to greater benefit. But trust can develop only in the presence of a particular kind of risk, the risk of the partner's nonreciprocity, which is more strongly associated with reciprocal than negotiated exchange.

The substantial role that both reciprocal exchanges and behavioral commitments play in the development of trust and affective ties has important implications for everyday social life. In natural settings, the clear analytical distinctions between reciprocal and negotiated exchanges that we have studied can become blurred. Many exchanges involve elements of both; even economic exchanges are heavily embedded in ongoing social relationships (DiMaggio and Louch 1998; Granovetter 1985). Numerous authors have discussed the importance of such relationships for generating trust and social capital (e.g., Coleman 1990). Many of these discussions, however, assume that the most important element in this process is the *recurrence* or *persistence* of exchange between the same actors. Our results show that not only the persistence but the *form* of social relationships matters; that is, relationships characterized by both reciprocal exchange *and* the expectation of continued interaction are particularly conducive to building trust, and they can be valuable assets in even the most institutionalized economic settings. If, instead, the shadow of the future is relatively short and exploitation is profitable, the risk inherent in reciprocal exchanges may outweigh the benefits. It is precisely for this reason that assurance structures were developed. As our results show, however, assurance has a price: a decline in trust.

The purely reciprocal exchanges that characterize many of our interactions with friends, family, and neighbors can also serve a valuable function. Through numerous experiences with specific others who behave in a trustworthy manner under conditions of risk, we may come to expect that others, with whom we have had no direct experience, will also be worthy of our trust. In this way, reciprocal exchange relations can contribute to a more generalized sense of trust in others. Establishing such a trusting environment can be a great advantage to society: individuals are free to explore new relations and take advantage of new opportunities (Yamagishi et al. 1998), and social, business, and political dealings are all facilitated.

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