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The Value of Reciprocity*

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The value of reciprocity in social exchange potentially comprises both instrumental value (the value of the actual benefits received from exchange) and communicative or symbolic value (the expressive and uncertainty reduction value conveyed by features of the act of reciprocity itself). While all forms of exchange provide instrumental value, we propose that the voluntary and uncertain nature of recurring reciprocal exchanges, in which actors individually give benefits to each other without formal agreements, make the act of reciprocity itself an important vehicle for conveying symbolic value. We experimentally test the value actors place on partners' voluntary acts of reciprocity—over and above the instrumental benefits obtained—by providing subjects with computer-simulated partners who systematically vary in the instrumental value, probability, and predictability of their reciprocity. Our results show that behavioral preferences are governed primarily by the instrumental value of exchange, while sentiments of trust, affective regard, and solidarity are strongly influenced by the symbolic value of constant reciprocity. We discuss implications for theories of social exchange and social capital.

Reciprocity, the giving of benefits to another in return for benefits received, is a defining feature of social exchange. As Emerson noted, it is this feature that gives exchange its name: "Benefits obtained through social process are contingent upon benefits provided 'in exchange'" (1981:32). Recognition of the importance of reciprocity in social life is by no means restricted to exchange theorists, however. Hobhouse (1906:12) called reciprocity "the vital principle of society," Becker (1956:1) referred to our species as "homo reciprocus," and Simmel (1950:387) noted that social equilibrium and cohesion could not exist without "the reciprocity of service and return service." Gouldner (1960) proposed that an internalized moral obligation—a "norm of reciprocity"—helps assure that people help others who have helped them in the past. More recently, Nowak and Sigmund (2000) have described reciprocity as the evolutionary basis for cooperation in society.

While there is little question of reciprocity's value for society, there is far less research on the aspects of reciprocity that give it value. Many scholars assume that the value of reciprocity lies primarily in the benefits exchanged, and some restrict the definition of reciprocity to returns of goods or services that are at least roughly equivalent in value to those received (Homans 1974; Malinowski 1922; Simmel 1950). This emphasis on benefit value governs assessment of impersonal market exchanges, and it is also prominent in both classical and contemporary research on social exchange, where studies of power use and distributive justice focus primarily on the equality or inequality of the benefits given and received.

The value of reciprocal giving, however, lies only partly in the goods and services that people exchange. We propose two distinct dimensions of the value of reciprocity: (1) its

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instrumental or utilitarian value, and (2) its symbolic or communicative value (Ekeh 1974; Hass and Deseran 1981; Lévi-Strauss 1969; Macneil 1986; Offer 1997). The instrumental value of reciprocity is the value, for the recipient, of the good, service, or social outcome that is obtained from exchange. The symbolic or communicative value is the value conveyed by the act of reciprocity itself, over and above the instrumental value of the benefits provided.[1] It potentially comprises two elements, the uncertainty reduction value of acts of reciprocity that communicate the partner's predictability and trustworthiness, and the expressive value of acts of reciprocity that communicate the partner's regard and respect for the actor and the relationship. While the instrumental value of reciprocity enhances the individual utility of the recipient, the symbolic value of reciprocity can enhance both the individual utility of the recipient and the social solidarity of the relationship.

These dimensions of value generally correspond to distinctions between material or human capital (instrumental value) and social capital (symbolic value) (Bourdieu 1985; Coleman 1988; Portes 1998). While social capital has been defined in various ways—as networks that provide access to resources, as social norms that impel actors to engage in collective behavior, and as resources (including trust, goodwill, and social support) that emerge from relationships and network ties (Cook 2005; Portes 1998)—most scholars agree that it is a property of a relationship, with positive benefits not only for the individuals who acquire it but for the relationships and collectivities from which it arises. Following Paxton (1999, 2002), we conceptualize social capital as composed not only of objective associations between individuals, but associations that are reciprocal, trusting, and positive.

Our interest in this paper is in those aspects of reciprocity that carry symbolic value and contribute to the creation of social capital in relationships. While all forms of exchange produce value through the benefits that actors provide for one another, we propose that reciprocal exchanges—exchanges in which actors individually give benefits to each other, with no assurance of the other's reciprocity—have features that make the act of reciprocity itself a carrier of value, and variations in that act important determinants of trust and bonds of affect and solidarity. We develop this argument below, link it to previous research showing high levels of trust, mutual regard, and feelings of commitment in reciprocal exchanges, and experimentally test the value that actors place on the act of reciprocity in reciprocal exchange. We examine how variations in the probability and predictability of a partner's reciprocity influence both behavioral and affective indicators of value: behavioral preferences for exchange partners, and positive sentiments toward the partner and the relationship.

Our results show that while behavioral choices of exchange partners are governed primarily by the instrumental value of reciprocity, the development of trust, affective regard, and solidarity in exchange relations are strongly influenced by the symbolic value of the act of reciprocity itself, particularly the expressive value conveyed by constant reciprocity. These findings have important implications for the relation between behavior and affect and suggest that instrumental value and symbolic value comprise distinct domains of value that potentially affect behavioral choices and affective bonds in different ways.

CONCEPTUALIZING RECIPROCITY

We define reciprocity as the act of giving benefits to another in return for benefits received. Reciprocity may be either direct or indirect (Molm and Cook 1995). When reciprocity is direct, the recipient of a benefit returns a benefit directly to the giver (A gives to B and B to A). When reciprocity is indirect, as in generalized forms of exchange, the recipient does not return a benefit directly to the giver, but to another actor in the social circle (A gives to B, and B reciprocates indirect-

[1] Benefits can also have symbolic value, as in token gifts whose symbolic representations of esteem and regard are greater than their instrumental value. Our interest here, however, is in the symbolic value of the act of reciprocity itself, and behavioral dimensions of that act.

ly by giving to C, who in turn gives to A). While our focus is on direct reciprocity (reciprocity in the context of direct, two-party exchanges), the dimensions we distinguish apply to both; both direct and indirect reciprocity can vary in both instrumental value and symbolic value.

Instrumental Value

The instrumental or utilitarian value of reciprocity refers to the value, for the recipient, of the benefits received from the reciprocator—the goods, services, or social outcomes that the recipient receives in return for benefits given. The buyer and seller of a car, neighbors taking care of each other's houses while out of town, and colleagues who offer career advice and help with work are all engaging in acts of reciprocity that provide utility to the recipient: the car, the money, the services provided, the advice and work assistance. Actors engage in exchange to obtain these benefits; thus, their value is instrumental in the sense that they help the recipient meet the need that was the original objective of the exchange. As Lawler and Yoon's (1993, 1996) work has shown, however, exchange relations that are originally instrumental may be transformed into relations with symbolic value. Acts of reciprocity can contribute to that process.

Symbolic Value

The symbolic or communicative value of reciprocity refers to the value conveyed by the act of reciprocity itself, over and above the instrumental value of the benefits provided. Acts of reciprocity provide symbolic value by conveying information about the partner and the relationship. This information allows actors to make inferences about the partner's intentions and potential benefits of interaction with the partner. Information also conveys sentiments that create affective bonds between the actor and the partner (Kollock and O'Brien 1992).

We conceptualize the symbolic value of reciprocity as comprising two elements, which we call uncertainty reduction value and expressive value. Acts of reciprocity carry uncertainty reduction value to the extent that they reduce the risk and uncertainty inherent in exchange, by providing evidence of the partner's reliability and trustworthiness. They carry expressive value to the extent that they communicate what Offer (1997) calls regard: acknowledging and conveying appreciation for benefits received, showing that the partner cares for the actor and their relationship, and demonstrating willingness to invest in its continuation.

Uncertainty reduction value is related to instrumental value, in that it reduces the uncertainty of receiving the benefits that carry instrumental value. By conveying trustworthiness, however, it can also contribute to the development of mutual trust, which some scholars regard as one of the key components of social capital in a relationship (Paxton 1999; Putnam 1993).[2] Expressive value, in contrast, represents a new domain of value: the positive benefits that arise from feeling valued, respected, and treated well. Both uncertainty reduction and expressive value build mutual trust in the relationship, but expressive value also contributes to strong affective bonds between exchange partners. The act of reciprocity itself becomes a good, a "process benefit" (Offer 1997:451), that contributes to the formation of a relationship that can become a valued commodity in its own right (Lawler 2001).

Our distinction between the instrumental and symbolic value of reciprocity builds on a long tradition of work in social psychology that makes similar distinctions for goal objects. In the expectation states tradition, Berger and colleagues (1972) first proposed that both goal objects and actors can carry status value, in addition to instrumental or consummatory value, and argued that theories of distributive justice must take status value into account. More recently, Thye (2000) proposed a status value theory of power, based on a distinction between the monetary value and status value of exchange resources. Ridgeway's (1991, 2000) status construction theory describes one set of processes through which

[2] Cook, Hardin, and Levi (2005), in contrast, do not consider trust to be an essential component of social capital.

nominal traits of actors can acquire status value; Webster and Hysom (1998) have elaborated these processes to include new paths for the acquisition of status value. In the exchange tradition, Lawler and Yoon's (1993, 1996) theory of relational cohesion describes a process of "objectification" that transforms a primarily instrumental exchange relation into a relation with expressive value.

All of these theories address, in some way, how objects (people, resources, relations) acquire symbolic value through associational bonds and interaction processes. Our interest, in contrast, is in the symbolic value conveyed by characteristics of behavioral acts. We argue that under particular conditions—associated with some forms of exchange but not others—the act of reciprocity itself can carry symbolic value that contributes to the formation of affective bonds and the development of social capital in relationships.

CREATING SYMBOLIC VALUE THROUGH ACTS OF RECIPROCITY

Conditions of Exchange

Three conditions must be met before behavioral acts of reciprocity can convey symbolic or communicative value. First, exchanges between the two partners must be recurring over time—one of the traditional scope conditions of theories of social exchange (Molm and Cook 1995). Second, any given act of reciprocity by the exchange partner must be uncertain in the sense that there is a structural or situational potential for nonreciprocity. By this we mean that no terms of reciprocity have been discussed or agreed upon, no deadlines for reciprocity have been specified, and no formal agreements or institutional structures guarantee the other's reciprocity. Third, reciprocity must be a voluntary choice of a recipient of benefit to return benefit. In other words, the questions of whether, when, and to what extent an actor reciprocates the benefit received must be left to the discretion of the actor (Larson 1992; Kranton 1996; Offer 1997).

While all forms of exchange involve reciprocity, they differ in the extent to which they meet these three conditions. Consequently, some are more likely than others to convey symbolic or communicative value through acts of reciprocity. The most basic distinction is between bilateral exchanges like fixed-price trades and negotiated transactions (often associated with impersonal market exchanges), and reciprocal exchanges of unilateral "gift-giving," with either direct or indirect (generalized) reciprocity (Kranton 1996; Molm 1994; Offer 1997; Uzzi 1996).

In both fixed-price trades and negotiated transactions, the terms of exchange—the specification of the benefits that each actor will give in return for benefits received—are agreed upon before the exchange takes place. Consequently, reciprocity is neither uncertain nor a voluntary act by the recipient of a benefit, but a taken-for-granted feature of a bilateral trade or formal agreement. Even when agreements are nonbinding and reciprocity is delayed, an actor's decision to honor the agreement still consists only of carrying out terms that have already been specified. It is for these reasons that reciprocity in market exchanges is typically evaluated only in terms of the equivalence of the instrumental value of the benefits given and received.

In reciprocal and generalized (indirect) exchanges, terms are not specified and the potential for nonreciprocity always exists. Actors initiate an exchange by performing a beneficial act for another (for example, providing assistance or advice) without knowing whether, when, or to what extent the other (or, in the case of generalized exchange, another actor in the social circle) will reciprocate in the future. Actors may expect reciprocity, and norms of reciprocity may create an obligation to reciprocate another's beneficial act, but the occurrence, nature, and timing of reciprocity are all left to the discretion of the recipient.

These forms of exchange also differ on the likelihood that actors will continue to exchange with one another. Once a fixed-price trade or negotiated transaction is completed, the actors might engage in future transactions with each other, but they need not: each transaction is complete in itself, leaving no obligations for either party and creating no need for further interaction. In reciprocal exchanges, in contrast, discrete transactions are difficult to

identify because the same act can complete one exchange and initiate another. Exchange consists, instead, of a series of individually performed, sequentially contingent acts, in which obligations are repeatedly created and repaid, and distinctions between initiator and reciprocator become blurred.

In summary, while both bilateral trades and reciprocal acts of unilateral giving involve reciprocity, only the latter meet the conditions necessary for behavioral acts of reciprocity to convey symbolic or communicative value: reciprocity that is structurally uncertain, voluntary, and recurring over time. Once these conditions are met, the creation of symbolic value depends on characteristics of the behavior itself.

Acts of Reciprocity

In reciprocal exchanges that recur over time, behavioral acts of reciprocity can vary in their probability and their predictability. The probability or rate of reciprocity refers to the frequency with which a partner reciprocates an actor's beneficial acts; the predictability of reciprocity refers to the regularity or consistency of the partner's reciprocity.

The probability of a partner's reciprocity can range from 0 to 1; that is, a partner can never reciprocate, sometimes (or intermittently) reciprocate, or always (constantly) reciprocate. Constant reciprocity is also predictable reciprocity; if another returns your favors every time, you will come to expect that your acts of giving will be reciprocated. Intermittent reciprocity, in contrast, can be either predictable or unpredictable. It is predictable if it occurs on a regular schedule; for example, A reciprocates B's giving every other time, or once a month. It is unpredictable to the extent that the intermittent reciprocity is randomly distributed across time or occurrences of B's giving. More formally, the predictability and probability of a partner's reciprocity become increasingly correlated with one another as probability approaches either 1.0 or 0; when probability is 0.5, however, predictability can vary independently of probability.

The uncertainty reduction value of reciprocity should increase primarily with its predictability. An exchange partner whose acts of reciprocity are regular and predictable should be valued over one whose reciprocity is irregular or random, even if the instrumental value of the benefits received from both is the same. Regular reciprocity reduces uncertainty and provides the kind of behavioral evidence of the partner's trustworthiness and reliability that builds mutual trust in the relationship (Kelley and Thibaut 1978; Kollock 1994; Larson 1992; Molm, Takahashi, and Peterson 2000; Yamagishi and Yamagishi 1994).

The expressive value of reciprocity, in contrast, should increase primarily with its probability or rate. A partner who reciprocates another's acts of benefit with high probability conveys strong regard, with the strongest expressive value conveyed by constant reciprocity—a partner who always reciprocates the benefits he or she receives. Constant reciprocity combines high probability with high predictability, but predictability alone, in the absence of high probability, should increase uncertainty value but not expressive value. Consider, for example, an eccentric aunt who always sends Christmas presents, but not birthday presents, to a niece who remembers her aunt on both occasions. Such predictable behavior reduces uncertainty, but it is unlikely to convey the same expressive value as constant reciprocity.[3]

In reciprocal exchange, the obligations created by the unilateral giving that precedes reciprocity may also contribute to its expressive value. Outstanding obligations are them-

[3] It is important to distinguish between the structural or situational uncertainty that is one of the necessary conditions for the communication of symbolic value, and the relative certainty or uncertainty conveyed by the probability and predictability of the partner's behaviors. The former uncertainty is a product of structural features of particular forms of exchange; the latter is conveyed by the partner's behavior. The former is present from the beginning of the relationship; the latter requires time and interaction to develop. Even in an established relationship where the partner's constant reciprocity has created behavioral certainty, the structural potential for nonreciprocity remains. It is this combination of behavioral constancy under structural uncertainty that should convey symbolic value.

selves a form of social capital that build continuity and stability in relationships (Coleman 1988; Portes and Sensenbrenner 1993). Mauss (1954), Simmel (1950), and Blau (1964) all wrote of the special value of the first initiation of exchange—the first act of giving—as a debt that can never be fully repaid because it has a voluntary character and entails a level of risk-taking that no subsequent act of giving within the relationship ever matches.

Previous Research

Both ethnographic field studies and experimental research provide support for the idea that the acts of reciprocity that comprise reciprocal exchange provide symbolic value for the recipients that goes beyond the instrumental value of the benefits received. Uzzi's (1996, 1997, 1999) research on the garment and banking industries, Larson's (1992) research on alliances between entrepreneurial firms and their partnered organizations, and Kranton's (1996) review and analysis of a wide range of reciprocal exchange systems all contrast impersonal ("arms-length") market exchanges with socially embedded reciprocal exchange relations. The value of embeddedness, where reciprocity norms and personal relationships replace contracts and formal agreements, includes both the value of obtaining goods or services that might be difficult to acquire through market exchanges (Offer 1997) and the social benefits of the interaction itself.

As one manager in Larson's (1992:89) study describes it, "The effort to help is as important as the help itself. . . . You call them virtually every day to ask, 'How can I help?'" Eventually reciprocity becomes established as a norm of business, with one party responding in kind whenever the other party makes a special effort to help. The results of this process—which include trust, stability, predictability, and the sense that the relationship is "attended to"—are perceived by both sides as beneficial to the relationship, even when the instrumental gains are small. Uzzi's (1996:677) managers describe reciprocity as reducing transactional uncertainty while forging close relationships: "You become friends with these people . . . You trust them . . .You have an interest in what they're doing outside of business." Trust promotes voluntary exchanges, such as special treatment on a rush job, and ongoing social relations make information from exchange partners more credible and interpretable, "imbuing it with qualities and value beyond what is at hand" (Uzzi 1996:678).

The rich detail of ethnographic studies is complemented by the controlled comparisons of laboratory experiments. Experimental studies comparing negotiated and reciprocal forms of exchange show that reciprocal exchanges, when compared with negotiated exchanges equivalent in network structure and behavior, consistently produce stronger feelings of trust, affective regard, commitment, and fairness between exchange partners (Molm, Takahashi, and Peterson 2000, 2003). The differences on all of these sentiments are substantial and striking; on average, reciprocal exchanges produce evaluations of the partner and the relationship that are 30–40% higher than those for negotiated exchanges.

Neither the field studies nor the experimental research, however, tests the extent to which voluntary acts of reciprocity produce symbolic value, independent of other elements of the relationship with which reciprocity is associated. In field studies, the differences between market exchanges and socially embedded reciprocal exchanges are almost always confounded with, and sometimes defined in terms of, differences in the length or closeness of the relationship, including the existence of a prior relationship in another context. In experimental research, other differences between negotiated and reciprocal exchange (the greater riskiness of reciprocal exchange, the greater salience of conflict in negotiated exchange) at least partially account for the differences in affective orientations toward exchange partners (Molm et al. 2000; Molm, Collett, and Schaefer 2006).

The aim of our study is to provide a clear answer to this key question: Does reciprocal exchange provide symbolic value for actors, over and above the instrumental value of the benefits exchanged, through characteristics of the act of reciprocity itself? We address this

question by examining, in a controlled laboratory experiment, how variations in the probability and the predictability of reciprocity affect preferences for exchange partners and the development of trust and affective bonds.

THE CURRENT RESEARCH: LOGIC AND HYPOTHESES

To test whether actors value the act of reciprocity itself, we draw on the logic that Emerson (1987) developed in his last writings on value. We (a) provide actors with a choice of two alternative exchange partners, (b) equate the instrumental benefits received over time from exchanges with both partners, and (c) use actors' responses to the two partners to gauge the total value for the actor, both instrumental and symbolic, of exchange with each of them. By equating the instrumental value of exchange with the two partners, and varying dimensions of behavioral reciprocity that are predicted to affect the symbolic value of the exchange, we can test whether characteristics of the act of reciprocity itself convey symbolic value in addition to whatever value is provided by the benefits received from exchange. We compare a partner who provides constant reciprocity (which combines high probability with high predictability) with a partner who reciprocates only intermittently (half the time; a probability of 0.5). To test the independent effects of predictability, we vary the predictability of the intermittent partner's reciprocity by making it either regular or random. If variations in the probability and predictability of the partners' reciprocity affect the symbolic value of exchange, over and above the instrumental value of the benefits that actors obtain, that difference should be reflected in actors' behavioral and affective responses to the two partners. These responses will serve as our measures of value.

First, following Emerson (1972, 1987), we assume that value should be reflected in actors' behavioral preferences for, and allocation of exchange between, the two partners. When the total value (both instrumental and symbolic) of exchange with each of the partners is equivalent, actors should be indifferent between them. When the total value of exchange with one partner is greater than that of exchange with the other, the difference in value should be reflected in a behavioral preference for exchange with one partner over the other.

Second, consistent with the findings of both field studies and experimental research, the symbolic value of reciprocity should be reflected in actors' sentiments about each other and their relationship following a period of repeated exchange. We focus on three outcomes that have consistently differentiated reciprocal from negotiated exchange in both experimental research and ethnographic research on organizations. First is *trust*—the belief that the exchange partner can be relied upon to help, rather than to exploit, the actor. Second is *affective regard*— positive feelings toward the partner, combined with positive assessments of the partner's character. Third is *relational solidarity*—assessment of the relationship with the partner as one of unity and harmony, a partnership that is mutually beneficial to both.

If the probability and predictability of acts of reciprocity provide symbolic value over and above the instrumental value of the benefits exchanged, then we should find support for the following hypotheses:

Hypothesis 1: Holding instrumental value constant, actors will behaviorally prefer, and express more positive sentiments toward, an exchange partner whose reciprocity is constant than one whose reciprocity is intermittent.

Hypothesis 2: Behavioral preference and positive sentiments for the constant partner will decrease, but not disappear, when the intermittent partner provides greater instrumental value than the constant partner.

Hypotheses 1 and 2 apply to both the expressive and uncertainty reduction components of symbolic value, because constant reciprocity should convey both greater regard and greater predictability than intermittent reciprocity. Hypothesis 3 explicitly tests the role that uncertainty reduction plays in the symbolic value of reciprocity and the effects of

predictability on that value, independent of probability.

Hypothesis 3: Holding instrumental value and probability constant, actors will behaviorally prefer, and express more positive sentiments toward, an intermittent partner whose reciprocity is predictable (regular) to one whose reciprocity is unpredictable (random).

By comparing the effects of constant reciprocity, predictable intermittent reciprocity, and unpredictable intermittent reciprocity, we can estimate the relative contributions of expressive value and uncertainty reduction value to the total symbolic value of constant reciprocity.

Because the instrumental value of the benefits that each partner controls is known at the start of exchange, while the probability and predictability of their reciprocity are revealed over time, through interaction, the effects of the symbolic value of reciprocity on behavioral preferences should become apparent only after some experience of exchange with both partners, and should increase with repeated exchanges.

Hypothesis 4: The effects of variations in the probability and predictability of reciprocity on behavioral preferences will increase over time.

Hypothesis 4a: Behavioral preference for the constant partner will increase over the course of repeated exchanges with both partners.

Hypothesis 4b: Effects of the predictability of intermittent reciprocity on behavioral preference will increase over the course of repeated exchanges.

We test Hypotheses 1–3 using measures of both behavioral preference and sentiments of trust, affective regard, and relational solidarity. While Hypothesis 1 and 2 should hold for all three sentiments, the effects of predictability alone—Hypothesis 3—are likely to be more restricted; predictability is more likely to affect trust than affective regard or solidarity. Hypothesis 4, in contrast to Hypotheses 1–3, is restricted to the analysis of behavioral change and does not apply to the indicators of sentiment, which are measured only once, after a substantial period of exchange.[4]

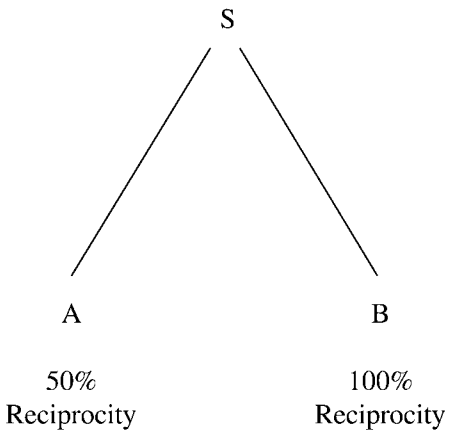
EXPERIMENTAL DESIGN AND PROCEDURES

To test these hypotheses, we conducted a laboratory experiment in which undergraduate student subjects (S) were assigned to exchange networks that offered them two alternative partners (A and B) with whom to engage in reciprocal exchange (see Figure 1). Unknown to the subject, both partners were computer-simulated actors whose behavior we systematically varied. Within networks, we varied the probability or rate of the exchange partner's reciprocity (the upper half of Figure 1). One partner, B, offered constant (100%) reciprocity, reciprocating each act of the subject's giving. The other partner, A, reciprocated the subject's giving only half as often—50% of the time. Across networks, we varied the relative instrumental value of exchange with the two partners (equal for both, or greater for exchange with A) and the predictability of A's intermittent reciprocity (predictable or unpredictable); these two factors were crossed in a 2×2 factorial (the lower half of Figure 1). Forty-eight undergraduate subjects were randomly assigned to one of the four between-subject conditions, with twelve per condition (six males and six females).[5]

The experiment was designed to meet the traditional scope conditions of social exchange theory (Molm and Cook 1995). Actors were mutually dependent upon one another for val-

[4] Measuring evaluations more than once, during the course of the exchange, would provide additional information on how trust, affective regard, and solidarity develop in relationships, but would require a very different design because of the potential reactivity of the measures.

[5] In addition to balancing conditions on gender, we also balanced the order in which the two partners were listed on subjects' screens when subjects were asked to which partner they wished to give points. In half of the networks run in each condition, A was listed first; in the other half, B was listed first. The partner listed first was also evaluated first on the post-experimental questionnaire. This was a necessary precaution to avoid bias; if subjects were indifferent to their exchange partners, then their behavior might be driven by whichever choice was easier or more obvious. Preliminary analyses showed no significant main or interactive effects of either gender or order of partner display on any of the dependent variables; consequently, both variables are omitted from the analyses reported here.



Within Networks: Manipulation of the Probability of the Exchange Partner's Reciprocity (S = subject; A and B are simulated actors)

	Relative Instrumental Value: A = B	Relative Instrumental Value: A > B
A's Reciprocity Predictable	A Predictable, Equal Value	A Predictable, Greater Value
A's Reciprocity Unpredictable	A Unpredictable, Equal Value	A Unpredictable, Greater Value

Across Networks: Manipulation of the Relative Instrumental Value of Exchange and the Predictability of A's Intermittent Reciprocity (2 × 2 factorial)

Figure 1. The Experimental Design

ued outcomes (operationalized as money, which subjects earned through exchange), subjects were recruited on the basis of their interest in acquiring more of those outcomes, and—as required by both the scope conditions of social exchange theory and the conditions required for reciprocity to convey symbolic value—they engaged in repeated exchanges over time.[6]

The Reciprocal Exchange Setting

Subjects were seated in isolated rooms and never met or spoke with one another. Following detailed instructions and practice

[6] Because our study tests whether symbolic value is produced by dimensions of the partner's behavior in exchanges that are initially based on the instrumental value of exchange benefits, we must satisfy the assumption that subjects do value those instrumental benefits—in our experiment, money. Recruiting subjects on the basis of their desire to earn money, rather than on the basis of the value placed on such symbolic benefits as expressions of regard, provides a conservative test of our hypotheses.

trials, they engaged in repeated reciprocal exchanges with their two computer-simulated partners via a computer network. The exchange task consisted simply of choosing which of the two exchange partners to give points to, and then receiving feedback on the two partners' choices (whether or not each partner chose to give points to the subject). This sequence was repeated over a series of exchange opportunities. Each actor in the network could give a fixed number of points to only one of their exchange partners on each opportunity; thus, relations were negatively connected (Cook and Emerson 1978), allowing us to assess behavioral preferences for one partner or the other.

Each opportunity began with a request on subjects' computer screens to choose to give points to either A or B.[7] Subjects and their simulated partners made these choices individually and simultaneously, without communication and without knowing whether or when the partner would provide points in return. These conditions meet the requirements of structural uncertainty and voluntary choice that are necessary for reciprocity to convey symbolic value. After all actors made their choices, subjects' computer screens then informed them from whom they received points and how many points (if any) they had gained. On each opportunity, subjects could receive points from one partner, both partners, or neither partner. Any points received were added to subjects' total earnings, which were displayed on their computer screens at all times.

To avoid cross-relational comparisons of fairness, subjects were not told the value of the points that they gave to each of their partners, nor did they know their partners' earnings. They knew only the value of points they received and their own cumulative earnings. Subjects' information about the network structure was also restricted to prevent attributions of partners' behavior to structural characteristics of the exchange network. Subjects knew that they could exchange with two other participants on each of a series of exchange opportunities, and that their partners also had other partners. They did not know how many or how valuable those partners were, however, because they did not know the size or shape of the network as a whole.

After exchanging with their partners for 300 opportunities, subjects responded to a series of questions on their computer screens that included measures of sentiment, and then wrote brief descriptions of any strategies used during the experiment. They were paid the amount they had earned (one cent per point) and debriefed before leaving.

Manipulation of Reciprocity

Three dimensions of reciprocity were manipulated: the probability or rate of reciprocity (constant or intermittent) was varied within each network, and the expected instrumental value of exchange and the predictability of the intermittent partner's reciprocity were varied across networks (Figure 1). Both of the latter variables were manipulated by varying dimensions of A's reciprocity, while holding B's reciprocity constant across conditions.

Probability (Rate) of Reciprocity. On the first exchange opportunity, both computer-simulated partners gave points to the subject; on subsequent opportunities, they responded to the subject's giving on the previous opportunity at one of two rates: Partner A reciprocated the subject's giving 50% of the time; partner B reciprocated the subject's giving 100% of the time. Thus, B's reciprocity was constant; A's reciprocity was intermittent. To make their behavior more realistic, both simulated partners initiated exchange with the subject on some opportunities; that is, they gave points to the subject even when the subject did not give to them on the previous opportunity. A initiated giving on 5% of the opportunities after the subject's (S's) nongiving; B initiated giving on 10% of the opportunities after S's nongiving. These rates directly correspond to the two partners' rates of reciprocation.

[7] To avoid the connotations that the letters "A" and "B" might have for undergraduate students, we used the letters "X" and "Y" to designate exchange partners in the experiment.

Relative Instrumental Value. In all conditions, B could give a fixed value of 5 points to S on each exchange opportunity, and A could give a fixed value greater than 5 points to S; thus, the instrumental value of A's benefits was always higher than the instrumental value of B's benefits. We manipulated the value of A's benefits to create conditions in which S's expected value of exchange with A was either equal to or greater than S's expected value of exchange with B.

In the equal instrumental value conditions, A could give S 10 points on each opportunity, exactly double the value of 5 that B could give. Those values, combined with the two partners' respective rates of reciprocity, produced expected values of 5 points per opportunity for the subject in both relations ($10 \times 0.5 = 5 \times 1.0$). In the greater instrumental value conditions, A could give S 14 points on each opportunity, for an expected value of 7 (14×0.5)—40% higher than the value (5) that S could obtain from B.

If B's constant reciprocity provides symbolic value over and above the instrumental value of B's exchange, then subjects should be more likely to exchange with B, and evaluate B more highly, when the instrumental value of exchange with A or B is equivalent (Hypothesis 1). The condition in which the expected value of exchange with A is greater than the value of exchange with B allows us to compare the relative strengths of the instrumental value of exchange (which favors A) and the symbolic value of constant reciprocity (which favors B), and to test Hypothesis 2.

Predictability of Intermittent Reciprocity. When the probability of reciprocity is 0.5—the level of A's intermittent reciprocity—predictability can be varied independently of probability. We manipulated the predictability of A's intermittent reciprocity by varying whether A's reciprocity occurred on a regular or random schedule. A's intermittency was predictable when A's 50% reciprocity occurred on a regular schedule, with A consistently reciprocating S's giving every other time. A's intermittency was unpredictable when A's 50% reciprocity occurred on a completely random schedule. This manipulation allows us to test Hypothesis 3 and to assess the extent to which the predictability of reciprocity—independent of the probability of reciprocity—contributes to its symbolic value through uncertainty reduction.

Measures of Value

Our measures of value consist of one behavioral measure and three measures of sentiment. We measure subjects' behavioral preference for an exchange partner, and their sentiments of trust, affective regard, and solidarity.

Behavioral Preference. Behaviorally, we measured the frequency with which subjects gave to A or to B. Because the two frequencies are perfectly correlated (S had to give to either A or B on each opportunity), we report and analyze only the frequency of S's giving to B—the constant partner—measured by the proportion of exchange opportunities on which S gave to B rather than to A. We analyze both the change in frequencies of giving across four trial blocks (that is, the four quarters of the 300-trial exchange period, each consisting of 75 trials), to test Hypothesis 4, and the mean frequencies in the fourth and final trial block.

Sentiment. Our measures of sentiment are based on subjects' responses to a series of seven-point bipolar semantic differential scales, administered on subjects' computers at the conclusion of the exchange period. These items asked subjects for evaluations of their two exchange partners and their relationships with each of them. We derived measures of our three indicators of sentiment—trust, affective regard, and relational solidarity—from these items. All three measures range in value from 1 to 7, with higher values indicating stronger feelings of trust, more positive affective regard, and greater relational solidarity.

We measured trust with a three-item scale. One item asked subjects to evaluate their partner's behavior as trustworthy/untrustworthy. The other two items asked subjects

how much they trusted the partner (very much/very little) and how much they felt they could rely on the partner (very much/very little). With responses to the three items averaged, Cronbach's alpha for the resulting trust scale is .86 for A and .84 for B.

We measured affective regard for the partner with a five-item scale, consisting of one item asking subjects to describe their general feelings toward the partner as positive/negative, and four items asking subjects to evaluate the partner's behavior toward them as good/bad, nice/awful, cooperative/uncooperative, and friendly/hostile. With responses to the five items averaged, Cronbach's alpha for the resulting scale is .91 for A and .86 for B.

We measured actors' assessments of the solidarity of their relationship with the partner with a three-item scale based on subjects' descriptions of their relationship as united/divided, partners/adversaries, and harmonious/conflictual. Cronbach's alpha for the average of the three items was .90 for A and .89 for B.

RESULTS

Behavioral Analyses

Figure 2 shows how the frequency of subjects' giving to B, the constant partner, changes across the four trial blocks of the exchange period. As we would expect, subjects in most conditions show an initial preference for exchange with A, the partner who controls resources of higher value. The one exception is the condition in which A's expected instrumental value is equal to B's, and A's intermittent reciprocity is random; in this condition, S is indifferent between the two partners during the first trial block. At this early stage of the exchange, the differences in the value of the benefits that A and B control are more salient than the differences in their rates of reciprocity. Over time, however, as subjects experience the difference in the two partners' rates of reciprocity, preference for the constant partner increases (F[3,132] for trial block = 2.21, one-tailed $p < .05$), in support of Hypothesis 4a.

When the expected value of exchange with the two partners is equal (the two top

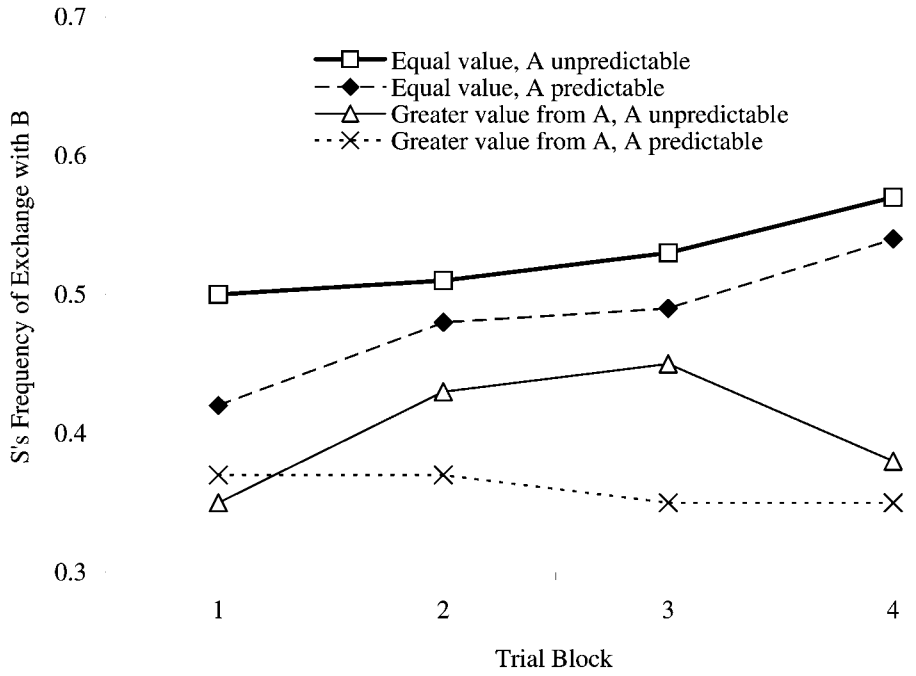


Figure 2. Subjects' Frequency of Exchange with B, by Trial Block and Experimental Condition

lines in the graph), S's giving to B steadily increases (and giving to A steadily decreases), from .46 in the first trial block to .56 in the fourth. A repeated measures analysis of variance shows that the effect of trial block in the equal-value conditions is significant but not large (F[3,66] = 2.86, one-tailed $p < .05$). Notably, however, the largest increase (from .52 to .56) occurs during the last trial block, suggesting that effects on behavior developed gradually and might have continued to increase if the experimental session had been longer.

When the expected value of exchange with A is greater than with B (the two bottom lines in the graph), there is no consistent change in S's behavior over time (F[3,66] = 1.17, $p = .33$). We see an initial increase in subjects' exchange with B (up to the third trial block) when A's intermittent reciprocity is random, but their exchange with A recovers in strength during the fourth quarter. And, when A's intermittent giving is both more instrumentally valuable and more predictable, there is no change over time. Averaged across levels of value, the effect of predictability does not increase in strength over time; thus, Hypothesis 4b is not supported.

An analysis of the variance in S's giving to B during the fourth and final quarter (Table 1) shows a significant effect of instrumental value on exchange (S gives to B 56% of the time when B's exchange is equal in value to A's, but only 36% of the time when A's instrumental value is greater), but no effect of predictability. Paired-sample t-tests on S's relative giving to A and B in the fourth quarter provide further tests of Hypotheses 1 and 2. They show, first, that even though S tends to favor B over A by the fourth quarter (56% to 44%) when the instrumental value of their exchange is equal, the difference is not significant, and thus Hypothesis 1 is not supported ($t = 1.18$, df = 23, one-tailed $p = .12$). When the instrumental value of exchange with A is greater, S significantly favors A over B ($t = 4.42$, df = 23, two-tailed $p < .001$), contrary to Hypothesis 2. Taken together, these results fail to support Hypotheses 1, 2, or 3 for behavioral indicators of value.

In short, if behavioral choice is a valid indicator of value, as Emerson (1987) proposed, then the results of our behavioral analyses offer little evidence that either the constancy or the predictability of reciprocity conveys symbolic value. We see some evidence of the growing symbolic value of constant reciprocity over time, but no evidence that predictability contributes to that value. Even after repeated exchanges with both partners for 300 opportunities, instrumental value trumps whatever symbolic value constant reciprocity offers. When the expected instrumental value of exchange with A or B was equal, our subjects were statistically indifferent between them—even in the fourth trial block. And when the expected value of exchange with A was greater, subjects showed a clear prefer-

Table 1. Subjects' Frequency of Exchange with B in the Fourth Trial Block[a]

a. Mean Values by Experimental Condition	Mean	S.D.	
Equal Value			
A's reciprocity unpredictable	.57	.22	
A's reciprocity predictable	.54	.26	
Greater Value from A			
A's reciprocity unpredictable	.38	.13	
A's reciprocity predictable	.35	.17	
b. Analysis of Variance in Mean Values			
Source	df	MSS	F-ratio
Relative Instrumental Value (V)	1	.44	11.01**
A's Predictability (P)	1	.01	.29
V × P	1	.00	.01
Residual	44	.04	

[a] Proportion of exchange opportunities on which S gave to B rather than to A.

ence for A. Overall, our subjects behaved more or less like rational actors, giving more frequently to A when the instrumental value of exchange with A was greater, but otherwise responding very little to variations in either the probability or the predictability of reciprocity.

Analyses of Sentiments

Subjects' sentiments toward their partners and their relationships present a very different picture, and one that is all the more striking because of its sharp contrast with the behavioral results. As the mean values of trust, affective regard, and relational solidarity in Table 2 show, subjects expressed far more positive sentiments toward B than toward A, even when exchange with A offered greater value and even when subjects exchanged more frequently with A than with B. In all four conditions—at both levels of instrumental value, combined with both levels of predictability—subjects reported much stronger feelings of trust in B, greater affective regard for B, and stronger relational solidarity with B.

Mixed-design analyses of variance on the three sentiment variables show strong effects of the rate of reciprocity (as a within-subject variable) on all three measures, but no main effects of either the relative instrumental value of exchange or the predictability of A's reciprocity (Table 3). A series of *t*-tests comparing subjects' sentiments toward a constantly reciprocating partner (B), a partner with intermittent but predictable reciprocity (A), and a partner with intermittent but unpredictable reciprocity (A), confirm these findings. When the instrumental value of exchange with A or B is equal, independent-sample *t*-tests show significant differences on all three sentiments between subjects' feelings toward a constant partner B and either a predictable or unpredictable intermittent partner A ($p < .001$), but paired-samples *t*-tests show no differences between subjects' feelings toward a predictable and an unpredictable intermittent partner A ($p > .35$). These results strongly suggest that predictability, by itself, does not contribute to the symbolic value of reciprocity. The possibility remains, however, that the predictability of constant reciprocity contributes to its effects in ways that we are unable to test because of the inseparability of predictability from high probability.

The significant interaction terms in Table 3 show, however, that both A's predictability and relative instrumental value modify the effects of the rate of reciprocity on subjects' sentiments. These modifications are modest and restricted to particular sentiments—the effects of predictability to trust, and the effects of instrumental value to affective regard and solidarity. All three interactions take a similar form, with the difference between S's feelings toward B and A reduced when exchange with A is either predictable or more instrumentally valuable.[8]

In summary, analyses of the sentiments that subjects developed toward their partners and their relationships with them strongly support Hypotheses 1 and 2 for all three variables. Hypothesis 3 is not supported, suggesting that the positive effects of a 100% rate of reciprocity are primarily the result of the expressive value conveyed by the partner's constant reciprocity, not the uncertainty reduction value of its greater predictability.

DISCUSSION

Our results show that while behavioral choices of exchange partners are governed primarily by the instrumental value of the benefits exchanged, subjects' trust in their partners, their affective regard for their partners, and their sense of solidarity in their relationships are strongly influenced by the act of reciproc-

[8] Subjects' open-ended responses to our request for descriptions of their exchange strategies suggest that A's unpredictability may have made concerns with trust and reliability more salient by highlighting the contrast between A and B. When A's intermittent reciprocity was random, and thus unpredictable, 25% of subjects in this condition mentioned these concerns: "B was trustworthy in reciprocating points"; "I could count on B"; "A was unreliable"; "Even though B gave me less points, they were consistent, and that, I believe, is worth more than being concerned with getting more money from an unreliable person less often"; "I found B to be trustworthy"; and "A was really inconsistent with giving me points. So, overall, I trusted B more." In contrast, there was no mention of trust, reliability, or consistency when A's intermittent reciprocity was regular and predictable.

Table 2. Means and Standard Deviations of Trust, Affective Regard, and Relational Solidarity, by Variations in the Instrumental Value of Exchange and the Predictability of A's Intermittent Reciprocity

Subjects' Sentiments	A = B in Instrumental Value		A > B in Instrumental Value	
	A's Reciprocity		A's Reciprocity	
	Predictable	Unpredictable	Predictable	Unpredictable
Trust				
Trust in A	3.44	2.94	3.83	2.97
	(1.31)	(1.27)	(1.37)	(.99)
Trust in B	6.11	6.36	5.36	5.86
	(.87)	(.72)	(1.23)	(.97)
Affective Regard				
Regard for A	3.63	3.65	4.33	3.83
	(1.16)	(1.19)	(1.07)	(1.40)
Regard for B	6.12	6.45	5.52	5.98
	(.71)	(.55)	(1.11)	(1.03)
Relational Solidarity				
Solidarity with A	3.36	3.19	4.00	3.47
	(.81)	(1.45)	(1.15)	(1.24)
Solidarity with B	5.39	5.83	4.61	5.36
	(.94)	(1.03)	(1.25)	(1.08)

Note: Standard deviations are in parentheses; *N* per condition equals 12.

Table 3. *F*-Ratios for Analyses of Variance on Trust, Affective Regard, and Relational Solidarity

Source	Subjects' Sentiments Toward the Partner or Relationship		
	Trust	Regard	Solidarity
Between-Subjects:			
Relative Instrumental Value (V)	1.19	.05	.16
A's Predictability (P)	.64	.15	.37
V × P	.02	.22	.00
Within-Subjects:			
Rate of Reciprocity (R)	103.64***	92.04***	49.44***
R × V	2.61	4.71*	4.52*
R × P	4.19*	2.04	3.43
R × V × P	.35	.52	.43

* $p < .05$; *** $p < .001$

ity itself. Subjects express much greater trust, more positive affective regard, and stronger relational solidarity for a partner who reciprocates their giving every time than for a partner whose reciprocity is intermittent—even when the value of the benefits received from the intermittent partner are equal to, or greater than, the value of the benefits received from the constant partner. Variations in the predictability and relative instrumental value of intermittent reciprocity modify these differences in expected ways, with differences in trust reduced when the intermittent partner's behavior is predictable rather than random, and with differences in affective regard and solidarity reduced when exchange with the intermittent partner produces relatively greater instrumental value. These effects are quite modest, however, in relation to the overwhelming effects of the partner's rate of reciprocity.

These divergent results for behavioral and affective indicators of symbolic value have important implications for the role of reciprocity in social life. Our findings indicate that actors' choice behavior is largely governed by principles of rationality. When alternative exchange relations offer equivalent instrumental benefits over time, actors are essentially indifferent between them. When

one relation is more profitable in the long term than the other, actors behaviorally favor that exchange partner. What is striking, however, is that while engaged in behavioral patterns that indicate no subjective preference for one partner over another, actors are nevertheless building far greater reserves of social capital in one of their relationships than in the other. And this social capital—consisting of high levels of trust, positive evaluations of and feelings toward the partner, and a relationship that is perceived as a partnership of shared interests—is almost entirely the product of constant, immediate reciprocity that repeatedly affirms the value of the relationship to the partner, the partner's willingness to invest in the relationship, and the partner's trustworthiness in this enterprise.

While we manipulated the probability of reciprocity, our need to equate the expected instrumental value of exchange with A or B meant that two additional elements were associated with the conditions of constant or intermittent reciprocity, no doubt contributing to their strong effects. First, A's intermittent reciprocity was delayed in a sense (A eventually reciprocated the subject's giving with the same value as B), while B's constant reciprocity was immediate. Second, while A and B provided benefits of equal expected value, A's opportunity costs were lower than B's; it took B two exchange opportunities to produce as much value for the subject as A could provide in one opportunity. Differences in all three aspects of A's and B's reciprocity—probability, delay, and opportunity costs—reinforce each other, thus sending a strong and unambiguous message to our subjects that B is more trustworthy, more attentive to the subject, and more willing to invest in the relationship.

Given the marked differences between trust, affective regard, and solidarity in the two relationships, the behavior of our subjects when exchange with A or B offered equivalent instrumental value raises an obvious question: If subjects evaluated B far more positively than A, why didn't they exchange more frequently with B than with A when the value of exchange with the two was equal? The most likely explanation is that while the resource difference between A and B was known and salient to subjects from the beginning, the greater symbolic value of B's constant reciprocity became known and salient only after repeated interactions with both partners. But in the course of learning about their two alternative partners, and learning that B was a more trustworthy, cooperative partner, our subjects also learned that they could nevertheless do as well (or better) exchanging with A as with B. In other words, by the time the greater symbolic value of B's reciprocity was established, a profitable pattern of exchanging with both A and B was also established; maintaining that pattern may have seemed the better, less risky course of action.

This disjuncture between behavior and sentiment, while understandable, is nevertheless a marked departure from established tenets of social exchange theory. Most social exchange theories (as well as many other social psychological theories) assume some correspondence between sentiment and behavior, either because positive feelings influence behavioral choices (Homans 1974), or because more frequent exchange with a partner produces positive emotions that forge affective bonds (Lawler and Yoon 1993, 1996). Neither process is evident here; instead, the effects of reciprocity on behavioral choices and sentiments are largely unrelated. While our results in no way refute the tendency for behavior and feelings toward a particular exchange partner to become linked in a reciprocal relationship over time, they do strongly suggest that there are contexts of alternative choices in exchange networks in which we cannot assume that the partner who has become, over time, the most liked and trusted will also be the partner with whom the actor exchanges most frequently, or vice versa. In natural settings, situational constraints sometimes require individuals to exchange with others whom they do not trust or evaluate highly (Galaskiewicz 2005); our study shows that even when such constraints are absent, behavior and trust do not necessarily coincide.

These findings also raise important questions about the integration of instrumental and symbolic value in exchange theory. When Emerson (1987) proposed that behavioral

preferences may be the best way of assessing the value placed on alternative resources, he was really addressing only instrumental, or utilitarian, domains of value. Emerson (1981) believed that the utilitarian value of benefits and the symbolic value of information are different concepts that should be organized into different theories, even though both are conveyed through social exchange. Subsequent exchange scholars have argued for integrating the symbolic value of information into exchange theory, and for recognizing the signaling value of information for inferring other's intentions and the likely outcomes of exchange with them (Cook, O'Brien, and Kollock 1990; Kollock and O'Brien 1992). Regardless of whether one favors theoretical integration or separation, our results suggest that the instrumental value and the symbolic value of exchange not only comprise distinct value domains, but that actors respond to these domains in different ways. In the instrumental value domain that is the province of rational action, rational actors—like our subjects—show consistency between their behaviors and values. Subjects' behaviors align predictably with the relative instrumental value of their alternative exchange opportunities, regardless of the symbolic value conveyed by the probability or predictability of their partners' behavior. In contrast, the domain of symbolic value, which communicates information about the partner and the relationship, does not necessarily affect current, established behavioral patterns. The bonds of trust and solidarity created through symbolic communication can potentially influence future behavioral choices, however, especially when new contexts or new ventures involve elements of risk or uncertainty. In those situations, the accumulation of social capital in a relationship may provide an "edge," giving an actor greater confidence in undertaking a new activity with that partner than with other potential partners.

At the same time, it is important to recognize that the domains of instrumental and symbolic value, while conceptually distinct, may be empirically inseparable in many natural settings. Our experimental design made the three dimensions of reciprocity that we manipulated—instrumental value, probability, and predictability—independent of one another. When instrumental value is positively correlated with the probability of reciprocity, instrumental value and symbolic value will tend to converge.

Finally, this study contributes to the growing literature on the causes and consequences of social capital (Bourdieu 1983; Cook 2005; Lin 2002; Paxton 2002; Portes 1998; Putnam 1993). Our findings help to clarify the relationship between reciprocity and trust, and show that being linked to others through social networks is not enough to produce trust, which some scholars regard as one of the defining features of social capital. Indeed, as our research shows, actors can exchange repeatedly with others without developing trust and affective bonds. Exchange partners build social capital through repeated acts of immediate, voluntary reciprocity that demonstrate their trustworthiness, their regard for the partner, and their willingness to invest in the relationship. Relations of reciprocal exchange offer this opportunity, and this is one reason why socially embedded relationships tend to build trust and commitment in ways that market exchanges do not.

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