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PERCEPTIONS OF FAIRNESS IN SOCIAL EXCHANGE: A COMPARISON OF NEGATIVELY AND POSITIVELY CONNECTED NETWORKS

by

Gretchen Peterson

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A Dissertation Submitted to the Faculty of the
DEPARTMENT OF SOCIOLOGY
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2000
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ABSTRACT

Research within the exchange tradition has focused largely on the effects of network structure (in terms of the positioning of actors within a network) on the distribution of power. While network structure in this limited sense has received considerable attention in the literature, one aspect of network structure, which has remained largely unexplored, is the type of network connection. Emerson (1972) identified two types of network connection: negative connections and positive connections. In a negatively connected network, actors must compete with one another for valued exchanges and thus, these networks are inherently competitive. On the other hand, positively connected networks have the potential to be cooperative since exchange in one relation in the network facilitates exchange in a connected relation. In this dissertation, I argue that the type of network connection affects our expectations for the behavior of our exchange partners and thus affects our evaluations of the fairness of those partners. In addition to network connection, I also examine the role that information about a peripheral network member (one who is not a direct exchange partner) plays in affecting evaluations of the fairness of a direct exchange partner. Thus, this dissertation focuses on this concept of network connection and unites exchange and justice theories by examining the effects of network connection on perceptions of fairness. The research design involves a 2x2x2 factorial experiment crossing network connection (positive or negative), equality of an exchange partner's behavior (equal or unequal behavior) and information about the behavior of a peripheral network member (full information about this actor's behavior or no information). While the hypotheses were not supported in this
experiment, some of the results concerning the underlying mechanisms indicate that network connection remains an important avenue for further research. Several possibilities for the lack of support for the hypotheses are discussed as well as the possible avenues for future research.
CHAPTER 1
INTRODUCTION

For the past forty years, social exchange theory has been examining questions concerning the central processes in social life. The early roots of exchange theory can be found in the work of several anthropologists who identified the importance of exchange processes in the societies they studied. Mauss (1925) examined the exchange of gifts within premodern cultures. In particular, he illustrated that the exchange of wealth was just one aspect of enduring societal relations. Exchanges in these cultures also involved such things as courtesies, entertainments, military assistance, and rituals. The Kula ring, observed by Malinowski (1922) in the Western Pacific, provides another example of exchanges among premodern cultures. These researchers found exchange processes to be core to the very organization and functioning of these premodern societies. In identifying exchange processes at work in these premodern societies, these researchers laid a foundation for future work in social exchange theory.

While the roots of exchange theory may lie in these early anthropological works, the crystallization and subsequent burgeoning of social exchange theory as an area of study has been much more recent. In the late 1950's and early 1960's several researchers published their versions of social exchange theory (Homans 1958, 1961; Thibaut and Kelley 1959; Blau 1964). Homans (1958, 1961), for his part, was most interested in the psychological processes underlying exchanges and believed that social exchange relations were essentially the sum of the behaviors of the individuals involved in the exchange. Homans (1961) took a behaviorist approach to exchanges arguing that value
and schedules of reinforcement affect exchange behavior. On the other hand, Thibaut and Kelley (1959, 1978) examined the social structures within which individuals interacted. They introduced the concept of comparison levels as a means for understanding an actor's dependence upon a particular relationship. The comparison level is the standard by which a person judges the outcomes received from a particular relationship. The comparison level for alternatives takes alternative relationships into account by indicating the "lowest level of outcomes" an individual will accept from a relationship given their alternative relationships. Kelley and Thibaut (1978) utilize these concepts to illustrate the interdependence of actors in relationships. Finally, Blau (1964) tried to extend exchange theory to address larger, more complex social structures thus moving beyond the dyadic conceptions of exchange presented by Homans (1961) and Thibaut and Kelley (1959). Blau's (1964) own theory of exchange took a more structural approach and emphasized the importance of considering the larger social structure in which a particular exchange relationship was embedded.

These early exchange theories were criticized for a variety of reasons including tautological reasoning (Emerson 1976) and psychological reductionism (Blain 1971). However, the body of work completed by these researchers focused attention on exchange as an important facet to social life. Thus, these researchers laid the groundwork for the contemporary study of social exchange.

**What is Social Exchange?**

An exchange relationship has been defined as "the mutual achievement of desired outcomes through the voluntary enactment of behaviors that have positive utilities for the
parties involved” (Blalock and Wilken 1979). Thus, according to Blalock and Wilken (1979), there are several key features that distinguish an exchange relationship from other types of social relationships. The first distinguishing feature is the mutuality of the relationship. Each party to the exchange is obtaining some outcome and this distinguishes exchanges from unilateral gift giving. The second distinguishing feature, according to Blalock and Wilken (1979), is the achievement of desired outcomes. Including this feature in the definition excludes conflictual relationships from the realm of exchange relationships. More recently, however, researchers have considered the avoidance of punishing outcomes as a potential part of exchange relationships. Molm (1997) developed a program of research that compared punishment-based and reward-based power.

While Blalock and Wilken’s (1979) definition of an exchange relationship is a useful starting point, other researchers have utilized a more encompassing conceptualization of social exchange. Molm and Cook (1995) argue that social exchange is a process whereby people obtain things of value from one another. Since people are not completely self-sufficient, exchange is a necessary part of social life. In an even more encompassing conceptualization, Homans (1961) argues that associations between individuals can be viewed “as an exchange of activity, tangible or intangible, and more or less rewarding or costly, between at least two persons.” Given this definition, much of social life and social interaction can be viewed as instances of exchange. Exchanges occur not only in the economic realm but also in the arenas of friendship relations and
love relations. Thus, understanding exchange processes is critical to developing a fuller understanding of relations between people in a variety of social contexts.

One of the limitations of previous research within the exchange tradition has been its almost exclusive focus on structures of competitive relations, or negatively connected networks. Much of the research has failed to consider cooperative structures, or positively connected networks. However, much of social life occurs in exchange structures that create potentially cooperative relations among people. For example, the flow of information within organizations or between people often involves a cooperative relation where someone uses information they have received from one person in an exchange with a new person. One exception to this neglect of positively connected networks by social exchange theorists is the work of Yamagishi, Gillmore, and Cook (1988) who found that power was distributed differently in competitive and cooperative network structures. In order to understand the full range of social relations, exchange research needs to examine differences between competitive and cooperative structures.

**Exchange Relations and Inequality**

One of the features, which distinguish social exchange theory from economic exchange theories, is the emphasis on enduring relations between people (Molm and Cook 1995). This emphasis on relations between people as opposed to one-time transactions has allowed exchange theorists to study properties of exchange relations that emerge and change over time. One of these emergent, or dynamic, processes is the use of power. Much of the recent work within the exchange theory tradition has focused both on the social structural determinants of power as well as actors' use of that power (for
One of the consequences of power use by individuals is inequality in the rewards accrued by various actors (Homans 1976, Lenski 1966, Cook and Emerson 1978, Stolte 1983b). Thus, in addition to their focus on power processes, exchange theorists have examined questions dealing with inequality among actors. When inequality among people occurs, a central concern for researchers and theorists has been on understanding how people perceive and react to this inequality.

In the work of the early exchange researchers, issues of power and justice were central concerns (Homans 1961, Blau 1964). While both of these concerns were present in the classical exchange work, research on power has since diverged from research on justice. Researchers concerned with power have shifted to focus on the distribution of power within various network structures (Cook and Yamagishi 1992, Friedkin 1992, Willer, Markovsky, and Patton 1989). As the focus of exchange researchers has shifted to power distributions, justice theories have emerged as a separate research tradition. Research within the justice literature has focused considerable attention on evaluations of reward distributions and particularly on the standards actors invoke in making justice evaluations (Berger, Zelditch, Anderson, and Cohen 1972, Jasso 1980, Markovsky 1985).

This Dissertation

This dissertation reunites the exchange tradition and the justice tradition by focusing on how actors evaluate the use of power by exchange partners. Previous research has examined the relationship between power and perceptions of fairness, but
much of this research has focused on how people's positions of power affect their perceptions of fairness (Cook and Emerson 1978; Cook and Gillmore 1984). Meanwhile, very little research has examined the effects of the process of power use on people's perceptions of fairness.

While the focus of this dissertation is on the evaluations of power use, an important contribution of this project is the comparison between structures of competitive and cooperative relations. It is argued that exchange structures create expectations for the behavior of other actors in the network and these expectations provide the basis for a justice standard that impacts evaluations of fairness.

Another important aspect to people's evaluations of the fairness of an exchange partner is the amount of information that people have available in making their evaluations. In order to evaluate fairness, people need to know whether a particular actor played a causal role in the outcomes they have received. While information is important for people's attributions, the structure of exchange relations can also affect people's causal attributions. Thus, this dissertation will examine the role that both information and exchange structure play as factors affecting people's attributions concerning the cause of the inequality in outcomes they receive from exchange.

In the next chapter of this dissertation, I will review research within the exchange tradition describing various exchange formulations. Particular attention will be paid to the power-dependence tradition since it informs my research. I will describe differences between the types of network connection and then present my own conceptualization of how network connection is related to the distribution of structural power. I conclude the
chapter with a discussion of the differences between competitive and cooperative networks in terms of the process of power use.

The third chapter focuses on research within the justice tradition beginning with a discussion of the types of justice evaluations. I then discuss some of the justice theories before turning my attention to the role of expectations and norms in justice evaluations. After reviewing the relationships between power and justice and attributions and justice, I present the new theoretical development, which provides the basis for my hypotheses. This dissertation utilizes experimental methods to address the theoretical questions concerning the effects of network connection and attributions on perceptions of justice. The fourth chapter describes the methods used in this research in detail. The experimental procedures are described as well as the manipulations and measure that are used to test the experimental hypotheses.

In the fifth chapter, the results of the experiment are presented. Analyses of both the main hypotheses as well as some of the possible underlying mechanisms are included. Chapter six presents the theoretical rationale, the design, and the results of a small follow-up study which further examined how the behavior of other actors in an exchange network can affect fairness evaluations of an exchange partner. Finally, in the seventh chapter, I discuss some explanations for the findings in my experiment and I conclude with a discussion of avenues for future research.
CHAPTER 2
UNDERSTANDING SOCIAL EXCHANGE RELATIONS

Since the focus of my dissertation is social exchange relations, I begin this chapter with a presentation of the basic concepts in exchange theory and their relation to the core assumptions of the theory. After reviewing these basic assumptions, I present the concept of power and then discuss the various contemporary exchange approaches to power. Then, I turn to a discussion of network connection since this is the particular aspect of exchange structure upon which my dissertation research focuses. Following this, I present my new conceptualization of the relationship between network connection and power, which argues for an overall conceptualization of power that does not vary depending upon the type of network connection. Finally, I conclude this chapter by discussing the relationship between network connection and the emergence of inequality.

Basic Concepts and Core Assumptions

One of the fundamental concepts in social exchange theory is the actor. In this theory, actors can be individuals or groups acting as a single unit. One of the core assumptions of exchange theory is that actors will behave in a self-interested manner. This means that an actor will try to increase positively valued outcomes and decrease negatively valued outcomes (Molm 1997).

Another important concept is that of resources. Resources refer to the things of value that an actor brings to an exchange. A resource has either positive or negative value and this positive or negative value influences actors' behaviors in the exchange. A second core assumption in exchange theory is that all outcomes are subject to the
principle of satiation. Satiation (also referred to as diminishing marginal utility) refers to the process whereby as more of a valued outcome is obtained, the value of each additional unit of that outcome decreases (Molm 1997).

In order to obtain valued outcomes, actors must be connected to one another by an exchange relation. A third core assumption of exchange theory is that actors are mutually dependent upon one another. It is this mutual dependence that leads to the establishment and maintenance of an exchange relation. In addition, a final core assumption of exchange theory is that actors engage in recurring exchanges with specific partners over time. This points to another feature of an exchange relation in that it involves specific actors engaging in multiple exchange transactions (Molm 1997).

An exchange transaction refers to one instance of exchange and it can take several forms: direct, indirect, negotiated direct, reciprocal direct, or productive. Direct exchanges involve two actors who exchange with one another while indirect exchanges (or generalized exchanges) involve three or more actors who engage in exchanges within the whole group not just with one partner. In negotiated direct exchange transactions, actors bargain to reach a joint agreement over the division or exchange of resources. On the other hand, a reciprocal, direct exchange involves actors individually initiating exchanges without knowledge of whether or when their exchange partner may reciprocate. Finally, productive exchange occurs when actors must jointly contribute to an exchange in order to obtain any benefit (Molm and Cook 1995). This dissertation focuses on justice perceptions under conditions of reciprocal, direct exchange.
Exchange and Power

Numerous researchers have advanced conceptions of power. French (1956) argues that power is potential interpersonal influence while Weber (1978) argues that power is the ability to achieve one's will despite the resistance of others. Thibaut and Kelley (1959) argue that there are two kinds of power. The first type of power, called fate control, occurs when one actor can affect the outcomes of another actor no matter what that other actor does. The second type of power, behavior control, occurs when an actor, by affecting another's outcomes, can induce him or her to alter his/her behavior (since the outcomes received by the other depend on his/her own behavior as well). Emerson (1962) defines the power of one actor over another as the amount of resistance on the part of the second actor that can be overcome by the first actor. One common thread among these conceptions of power is the focus on power as an aspect of a relationship. Cook and Emerson (1978) argue that structural power is an attribute of a social relation and it is potential power. This definition is fundamental to the power-dependence tradition of exchange theory, on which this dissertation is based.

Power-Dependence Theory

According to the power-dependence tradition, power equals dependence. Thus, the power of actor A over actor B is equal to the dependence of actor B on actor A for receiving valued outcomes. Dependence is directly related to the value of the resources being exchanged such that as the value of A's resources increase for B, so increases B's dependence on A. Finally, dependence is indirectly related to the availability of alternative sources of the resource. The availability of alternative sources refers to the
number of alternatives as well as whether the alternatives have alternative sources of their own (Emerson 1972b). For instance, if A desires to exchange with B and B has no alternative source (besides A) for obtaining what B desires, then B is a highly available source for A. Conversely, if A has other available sources (besides B) for the desired resource, then A's availability to B is low. Power-dependence theorists have examined two aspects to power within relations. These two aspects are average power and power imbalance. Average power is an indicator of the cohesion of a relation and it is the average of two actors' dependencies upon one another. Two actors who are highly dependent upon one another will have a highly cohesive relation. However, cohesiveness decreases when even just one of the two actors involved is not highly dependent upon the other (and cohesiveness is quite low when neither actor is highly dependent). Power imbalance, on the other hand, is the difference between two actors' dependencies and thus indicates whether one actor in the relation has a power advantage (Molm 1997). In the above example, there is a power imbalance between A and B where A is power advantaged. This occurs because B is highly dependent upon A and A is not as dependent on B (since A has other alternatives).

Whereas structural power determines an actor's potential to achieve desired outcomes, power use refers to the behavioral manifestation of this structural power. Whether conscious of their behavior or not, actors in more powerful positions are likely to engage in the use of that power.¹ Cook and Emerson (1978) argue that power is used

¹ A power strategy is a form of power use. Molm and Hedley (1992) define a power strategy as purposive behavior that is constrained by structural power position. Thus, a power strategy is assumed to be intentional and purposive whereas power use does not
behaviorally by exploring alternatives and maximizing benefits. One of the important consequences of the use of power in exchange networks is the emergence of inequality in outcomes among actors within the network (Cook and Emerson 1978; Stolte 1983b).

Early formulations of power-dependence theory focused on dyadic relations (Emerson 1972b; Burgess and Nielsen 1974; Molm 1980). Even though consideration was given to the existence of a larger network structure, the focus of this research was on the dyad. More recently, research has focused on examining the distribution of power within larger network structures. Since Cook, Emerson, Gillmore, and Yamagishi (1983) demonstrated the usefulness of power-dependence theory in predicting the distribution of power within exchange networks (as opposed to a point centrality approach), numerous researchers have drawn on power-dependence ideas in examining exchange networks. Cook and Yamagishi (1992) extended this earlier work and focused on developing an algorithm for predicting the distribution of power using the equidependency principle. The equidependency principle argues that, over time, an exchange relation will move toward the situation where actors in the relation are equally dependent upon one another. This point of equal dependence often will result in an inequality in the outcomes received by the actors in the relation if the relation is power imbalanced. This occurs because the actor who is initially more dependent will try to increase the value of the resources offered to the exchange partner, which increases the exchange partner's dependence. Thus, at the point of equidependence, the actor who was initially power advantaged require intentionality. Emerson (1972b) argues that power use can be voluntary and conscious, but it need not be.
receives greater value from each exchange than the actor who was initially power disadvantaged.

Other researchers have utilized the power dependence approach to examine other processes within exchange networks. Molm (1997) describes a research program that systematically compared reward-based and punishment-based power. Several other researchers have focused on commitment processes (Cook and Emerson 1978; Lawler and Yoon 1993), affective attachments (Lawler 1998; Lawler and Yoon 1998; Molm 1991), and perceptions of justice (Molm, Quist, and Wiseley 1994; Hegtvedt, Thompson, and Cook 1993). More recently, Molm has begun a program of research to systematically compare negotiated and reciprocal exchanges in terms of power use (Molm, Peterson, and Takahashi 1999), risk and trust (Molm, Takahashi, and Peterson 2000), and the effects of value (Molm, Peterson, and Takahashi unpublished).

**Alternative Exchange Formulations**

Concerns with power have led a number of researchers to advance their own theories (distinct from power-dependence theory) explaining how power is distributed in exchange networks. One such theory is referred to as Network Exchange Theory. Network Exchange Theory (NET) has focused on properties of network structures that affect exchange outcomes (Willer 1999). Using a graph-analytic approach, NET researchers can determine the distribution of power in an exchange network. Network Exchange Theory researchers calculate the distribution of power in exchange networks using the graph-theoretic power index. In the GPI (graph-theoretic power index) method, a position’s GPI is calculated by counting the non-intersecting paths of different lengths.
Odd length paths add to a position's advantage while even-length paths take away from the advantage. A position's GPI (which reflects a position's potential power) is calculated by adding together the number of advantageous paths and then subtracting the number of disadvantageous paths (Markovsky, Willer, and Patton 1988).

In another formulation, Bienenstock and Bonacich (1992, 1993) utilize game theory to propose the core as the set of possible solutions to the distribution of power. In their approach, Bienenstock and Bonacich use three levels of rationality to define the core for particular exchange networks. These three levels are individual rationality, coalition rationality, and group rationality. Individual rationality refers to the assumption that an actor will not join a coalition unless he/she can do better than if alone. Coalition rationality requires that a coalition of actors earn at least as much as a coalition as they would by exchanging amongst themselves. Finally, group rationality means that the group of all actors in the network will maximize their rewards (Bienenstock and Bonacich 1993). Determining which possible payoff structures satisfy all three of these rationality propositions then identifies the core.

Finally, Friedkin (1993, 1995) proposes his expected value theory as yet another alternative approach to determining the distribution of power. Friedkin’s expected value approach rests on the assumption that a power structure delineates a sample space for transaction networks. The expected value approach proceeds in several steps. The first step is to delineate the power structure and to identify the sample space of patterns of exchange transactions. In his original formulation, Friedkin (1993) assumed that all exchange networks within the sample space were equally likely. In his more recent
formulation. Friedkin (1995) relaxes this assumption and argues that the probability of a particular exchange network depends on the value of the benefits received by both actors in the relation. In addition to the probabilities for exchange networks, the expected value approach requires modeling the bargaining process to calculate the value of benefits received by actors in the network. An actor's expected value is then calculated by summing the products of the probabilities of each exchange network in the sample space and the outcomes from each possible network.

Each of these approaches to studying power in exchange networks has led to considerable research. Several studies have compared these approaches. Bonacich and Friedkin (1998) compare the capacity of these models to deal with unequally valued relations. They find that the expected value approach is the best current approach for dealing with unequally valued relations (although even this approach is still not entirely adequate). Wilier (1999) compares these approaches in terms of their capacities to address weak power networks. In this work, Wilier finds that, taken together, game-theoretic and expected value approaches yield predictions that are very similar to the predictions of NET. Finally, Skvoretz and Wilier (1999) compare these theories on their ability to predict the distribution of power in a variety of networks. Their findings were mixed and showed that NET yields the best predictions when considering potential exclusion whereas expected value theory yields the best predictions when considering observed exclusion. While each of these approaches contributes to our understanding of exchange networks, all of these approaches are very similar and are limited in that they do not address nonnegotiated or reciprocal exchanges.
The above discussion has focused solely on reward power. However, Molm (1997) distinguishes between two forms of power: reward power and coercive (or punishment) power. Reward power refers to the capacity of one actor to give or withhold positive outcomes in exchange with another actor. On the other hand, coercive power refers to the capacity to give or withhold negative outcomes (Molm 1997). The distinction between these two forms of power lies essentially in whether an actor can create a beneficial outcome (reward power) or a punishing outcome (coercive power) for another actor. The present study will focus only on actors' capacities to create beneficial outcomes for one another (or reward power).

**Network Connections**

Two relations in a network are connected when some feature of the transactions which occur in one relation are a function of the transactions which occur in the other relation (Emerson 1972b). Emerson introduces a 2x2 typology of network connection, whereby an exchange connection can be either unilateral or bilateral and either positive or negative. A unilateral exchange connection exists where exchange in one relation affects exchange in a connected relation while exchange in this second relation does not affect exchange in the first relation. Referring to figure 2.1, this means that exchange initiated in the A-B relation affects exchange in the B-C relation while exchange initiated in the B-C relation does not affect exchange in the A-B relation. On the other hand, a bilateral connection occurs where exchange in either relation affects exchange in the connected relation. This means that exchange in the A-B relation affects exchange in the
B-C relation and vice versa (Emerson 1972b). In this dissertation, I will focus only on bilateral exchanges.

![Three-Actor Network Diagram](Figure 2.1)

**Figure 2.1. Three-Actor Network**

As for the positive/negative dimension of the typology, a positive connection occurs where exchanges in one relation facilitate or increase the exchanges in the connected relation (Emerson 1972b). Information exchange within a network is an example of a positive connection. In this case, person A exchanges information with person B who can then use that information in exchange with person C. Thus, B's exchange with A provides an outcome that facilitates B's exchange with C. Another example of a positive connection comes from the literature on racial stratification and is exemplified by the middleman minority theory (Bonacich 1973). Bonacich argues that a middleman minority is an ethnic group that has developed an economic niche where they facilitate exchanges between two groups of actors. In this situation, a positive connection exists since exchange between one group and the middleman minority facilitates exchange between the middleman minority and the other group of actors in the network. A specific example is the case of Korean grocery store owners in Los Angeles. The Korean grocers set up their stores in economically disadvantaged areas where other
grocery stores were unwilling to locate themselves thus facilitating exchange between food suppliers and consumers in disadvantaged areas. The positive connection occurs since exchange between the suppliers and the Korean storeowners facilitates exchange between the storeowners and the consumers and vice versa.

The other type of exchange connection is a negative connection. Two relations are negatively connected if exchange in one relation reduces the frequency of exchange in the other relation (Emerson 1972b). For example, if person B has money to invest while both A and C have companies needing investors, then a negative connection exists since the more money B invests in one company, the less B is able or even desires to invest in the other company. In this case, A and C are alternative suppliers of the same resource (an investment opportunity) for actor B. An example of a negative connection from the literature on racial stratification is the split labor market. Bonacich (1972) argues that in a split labor market, two different groups of laborers are competing with one another for the jobs controlled by the capitalists. This illustrates a negative connection since exchange between the capitalists and one group of laborers decreases exchange between the capitalists and the other group of laborers.

Emerson (1972b) argues that differences in resource domains determine whether networks are negatively connected or positively connected. A resource domain is a set of equivalent outcomes. Thus, as more of any one outcome within the domain is obtained, then satiation results for all other outcomes within that resource domain (Emerson 1972a). In a negatively connected network, an actor is connected to alternative sources within the same resource domain. Thus, alternative actors are competing with one
another for exchange with a valuable partner. In the split labor market example mentioned above, the two groups of laborers are competing with one another for the jobs provided by the capitalists and this creates the negative connection. In positively connected networks, on the other hand, Emerson argues that an actor is connected to other actors who can provide complementary resources in different exchange domains. Thus, because of the different domains involved, relations in the network are not alternative relations (Emerson 1972b). For this reason, actors in a positively connected network are not competing with each other for an exchange but can potentially cooperate with one another instead. In the middleman minority theory presented above, a positive connection exists because complementary resources are exchanged in each of the relations mediated by the middleman minority group. More specifically, Korean grocers in Los Angeles obtain their supplies from corporations and use these grocery supplies to obtain money from consumers in the economically disadvantaged areas. The consumers and the corporations provide complementary resources when exchanging with the middleman minority thus creating a positive connection.

Patton and Willer (1990) develop a typology similar to Emerson's (1972b), which involves exclusionary and inclusionary networks. In an inclusionary network, actors with multiple exchange relations must exchange with more than one of their partners in order to receive any benefit. The exclusionary network is one where actors are prevented from exchanging in one or more of their relations. A third type of network connection in

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1 This definition of an exclusionary network is similar to the concept of productive exchange.
this typology is a null connection, which occurs when exchange in one relation is not affected by exchange in another relation. This typology differs from Emerson's (1972b) positive/negative typology in that exchange in one relation of an inclusionary or exclusionary network is not a function of exchange in the connected relation.

Patton and Wilier (1990) criticize Emerson's typology on two grounds. First, they argue the typology is not exhaustive and thus they include null connection in their typology. However, according to Emerson (1972b), a network connection requires that exchange in one relation affects exchange in another relation. Thus, the null connection that Patton and Wilier (1990) describe does not fit with Emerson's original typology of network connection.

In addition, Patton and Wilier (1990) argue that Emerson's typology is "a typology of consequences, not of connections, and the network connections which would produce these consequences remain unspecified in the theory." However, this criticism is unwarranted since Emerson (1972b) presents the theoretical distinction between network connections as based on the resource domains involved in the relations. While the common usage definitions of positive and negative connections do involve the effects of one exchange relation on the frequency of exchange in the connected relation, this does not negate the fact that the theoretical mechanism underlying Emerson's concept of network connection is that of resource domains. This dissertation will utilize Emerson's positive/negative typology since it provides a clearer theoretical basis for understanding the differences between types of network connection.
In more recent work, Wilier and Skvoretz (1997) argue that there are actually five types of network connection: exclusive, inclusive, null, exclusive-inclusive, and null-inclusive. The importance of this work is that it points to the possibility of compound exchange connections, which could be an interesting avenue for future research. Yamaguchi (1996) proposes yet another alternative approach to understanding network connections. Yamaguchi's model refers to substitutable, independent, or complementary relations. Substitutable relations are equivalent to Emerson’s (1972b) negative connections; complementary relations are equivalent to positive connections; and independent relations are equivalent to Patton and Willer’s (1990) null connections. The difference between Yamaguchi’s and Emerson’s typologies is that Yamaguchi assumes a continuous scale where relations can be more or less substitutable or complementary. While these conceptualizations point to important areas for future consideration, this dissertation will focus on Emerson’s (1972b) original distinction between positive and negative connections.

Research within the scope of exchange theory has focused almost exclusively on the analysis of negatively connected networks. Cook and Emerson (1978) suggest that there are two main reasons why exchange theory studies are usually conducted on negatively connected exchange networks. First, in negatively connected networks there is a straightforward relationship between power and network position. Second, negative connections are easily operationalized. One notable exception to this focus on negative connections is Yamagishi, Gillmore, and Cook (1988) which is to date the only experimental test of power processes in positively connected exchange networks. Thus,
given this dearth of research on positively connected exchange networks, the effects of type of network connection on exchange processes remains an underexplored area within exchange theory research.

**Power and Network Connection**

While the power-dependence conceptualization of power as a function of value and alternatives has been used extensively in the study of negatively connected networks, there has been very little research that has studied power in positively connected networks. However, Yamagishi, Gillmore, and Cook (1988) argue that, because positively connected relations do not provide alternatives, power is solely a function of value, varying with the local scarcity of resources and the distance from the source points of those resources. While this definition emphasizes the importance of value in determining power, it does not address the issue of resource availability. Also, this definition seems to be an artifact of the way in which Yamagishi and colleagues operationalized the positively connected network. In the networks they studied, resources traveled from two endpoints of a network and for any individual in the network to benefit, they needed a combination of both resources. This need for combining resources from multiple exchanges in order to obtain benefit from an exchange is not part of the conceptualization of a positive connection. (Indeed, it is closer to the definition of an inclusionary network.)

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This process of combining resources to produce benefit seems similar to the process of productive exchange. In productive exchange, joint action is required for the actors involved to benefit. In addition, under conditions of productive exchange, it is not possible for an individual actor to obtain benefits unless all actors involved in the exchange obtain benefits (Molm 1997). However, Yamagishi, Gillmore, and Cook’s
be able to benefit from any individual resource flowing through the network. Results from Yamaguchi (1996) support Yamagishi, Gillmore, and Cook's (1988) findings that the most powerful position in networks with positive (complementary) connections is the central position. In addition, Yamaguchi (1996) found that availability determines the most powerful position in networks with negative (substitutable) connections.

Molm and Cook (1995) discuss how in positively connected networks, centrality determines power since central actors can act as brokers. One mechanism, which can occur in positively connected networks, is middleman behavior where a central actor "facilitates exchanges between unconnected peripheral actors, extracting a commission in the process" (Marsden 1983). In negatively connected networks, Cook, Emerson, Gillmore, and Yamagishi (1983) argue that access to highly available partners is more important than centrality in determining power.

**New Conceptualization of Network Connection and Power**

Unlike Yamagishi, Gillmore, and Cook (1988) who argue that power in positively connected networks is a function of value and not availability of alternatives, I argue that power in both types of networks is a function of both the value of resources being exchanged and their availability. However, while value should have similar effects across both types of networks, the factors affecting availability will be different in positively connected and negatively connected networks.

(1988) operationalization of a positive connection is different from productive exchange in that actors are individually trying to obtain valued outcomes and are not working jointly to produce a group outcome.
In both negatively and positively connected networks, value is an important determinant of dependence. In both, as the value of a resource increases for an actor, so does that actor's dependence on their exchange partner. For example, in the 3-person network shown in figure 2.1. A's dependence on B will increase as the value of B's resources for A increases. When an actor has multiple exchange partners, the relative value of the resources held by each of those exchange partners will affect an actor's relative dependence on each. Thus, if actor A holds more valuable resources than actor C, the result would be that actor B would be more dependent on actor A than on actor C.

Availability is also a key determinant of dependence in both negatively connected and positively connected networks. But there is a difference in which factors affect availability for each of the two types of networks. In order to use the concept of availability in defining dependence in both negatively and positively connected networks, availability must be reconceptualized as access to resources. For negatively connected networks, accessibility of resources is determined by whether an actor has available alternative sources for a valued outcome. The availability of a particular source is determined by whether that source has alternatives of his/her own and how much value those alternatives have for him/her.

In positively connected networks, accessibility of resources is determined by the number of relations through which a resource must be exchanged in order for an actor to obtain any benefit. The fewer the number of relations involved in obtaining a valued outcome, the greater the accessibility of resources for an actor in a positively connected network. An actor who is closer to a source for resources is less dependent on all of the
other actors in the network. An actor who is further from a source point is dependent on every actor through whom the resources must be exchanged in order to obtain any benefit. Distance essentially means the number of exchange relations through which a resource must be exchanged in order to be received by a particular actor. More distant resources are less accessible. For example, in a 5-person line network (A-B-C-D-E), person B is at a distance of 1 from person A’s resource and at a distance of 3 from person E’s resource. It is expected that with each unit increase in distance, dependence increases because of the greater number of actors involved in exchanging the resource. As the resources are exchanged through the network, there is a greater likelihood that resources will not be forwarded along with each additional actor involved. This may be due either to resource exhaustion (the more actors involved, the more resources used) or to an actor’s decision to not forward the resources (the more actors involved, the greater the probability that resources might not be exchanged). In terms of network-level dependence (dependence on all other actors in the network as opposed to just one’s direct exchange partners), actors closer to source points will be less dependent than actors who are further from source points. However, with the existence of multiple source points in positively connected networks, an actor’s network-level dependence will be a function of distance from all of the source points since actors may be able to achieve benefits from multiple access routes.

**Network Connection and the Emergence of Inequality**

Understanding differences in power use between competitive and cooperative networks is crucial to understanding how inequality emerges in each of these networks.
In negatively connected networks, power use is manifested through the inequality of benefits received by various actors. This means that actors in more powerful positions will receive more from an exchange partner than they give to that partner. Using the split labor market example discussed earlier, this means that the powerful capitalists obtain more labor from their workers for less money. In addition, powerful actors can maintain exchanges with multiple partners because a more powerful actor can give less to each exchange partner and so may not exhaust their resources in exchanging with just one partner.

The way in which inequality results between more and less powerful actors is different depending on the type of exchange in which the actors are involved. In negotiated exchanges, actors bargain over the outcomes of the exchange. Thus, both actors make an agreement where the more powerful actor receives greater outcomes than the less powerful actor. Under conditions of reciprocal exchange, power use is evident in the unequal frequencies of reciprocation by the more powerful and less powerful actors. These unequal frequencies, in turn, lead to unequal benefits received from the exchanges where the more powerful actor is receiving greater benefits than the less powerful actor. This occurs because the more powerful actors reciprocate exchanges from their less powerful partners less often than the less powerful partners reciprocate.

The manifestation of power use in negatively connected networks is the result of competition among more dependent actors in an exchange network. Essentially, the more

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1 This example has been overly simplified for the purposes of illustration.
dependent actors compete with each other in order to exchange with the more powerful actors. For example in the 3-person network shown in Figure 2.1, actors A and C compete with one another in order to exchange with actor B. The result of this competition is that actor B obtains more from A and C than he/she gives in return. Actor B can give to A and C intermittently while these more dependent actors maintain high rates of giving. Returning to the split labor market example, the capitalists are able to obtain more favorable exchange ratios because the two groups of workers compete with one another for the jobs offered by the capitalists. Yamagishi, Gillmore, and Cook (1988) discuss this competitiveness inherent in negatively connected networks. The competitiveness in the negatively connected network can occur when the central actor in a three-actor network plays the role of the tertius gaudens. As Burt (1992) describes, the tertius gaudens has the benefit of control and competition is created because of the conflicting demands of the disadvantaged actors (since each disadvantaged actor desires exchange with the central actor and since there is a negative correlation between exchanges in the two relations).

In positively connected networks, actors are not competing for one another's resources since exchange in one relation increases exchange in the connected relation (Yamagishi, Gillmore, and Cook 1988). In the positively connected networks, actors use power by controlling the exchange of resources through the network. For example, in the 3-person network (figure 2.1), the actor in the central position receives resources from one of the source points. This central actor then decides whether he/she should exchange resources with the other person in the network. An example of this occurs when one
person exchanges information with another person. This second person can then choose whether to exchange this information with a third person. By controlling the movement of resources through the network, the second person is using power.

The main difference in power use between the negatively connected and positively connected networks is that not all actors in positively connected networks can directly use power against others who are not exchanging. For example, in the 3-person network shown in figure 2.1, it is possible that actor A would not exchange with actor B at some point. If this occurred in a negatively connected network, then only actor B would be negatively affected by A’s nonexchange and actor B could then directly punish or withhold rewards to try and influence actor A. If A refused to exchange in a positively connected network, then both actors B and C would be negatively affected since resources in a positively connected network are exchanged through the positive connection. However, only actor B could use power directly against actor A whereas actor C has no direct connection through which to influence actor A. Thus, actor C must depend upon actor B to use power against the uncooperative actor A.

**Conclusion**

In this chapter, I have introduced the basic concepts and core assumptions of exchange theory. Power has been an important topic for exchange researchers for several decades as evidenced by the various approaches to understanding the distribution of power in exchange networks. I utilize the power-dependence approach in this dissertation for a number of reasons. First, Emerson’s work on network connection provides a clear theoretical basis for understanding and studying the effects of network
connection. Additionally, power-dependence theory is capable of examining nonnegotiated (or reciprocal) exchanges whereas the other theories cannot. Reciprocal exchanges comprise a considerable portion of social interactions and I have thus chosen to focus on them in this dissertation.

In the next chapter, I turn my attention to the relationship between power and inequality. Understanding how actors perceive and evaluate inequality is critical to a full understanding of exchange relations and networks. In particular, I focus on understanding the structural effects of the type of network connection on perceptions of inequality (or perceptions of justice). Not only does the type of network connection affect justice evaluations, but the behavior of actors in an exchange network also plays an important role. The same behavior by an exchange partner can be attributed to very different causes depending on the type of network in which an actor is embedded. Thus, in the next chapter, I discuss each of these issues in turn.
CHAPTER 3
EXCHANGE AND JUSTICE PERCEPTIONS

Early exchange researchers were concerned not only with the process of exchange but also with issues of justice in exchange. Homans (1961) and Adams (1965) focused attention on justice issues within exchange relations and, since their work, research on justice has flourished. While this early research on justice grew out of the exchange tradition, subsequent research on justice has developed into its own tradition. The more recent justice theories have turned their attention away from analyzing exchange situations and instead focus on allocation or mixed settings. In an allocation, one actor decides how a pool of outcomes should be divided among members of a group (Hegtvedt and Markovsky 1995). Thus, the allocation setting is quite different from a direct exchange where one’s outcomes are determined through the process of exchange between two or more actors. One aim of this dissertation is to refocus attention on issues of justice in social exchange and to thus reunite justice and exchange theories.

This chapter begins with a discussion of some of the basic concepts and ideas from justice theories. Then, I review some of the theories and research that have examined evaluations of justice. Justice norms have been a debated topic within the literature and their importance in influencing justice evaluations is discussed. In addition, the contribution of attribution theory to our understanding of justice evaluations is considered. In bringing together justice and exchange theories, it is important to examine the role of attributions because of their critical impact on the justice evaluation process. Then, several hypotheses, which serve as the foundation for this dissertation, are
developed. The first hypothesis examines the effects of inequality on perceptions of justice and this is a replication of previous research. The second, primary hypothesis concerns the effects of network connection on justice perceptions. Finally, the third hypothesis deals with the effects of information, network connection, and inequality together on perceptions of justice.

Theoretical Background

Types of Justice Evaluations

Perceptions of justice can involve evaluations of the fairness of outcomes, procedures, or behavior. Distributive justice evaluations focus on outcomes and typically involve an examination of the fairness of the relative amounts of rewards that come from exchanges or allocations (Hegtvedt and Markovsky 1995). This type of justice evaluation has been described as one that "centers on the fairness of the distribution of the conditions and goods that affect individual well-being" (Deutsch 1985). The evaluation of the sex gap in pay is an example of a distributive justice evaluation. In this case, differences in pay between men and women are viewed as unfair because their outcomes are unequal even though their inputs (the work they perform) are essentially equal. Much of the research on perceptions of justice has focused on distributive justice evaluations in allocation settings rather than direct exchanges. This dissertation focuses

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Some researchers argue for consideration of another type of justice evaluation: retributive justice. Retributive justice refers to evaluations of the allocation of punishments (Cook and Hegtvedt 1983). However, a retributive justice evaluation is simply an evaluation of the distribution of negatives and is thus conceptually equivalent to a distributive justice evaluation.
on perceptions of justice in exchange settings since this topic has received little attention within the justice literature.

An evaluation of the fairness of procedures used in determining relative rewards is referred to as procedural justice (Hegtvedt and Markovsky 1995). An example of a procedural justice evaluation occurs when students argue that it is unfair that students working on a group project all receive the same grade. In this case, the procedure for allocating grades is evaluated and perceived to be unfair since some students in the group do more of the work. Tyler (1990) argues that there are two approaches to understanding procedural justice. In the instrumental approach, procedural justice is seen as an evaluation of the amount of control an actor has over third-party decisions. This control over decisions translates into indirect control over the outcomes received. Thus, the instrumental model presumes that procedural justice evaluations are fundamentally a reaction to the favorability of outcomes. In the normative approach, procedural justice is viewed as an evaluation that is not linked only to outcomes. Factors such as neutrality, lack of bias, and efforts to be fair are evaluated in terms of their procedural justice (Tyler 1990).

Finally, an evaluation of the contingency of a direct exchange partner's behavior on the actor's exchange behavior is referred to as reciprocal justice: the focus of the evaluation is on the reciprocity of the partner's behavior and not simply on the distribution of outcomes (Molm, Quist, and Wiseley 1994). A reciprocal justice evaluation occurs, for example, when a person feels their friend is unfair to them in not

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2 This type of evaluation seems more like distributive justice than procedural justice.
reciprocating favors as often as they are given. In this case, the evaluation of the lack of reciprocity of the friend’s behavior leads to the perception that the friend is behaving unfairly. This study focuses on reciprocal justice which differs from both procedural and distributive justice in that the focus of the evaluation is on a reciprocal exchange relationship not on the procedures or outcomes related to an allocation (Molm. Quist. and Wiseley 1994).

Early Justice Research - Equity Theory

Early theorizing on issues of justice focused on the equity principle. Equity obtains in a situation where each actor’s rewards are proportional to their investments (Homans 1961). Homans (1961) also argues that there are different thresholds for the perception of inequity in cases of underreward and overreward. Essentially, actors are more sensitive to inequitable underreward than to an equivalent overreward. Thus, an overrewarded actor will not feel much tension and feels positively about the situation. Research by Steil (1983) has found support for this idea in that actors who are advantaged by an injustice were less likely to experience the situation as unjust when compared to actors who were disadvantaged by the injustice. Many approaches have focused on equity as the norm guiding fairness in social exchange (Hegtvedt and Markovsky 1995).

In their formal statement of equity theory, Walster, Walster, and Berscheid (1978) argue that “an equitable relationship exists if a person scrutinizing the relationship concludes that all participants are receiving equal relative gains from the relationship”. They further argue that the equity formula illustrates the importance of two fundamental
principles in equity evaluations: the nature of the person and the nature of the situation. Thus, equity depends on how much an individual puts into a relationship as well as how much is available for a person to get from a relationship.

Equity theory is described by a number of propositions; two of which are related to individuals' perceptions of and reactions to injustice (inequity). In particular, equity theory argues that actors will experience distress when involved in an inequitable relationship. In addition, the theory argues that actors will try to reduce their distress by restoring equity (Walster et al. 1978). When faced with an inequitable relation, actors can choose either to continue engaging in the inequitable relation or to engage in an equitable, yet less profitable relation. Equity theory argues that an actor will prefer a less profitable, equitable exchange relation as opposed to a more profitable, inequitable exchange relation (Burgess and Nielsen 1974). A person can restore equity to an inequitable relationship by restoring actual equity or by restoring psychological equity. Restoring actual equity refers to altering the relative gains of participants in the relationship. Restoring psychological equity refers to an actor distorting reality in order to convince herself that an equitable relationship exists (Walster, Walster, and Berscheid 1978). However, other theorists have argued that actors will continue to engage in profitable exchange relations despite their inequity. Burgess and Nielsen (1974) found that as long as exchange is more profitable than other means for achieving valued outcomes, subjects will continue to exchange no matter how inequitable the relation. Marsden (1983) also argued that when actors do not have valuable alternatives, they would accept inequitable exchanges rather than withdraw from the relationship. While
equity theory focuses on interpersonal comparisons as the basis for evaluating justice.

more recent research has shifted away from local, interpersonal comparisons to focus on
the importance of references and expectations.

Referential Justice Standards

Justice researchers have more recently turned to examine the issue of how actors
evaluate justice. One strand of research argues that actors use some type of comparison
in making their justice evaluations. For example, Folger (1986) proposes incorporating
the idea of referent cognitions into equity theory. Using referent comparison theory,
Folger argues that individuals compare what actually happened to what might have
happened rather than making a social comparison between oneself and other actors.

Another idea involving the use of comparisons comes from the status value theory of
distributive justice, which argues that actors invoke a general referential standard to
evaluate whether rewards received by various actors are consistent with the referential
standard. The general referential standard relates the status value of different social
characteristics with the receipt of social rewards (Berger, Zelditch, Anderson, and Cohen
1972). The importance of comparisons was also emphasized in the work of Jasso
(1980). She developed the “new theory of distributive justice” which focused on the
refinement of the mathematical formulation of the justice evaluation. Jasso’s new theory
of distributive justice incorporates the “universal law of justice evaluation: justice
evaluation varies as the logarithm of the ratio of the actual share of the good to the
perceived just share” (1980: 3). Thus, Jasso argues that justice evaluations do not require
a comparison with another actor’s outcomes but rather with a justice standard. Finally,
Markovsky’s (1985) multilevel justice theory utilized the ideas presented by Berger and colleagues (1972) and Jasso (1980) and examined the role of interpersonal versus intergroup justice comparisons. All of these researchers have invoked the concept of comparisons in their varied explanations for how actors make justice evaluations.

**Justice Expectations and Norms**

Other researchers have argued for the importance of expectations and norms in determining what is just (Adams 1965, Homans 1961). For example, Blau (1964) argues that the rule of justice is a social norm that establishes how participants in an exchange ought to behave. In particular, Blau argues that expectations concerning the profits (rewards minus costs) from a social relationship are important in actors’ evaluations of justice. As Homans (1974) argues, actors whose expectations are not met are likely to react emotionally to this perceived inequality. In terms of actors who receive less than expected, the resultant emotion is argued to be anger. Thus, this research on expectations and much of the research on justice demonstrates that expectations provide a baseline for justice evaluations.

However, justice theories differ in their views on the possible sources of our expectations. Eckhoff (1974) argues that there are five justice principles, which include equal opportunity, equality, status/rank inequality, need, and equity. The equity norm argues that an actor should be rewarded in proportion to their inputs or status. The equality norm argues for equal rewards for everyone regardless of actors’ inputs or relative status (Morgan and Sawyer 1979). The equal opportunity norm argues that everyone should have the same opportunities for achieving valued outcomes. When
everyone is rewarded according to their need, then the need norm is invoked. Finally, the
norm of status/rank inequality argues that rewards should be distributed based on
individuals' statuses.

Researchers who have considered justice norms in exchange settings have argued
that several different norms may be used in exchange. For example, Utne and Kidd
(1980) argue that an exchange relationship is fair when participants in that relationship
obtain relatively equal outcomes. On the other hand, Cook and Hegtvedt (1986) argue
that actors in exchange networks utilize the equity principle in evaluating the distribution
of outcomes within the network. Finally, Stolte (1987) argues that under productive
exchange conditions (which is similar to a positively connected network), the norms of
equity and instrumental need would be invoked by different actors. Thus, an advantaged
actor would invoke the equity norm while a disadvantaged actor would invoke the norm
of instrumental need.

Deutsch (1985) has examined some of the conditions under which particular
justice principles (or values) will be utilized. He presents three propositions that argue
for the differential use of equity, equality, and need depending on the situation. In all of
his propositions, Deutsch focuses on systems of cooperative relations and he argues it is
the ultimate goal of the cooperative interaction that determines which justice principle
should be utilized. If the goal is economic productivity, then Deutsch argues that equity
is the principle of justice that will be invoked. If the goal is the maintenance of social
relations, then equality is the justice principle. Finally, if the goal of the interaction is to
encourage personal growth and well-being, then the justice principle that will be used is that of need (Deutsch 1985).

The justice principle utilized in reciprocal justice evaluations is the norm of reciprocity. Molm, Quist, and Wiseley (1993) discuss three factors that are essential to the norm of reciprocity. The first factor is that an actor is expected to react contingently to another’s behavior. The second factor is that actors should engage in “functionally equivalent acts” towards one another. Finally, actors expect that the outcomes of reciprocity to be nearly equal for both participants in the exchange. A violation of any one of these three factors would lead to a condition of reciprocal unfairness. This dissertation examines reciprocal justice evaluations because this type of evaluation focuses on the behavior of an exchange partner and not simply on the distribution of outcomes.

Attributions and Justice

While expectations and norms provide a basis for justice considerations, actors’ attributions in a given situation are critical to the process of making a justice evaluation. Attribution theory focuses on the causal explanations people use in their perceptions of events (Crittenden 1983; Kelley 1973). When determining the fairness of an exchange partner, an actor may consider whether their partner’s behavior should be attributed to the structure of the exchange network or to the actor. Jones and Davis (1966) argue that behavior which fulfills the requirements of a role is not useful in making attributions about a person whereas behavior which runs counter to role expectations is very informative in making person attributions. These researchers further assume that actions
are informative for inferring intentions when the action represents a choice among alternatives. Thus, an actor's attributions concerning an exchange partner will be affected by whether that partner is engaging in role-appropriate behavior (i.e. behavior appropriate to their structural position) and whether the partner is choosing from alternative behaviors.

Utne and Kidd (1980) take a different approach and argue that causal attributions do not alter the perception of inequity yet they can reduce the amount of distress that arises from inequity. Thus, the distress provoked by an inequitable situation can be reduced by attributions related to additional information about a person. However, other researchers argue that attributions of responsibility for an inequitable situation do influence not only individuals' reactions to inequity but also their perceptions of inequity (Cook 1975). Hegtvedt, Thompson, and Cook (1993) examined the effects of power and equity on attributions for outcomes from exchange. They found that causal self-attributions mediate the relationship between power and reactions to exchange outcomes.

Previous research examining the role of causal attributions on the evaluations of the outcomes an actor receives from exchange has examined the role of self-attributions in the legitimation of inequality (Stolte 1983, Shepelak 1987). Cook and Hegtvedt (1986) argue that attributing the cause of inequality to internal versus external factors affects actors' power use. Finally, Molm, Takahashi, and Peterson (unpublished) found that attributions about the perceived cause of inequality affect actors' evaluations of the fairness of an exchange partner. Thus, previous research has established that attributions are important in evaluating justice in various situations. Perceiving an exchange partner
as the cause of an experienced inequality will affect justice evaluations. In particular, attributing responsibility for experienced inequality to an exchange partner will lead to evaluations of that actor as unfair. On the other hand, self-attributions will legitimate inequality and thus lead to evaluations of an exchange partner as more fair (or at least not as unfair) than when no self-attributions are made.

**Power and Justice**

Thus far, I have presented previous research, which has demonstrated that cognitive factors such as expectations and attributions affect justice evaluations. In addition to these cognitive factors, there are also structural factors that can affect evaluations of justice. In particular, previous research has focused on the relationship between power and justice in negatively connected networks (Cook and Emerson 1978; Cook, Hegtvedt, and Yamagishi 1988). Two hypotheses exist concerning the relationship between power and justice in negatively connected networks. The first hypothesis states that power determines justice norms and that differences in structural power legitimate behavioral inequalities (Della Fave 1980; Cook, Hegtvedt, and Yamagishi 1988). The second hypothesis about the relationship between power and justice states that justice norms constrain the use of power by the powerful (Cook and Emerson 1978). In particular, Cook and Emerson (1978) found that equity concerns operate as a norm that limits power use. One study, which has compared these two hypotheses, found some support for the first one, which argued that the use of power by the powerful is legitimated by justice norms (Molm, Quist, and Wiseley 1994). However, support for this theory was not unequivocal in that the Molm and colleagues (1994) study found this
was true for the use of coercive power. but in terms of reward power. the results were in
the same direction but were not significant. In addition. Molm and colleagues (1994)
examined evaluations of reciprocal justice whereas most other studies have investigated
distributive justice evaluations.

Much of the research on the relationship between power and justice has focused
on how actors' structural power positions affect perceptions of fairness. Cook and
Hegtvedt (1986) found that power disadvantaged actors evaluated inequality in outcomes
as more unfair than power-advantaged actors (who benefit from the inequality). Stolte
(1983b) found that structural power position and personality (in terms of suspiciousness
versus trust) affect actors' perceptions of the fairness of a negotiated exchange outcome.
However. while the relationship between power and justice has been studied for
negatively connected networks. there has been no research to examine the relationship
between power and justice in positively connected networks. I now turn to a presentation
of the new theoretical development that provides the basis for this dissertation. This new
theoretical development builds on previous research. which focused on structural factors
affecting justice evaluations. by examining the effects of network connection on justice
evaluations. In addition. this new theoretical development builds on previous research
regarding cognitive factors affecting justice evaluations by examining the role of
expectations and attributions in making justice evaluations.
New Theoretical Development

Effects of Network Connection on Justice Perceptions

How does the type of network connection affect justice evaluations? Negatively connected networks are inherently competitive networks (low power actors compete for exchange with the more powerful actors) and this competitive aspect to the networks should lead to expectations of competitive behavior. In a competitive situation, the use of power is expected to a certain extent. For example, in a 3-person network (figure 2.1), actors A and C must compete with one another in order to obtain valued outcomes from actor B. In this situation, B is the most powerful actor in the network and will thus achieve the most valued outcomes. Because of B's advantaged position and also because of the necessary competitiveness in this network, B's use of power (in obtaining greater valued outcomes) will be expected and can be partly attributed to the competitive structure of the negatively connected network. This expectation will lead all of the actors in the network to perceive the fairness of the powerful actor's behavior to be not as unfair (although still unfair) as they might otherwise perceive.

In positively connected networks, it is still expected that the most powerful actor will achieve the most valued outcomes (person B in the three-actor network). However, actors in these networks are not directly in competition over resources because they are not providing the same resource. Because there is not direct competition over resources (it is possible on every exchange opportunity for all actors in the network to achieve valued outcomes because exchanges in one relation increase exchanges in connected relations), there will be an expectation of cooperation that will affect evaluations of
fairness. Positively connected networks are potentially cooperative and thus power use by the powerful (which would mean that powerful actors are not being fully cooperative) will not be expected. In these positively connected networks, power use cannot be attributed to the type of network connection since there is an expectation of cooperation, not competition. This means that, in relative terms, the use of power by the powerful actor should be seen as more unfair in the positively connected networks than in the negatively connected networks.

These expectations of cooperation or competition also affect evaluations of a partner who is behaving in a reciprocal (or equal) manner. In a positively connected network, when an exchange partner is acting in accordance with expectations (by behaving equally), that partner is evaluated as fair. On the other hand, an exchange partner in a negatively connected network who behaves equally exceeds an actor's expectations for what constitutes fair behavior. This means that the more powerful exchange partner is evaluated as even more fair than in the positively connected networks. Lawler (1998) argues that actors in a positively connected network who successfully exchange with others will feel more attached to the network whereas in negatively connected networks, actors experiencing successful exchange will feel more attachment to the relation. This greater attachment to the relation which results from successful exchange in a negatively connected network provides another potential explanation for perceptions of greater fairness in negatively connected networks.

\[\text{Power use here refers to the use of reward power in terms of withholding positive outcomes. This dissertation focuses solely on this type of power.}\]
Effects of Information on Justice Perceptions

Previous research has focused only on the fairness of a direct exchange partner while no consideration has been given to the effects of information about the behavior of other actors connected to the network (who are not direct exchange partners) on perceptions of fairness. Utne and Kidd (1980) argue that people seek additional information to understand the causes of inequity. The types of information which people use in their causal explanations include locus of causation, stability, intentionality, controllability, and responsibility. Information about an additional network member is expected to have stronger effects when an actor is experiencing power use from their direct partner than when an actor is experiencing equal behavior. Essentially, under conditions of equal exchange, information about an additional network member is expected to have no effect on perceptions of the fairness of a direct exchange partner. However, when an actor experiences power use by an exchange partner, having information about an additional network member will affect perceptions of fairness.

Furthermore, it is expected that knowledge about these additional network members' behaviors will have different effects in positively and negatively connected networks. In positively connected networks, even actors who are not direct exchange partners directly affect the outcomes received by a particular actor. For example, in figure 2.1, actor A's outcomes are directly affected by the behaviors of both their direct exchange partner (actor B) and the additional network member who is an indirect exchange partner (actor C). Unless B receives resources from an exchange with actor C, B is unable to exchange with A. In negatively connected networks, on the other hand,
actors who are not direct exchange partners do not have a direct effect on the outcomes received by a particular actor. For example, the outcomes received by actor A (referring to figure 2.1) do not depend directly on the behavior of actor C. This is because B has resources of their own to use in exchange with A regardless of any behavior by C. Instead, these additional network members are potential exchange competitors since they may serve as alternative sources for an actor’s direct exchange partner. As an exchange competitor, however, C may indirectly affect A’s outcomes by inducing the powerful actor to exchange with C instead of with A. This difference in the roles of the additional network members (indirect partner vs. exchange competitor) is fundamental to the different effects of information about their behavior in positively and negatively connected networks.

When actors have information about the behavior of additional network members, it is expected that their perceptions of the fairness of their direct exchange partners will be affected. When Figure 2.1 is positively connected, it is expected that A will perceive B’s power use as more unfair when information is given to A that their indirect exchange partner, C, gives rewards to B on each opportunity than when no information is given about C. Essentially, when an actor in a positively connected network has information that their indirect exchange partner is behaving fairly and that the unfairness they experience can be directly attributed to their direct exchange partner, they will view that actor as even more unfair than when they have no information about the behavior of their indirect exchange partner. In negatively connected networks, where the additional network member does not have a direct effect on an actor’s outcomes, the opposite effect
is predicted. When A has knowledge that B’s alternative partner, C, is giving to B on each opportunity, B’s unequal reciprocity of A’s giving will be expected due to C’s role as an exchange competitor. In these networks, power use by a more powerful actor will still be seen as unfair even when actors have knowledge about the behavior of an additional actor. However, the knowledge about the additional actor’s behavior will somewhat justify their direct exchange partner’s use of power.

**Hypotheses**

**Effects of Inequality**

The first question to address when dealing with perceptions of justice is whether actors actually perceive an injustice. Previous research has consistently demonstrated that unequal exchange relationships lead to perceptions of greater unfairness when compared to equal exchange relationships (Cook and Hegtvedt 1983). Actors who are power-disadvantaged have been found in previous research to evaluate their low outcomes as more unfair than powerful actors (Cook, Hegtvedt, and Yamagishi 1988). This dissertation should provide further support for this finding. Thus,

H₁: Perceptions of unfairness will be greater in unequal exchange relationships than in equal relationships.

**Effects of Network Connection**

The primary hypothesis to be tested in this dissertation deals with the effects of the type of network connection on perceptions of justice. Earlier, it was argued that the expectation of competition in negatively connected networks will lead actors to
experience those networks as more fair than equivalent positively connected networks where cooperation is expected. Thus.

H₂: Negatively connected networks will be evaluated as more fair than positively connected networks.

**Effects of Information**

In order to consider the effects of attributions on perceptions in fairness, an additional hypothesis has been developed which examines how having information about the behavior of a peripheral network member affects subjects’ perceptions of the fairness of a direct exchange partner through affecting subjects’ attributions for the cause of the equality or inequality they experience. Thus.

H₃: When actors experience power use from a direct partner, information has opposite effects on perceptions of fairness depending on the type of network connection. Having information about the behavior of a peripheral network member leads to perceptions of greater unfairness in positively connected networks and to perceptions of greater fairness in negatively connected networks.

**Conclusion**

In this chapter, I have developed several hypotheses concerning the relationship between inequality, network connection, attributions, and perceptions of justice. In the next chapter, I discuss the methodology used in this dissertation. To study these relationships, I use an experiment, which allows for a controlled test of these theoretical mechanisms.
CHAPTER 4

METHODS

Introduction

Research in the exchange tradition has utilized experiments to test the theories that have been developed. The use of experiments allows for a precise test of the hypotheses and permits the inference of causation. Two interrelated purposes of experimental research provide the impetus for using experimental methods to test the hypotheses presented in the last chapter. First, controlled conditions created in an experimental setting allow for the isolation of particular processes from other confounding processes. Second, by using experiments, it is possible to isolate and recreate theoretically important aspects of a situation (Zelditch 1969).

Thus, the three hypotheses, which were developed in the previous chapter, are tested using experimental procedures. The first hypothesis, which is a replication of previous research, argues that actors will perceive an unequal exchange relationship as more unfair than an equal exchange relationship (even when the outcomes of the relationship are essentially equivalent). The second hypothesis argues that negatively connected exchange networks will be perceived as more fair than positively connected networks (even when the equality of an exchange partners’ reciprocation is held constant and actors’ outcomes are essentially equivalent). Finally, the third hypothesis argues that, under conditions of unequal exchange, having information about the behavior of a peripheral network member will lead to perceptions of greater unfairness in positively connected networks and perceptions of greater fairness in negatively connected networks.
In the first section of this chapter, an overview of the experimental procedures is presented. Then, the experimental design and the subject pool are discussed. Following this, the manipulations used in the experiment and the dependent variable used for analysis are presented. Finally, the strategy for the data analysis is discussed briefly.

**Experimental Procedures**

Once subjects arrived for the experiment, they were randomly assigned to an experimental condition. Subjects in the experiment interacted through computers in three actor networks where two of the three actors were computer simulated. The use of computer-simulated actors was necessary in order to control the amount of inequality the subjects experienced from their exchange partners. Subjects were scheduled in groups of three and they were seated in separate rooms in order to maintain the deception that there were other real actors in the network.

Subjects were given extensive instructions at the beginning of the experiment (see Appendix A for samples of the instructions which were presented to the subjects). As the instructions neared their conclusion, subjects engaged in several practice trials to insure that they understood how to make decisions using the computers. During the practice trials, subjects were given preprogrammed feedback so that they had the opportunity to view the range of feedback screens that they might see during the experiment. Subjects were then given an opportunity to ask questions. However, only 2 subjects asked any questions and during the debriefing after the experiment all subjects indicated that the instructions were very clear.
Subjects engaged in a series of reciprocal exchanges for 200 trials. In a reciprocal exchange, subjects individually make choices about whether or when to initiate or reciprocate exchanges with particular exchange partners. The terms of the exchanges are not negotiated. In this experiment, each exchange trial involved subjects deciding whether to give points to their partner B or to give points to themselves. Giving points to a partner did not result in an actual loss of points for the subject. In other words, subjects who gave points to an exchange partner simply lost the opportunity to add points directly to their own pool of earnings and the points given to a partner were not deducted from the subjects' accumulated earnings. Figure 4.1 shows the choice box from the subjects' computer screens.

Choose one of the following:

- Give 10 points to B
- Give 2 points to self

Figure 4.1 Choice Box from Subjects' Computer Screens

Previous research on reciprocal exchange has allowed subjects to choose to give points to one of multiple exchange partners (Molm, Peterson, and Takahashi, 1999; Molm 1997). However, since subjects in this experiment had no other alternatives than their partner B, this experiment allowed subjects to either give 2 points to themselves or to give 10 points to their partner B. This created a mixed motive situation whereby subjects could obtain some benefit from giving points to themselves, but they could obtain far greater benefits when they received an exchange from their partner B.
Subjects in the experiment had full information about the structure of the network in all conditions. The network in figure 4.2 was shown on the subjects' computer screens throughout the experiment.

You are Person A

[Diagram of network with A, B, and C]

Figure 4.2 Picture of Network on Subjects' Computer Screens

The subjects in the experiment were always placed in position A. The two other network positions, B and C, were computer-simulated actors. The simulated actor B is the subject's direct exchange partner while the simulated actor C is the peripheral network member. As the actor in position A, the subject was in a disadvantaged position within the network when compared to their direct partner, B. Previous research has demonstrated differences in justice perceptions between actors who differ in terms of the structural advantage or disadvantage of their position such that actors in power-disadvantaged positions perceive an unequal distribution as more unfair than actors in power-advantaged positions (Cook and Emerson 1978, Cook and Gillmore 1984). Since the focus of this dissertation is on the perception of inequality, the subject is always placed in a structurally disadvantaged position in order to control for the effects of structural position.
Exchange Theory Core Assumptions

This experiment satisfied the core assumptions necessary for a study of exchange theory. First, actors were connected to one another in an exchange network and depended upon one another for benefit points, which were translated into earnings at the conclusion of the experiment. Second, subjects were recruited based on their desire to earn money and so it is assumed that they acted in a self-interested manner. Finally, subjects engaged in recurring exchanges across 200 trials with specific partners. The final core assumption of exchange theory is that all outcomes are subject to satiation. The valued outcome that was used in this experiment was money precisely because it is more resistant to satiation. Due to the small amounts earned in this experiment, it is unlikely that subjects became satiated on money and this insured that the value subjects placed on money remained constant throughout the experiment.

Design and Subjects

This experiment involved a 2x2x2 factorial design crossing network connection, equality of a direct exchange partner, and information about the peripheral actor. Network connection refers to whether subjects are involved in a positively connected or negatively connected exchange network. Equality of a direct exchange partner refers to whether the subjects' direct partners reciprocate equally or unequally. Information about the peripheral actor refers to whether subjects have information about the behavior of the peripheral network member or they have no information about the peripheral actor's behavior. Table 4.1 illustrates the factorial design of this experiment, which allows each
of the hypotheses mentioned earlier to be tested. Each of these factors is discussed in greater detail in the section on manipulations.

<table>
<thead>
<tr>
<th>Full Information about Behavior of Peripheral Actor</th>
<th>No Information about Behavior of Peripheral Actor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal Behavior by Exchange Partner</td>
<td>Equal Behavior by Exchange Partner</td>
</tr>
<tr>
<td>Unequal Behavior by Exchange Partner</td>
<td>Unequal Behavior by Exchange Partner</td>
</tr>
</tbody>
</table>

**Table 4.1** Factorial Design of the Experiment

The experiment involved 80 undergraduate subjects between the ages of 18 and 25 who were blocked on sex in order to examine any potential sex differences in the reciprocal justice evaluations. Subjects were recruited from university classes and from campus newspaper ads based on their desire to earn money since money was the exchange resource utilized in this experiment.

**Manipulations**

**Network Connection**

In the negatively connected network, the negative connection was operationalized by allowing simulated actor B (see figure 4.2) to give benefits to only one of B’s exchange partners on each opportunity. Thus, exchange in one relation precluded the possibility of exchange in the other relation on the same trial. This is comparable to the conceptualization of the negative connection in that exchange in one relation reduces the frequency of exchange in the other relation. In addition, this is consistent with the
operationalization of a negative connection in previous research (Molm, Peterson, and Takahashi 1999, Cook and Emerson 1978).

The positive connection was operationalized by requiring exchange of a particular resource in one relation in order for exchange in the connected relation to occur. In addition, the operationalization of the positive connection required that benefits pass through the network unidirectionally. This meant that benefits passed to B by A could not then be used by B to exchange with A. Emerson (1972b) argued that a positive connection requires that multiple exchange domains be involved so that actors would not serve as alternative sources for equivalent outcomes. However, for experimental purposes, allowing benefits to only move unidirectionally precludes the necessity of multiple exchange domains. It is thus possible to create operationally a positive connection even when exchanges all occur within the same domain. In order for actor A to receive benefits, C must first give benefits to B who can then choose to give benefits to A. Unless the first exchange occurs from C to B, exchange from B to A cannot occur. This is comparable to the conceptualization of the positive connection in that exchange in one relation facilitates exchange in the connected relation.

The extensive instructions given to subjects at the beginning of the experiment emphasized the key features of the network connection. In particular, subjects in the positively connected networks were reminded that their direct partner, B, could not give them points unless B first received an exchange from the peripheral network member, C. In addition, subjects in the positively connected networks were reminded of this throughout the experiment. This information was presented in a table on subjects’
computer screens which indicated the points which could be given to the subjects' partners. Figures 4.3a and 4.3b illustrate how this table appeared in both the positively and negatively connected networks.

<table>
<thead>
<tr>
<th>Points that can be given:</th>
</tr>
</thead>
<tbody>
<tr>
<td>You to B: 10</td>
</tr>
<tr>
<td>You to self: 2</td>
</tr>
<tr>
<td>B to You: 10</td>
</tr>
</tbody>
</table>

Figure 4.3a Points Table Shown to Subjects in Negatively Connected Networks

<table>
<thead>
<tr>
<th>Points that can be given:</th>
</tr>
</thead>
<tbody>
<tr>
<td>You to B: 10</td>
</tr>
<tr>
<td>You to self: 2</td>
</tr>
<tr>
<td>If B receives points from C,</td>
</tr>
<tr>
<td>Then B to You: 10</td>
</tr>
</tbody>
</table>

Figure 4.3b Points Table Shown to Subjects in Positively Connected Networks

As mentioned earlier, the subject was always in a disadvantaged position within a power imbalanced network. The negatively connected network was power imbalanced in that position B had two highly available alternative exchange partners while positions A and C were both competing for the same exchange partner. Thus, position B was in a power advantaged position while positions A and C were power disadvantaged. In the positively connected network, power imbalance resulted from position B's structural advantage in terms of accessibility of the resources. In other words, in order for position
B to receive greater benefits\(^1\), only one exchange from either of B's two partners was required. Positions A and C both required two exchanges in order to receive greater benefits. Thus, position B was power advantaged since he/she required fewer exchanges to receive greater benefits.

Since multiple subjects were run at one time, it often occurred that negative and positive connections were run simultaneously. While each subject was engaging in the experiment individually, the computers that the subjects were using were still linked. This meant that subjects had to wait during the instructions while other people were still reading or during the experiment while others were deciding. This actually helped maintain the deception that subjects were interacting with other real actors. In the positively connected networks, there was a programmed delay after the subjects inputted their choices in order to simulate actor B receiving information before making his/her choice. Because of this programmed delay, which was necessary to reduce potential suspicions on the part of the subjects, the positively connected networks took twice as long as the negatively connected networks. In order to prevent the possibility of the length of time in the experiment affecting subjects' evaluations, there was always at least one positive connection run in any group of subjects. Thus, since the computers were linked together, the negative connections run concurrently with positive connections took the same amount of time. In order to run the positive and negative connections simultaneously, randomization within replications was used to generate the random order

\(^1\) Greater benefits refers to the 10 points that an actor could get from an exchange partner as opposed to the 2 points that an actor could give to self.
for the experiment. Randomization within replications means that the first case of every condition was run (in a random order) before the second case of every condition was run (again in a random order), and so on for each group of cases.

Equality/Inequality

In both the positively and negatively connected networks, simulated actor B, the subject's computer simulated partner, was programmed to behave contingently based on the subject's behaviors. In the equal condition, simulated actor B engaged in a modified tit-for-tat strategy (modified only to prevent suspicion). Thus, in the equal condition, simulated actor B reciprocated the subjects' rewarding 90% of the time by rewarding the subject. The remaining 10% of the time simulated actor B engaged in nonexchange in response to the subjects' rewarding behavior. When the subject engaged in nonexchange (which means keeping points for self since the subject had no alternative partners), simulated actor B reciprocated with nonexchange 90% of the time and initiated rewarding 10% of the time. In the unequal condition, simulated actor B reciprocated rewarding by the subject only 40% of the time. The remaining 60% of the time, simulated actor B engaged in nonexchange in response to rewarding by the subject. In response to nonexchange by the subject, B reciprocated with nonexchange 90% of the time and rewarded in response to nonexchange 10% of the time. A table comparing the conditional probabilities of the behavior of actor B is presented in table 4.2. In the table.

---

Nonexchange refers to either keeping points for self or giving points to an alternative partner. Both of these behaviors yielded the same result from the subject's perspective since the subject did not receive points. Thus, these behaviors were grouped together as instances of nonexchange. When B engaged in nonexchange, the subject was told that B did not act toward them and that they did not receive any points.
the first letter indicates the behavioral response of the subjects’ direct exchange partner
(indicated by the subscript B) whereas the second letter indicates the behavior engaged in
by the subject (indicated by the subscript S). R refers to rewarding behavior (giving
points to partner) and N refers to nonexchange (giving points to self or to alternate
member of network).\(^3\)

<table>
<thead>
<tr>
<th>Equal Condition:</th>
<th>Unequal Condition:</th>
</tr>
</thead>
<tbody>
<tr>
<td>( p(R_B</td>
<td>R_S) = 90% )</td>
</tr>
<tr>
<td>( p(N_B</td>
<td>R_S) = 10% )</td>
</tr>
<tr>
<td>( p(R_B</td>
<td>N_S) = 10% )</td>
</tr>
<tr>
<td>( p(N_B</td>
<td>N_S) = 90% )</td>
</tr>
</tbody>
</table>

Table 4.2 Conditional Probabilities of Simulated Actor B’s Behavior

In the positively connected networks, the conditional behavior of B was
constrained by the behavior of C. This meant that while B was programmed to behave
contingently, the necessity of receiving benefits from C could preclude B from

\(^3\) There is a difference between the two types of network connection in terms of when the
behavior upon which the conditional probability is based occurred. In the negatively
connected networks, subjects and their computer partners were making their choices
simultaneously, thus, the conditional probability of B’s behavior was based on the
subject’s behavior during the previous trial. In the positively connected networks,
however, the subjects and actor C were making their choices simultaneously, while B
needed to receive benefits from either one or both of them before B could undertake any
action. Thus, the subjects were told they needed to wait after inputting their choices
while B made his/her decision. This meant that B’s behavior was based on the subject’s
behavior within that same trial.
reciprocating the subjects' behaviors on some trials. On those trials when B did not receive benefits from C, B was not be able to give benefits to the subject even if the conditional probability of B’s behavior dictated that B should be reciprocating the subject’s rewarding behavior. This highlights the fundamental difference between the two types of network connection in terms of the impact of a connected relation on exchange between two partners. Thus, in the positively connected network, exchange in one relation is required before exchange in the connected relation can occur. In the negatively connected network, on the other hand, exchange in one relation precludes the possibility of exchange in the connected relation.

Information about the Behavior of the Peripheral Actor

In the positively and negatively connected networks, the peripheral network member, C, plays very different roles. In the positively connected network, C is an indirect exchange partner since exchange between C and B is necessary for exchange between B and the subject. In the negatively connected network, C is an exchange competitor since exchange between B and C precludes the possibility of exchange between B and the subject. Because of this difference in the roles played by C depending on the type of network connection, the information that the subject has about the behavior of C plays a crucial role in subjects’ attributions concerning the behavior of their direct exchange partner (B).

There were two conditions of the information variable: no information about the behavior of the peripheral actor or information that this peripheral actor was behaving equally (fairly). In the condition where subjects had no information about this peripheral
actor's behaviors, subjects still knew of the actor's existence and position in the structure of the network. As indicated earlier, subjects were shown a picture of the network structure on their computer screens throughout the experiment.

Thus, subjects in the no information condition only received information about whether their partner B gave them resources. Subjects were simply told that their partner B did not act toward them on those trials where the subject did not receive points. In the negatively connected networks, subjects were instructed at the beginning of the experiment that if B did not act toward them it meant that B either gave points to their other partner or that B gave points to him/herself. In the positively connected networks, on the other hand, the instructions emphasized that if B did not act toward them, it meant that B either gave points to him/herself or that B could not give points to the subject because B did not receive points from C.

In the conditions where subjects did have information about the behavior of the peripheral actor, subjects were given feedback about whether B gave them points or did not act toward them as well as information about whether C acted toward B. Simulated actor C was programmed to give points to simulated actor B on 90% of the trials. In the negatively connected networks, subjects knew only that if actor B did not act toward them it was either because actor B gave points to him/herself or that actor B gave points to actor C (and the subjects were not told which behavior B chose). In the positively connected networks, the subjects knew that if actor C gave to actor B and then B did not act toward them, this meant that B gave points to him/herself.
After making their choice, subjects were given feedback appropriate to their experimental condition. The screen reminded subjects of their own choice as well as providing information about the behavior of their direct partner, B. In the conditions where subjects were given information about the peripheral actor, C, that information was included in the feedback as well. Figures 4.4a and 4.4b illustrate sample feedback screens.

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**Figure 4.4a Example Feedback Screen from the No Information Condition**

You gave 10 points to B.
B did not act toward You.

---

**Figure 4.4b Example Feedback Screen from the Full Information Condition**

You gave 2 points to self.
B gave 10 points to You.
C gave points to B.

---

**Measure**

The dependent variable for this experiment was the subjects' evaluations of the reciprocal justice of their direct partner (actor B). The reciprocal justice evaluation was made in a postexperimental questionnaire in which subjects were asked to evaluate their power-advantaged partner's behavior on a number of dimensions. Evaluations of reciprocal justice were computed by summing the scores from three 7-point Likert scale items in which the subjects rated whether their partner's behavior was fair/unfair, equitable/inequitable, and just/unjust. Previous research has used the same scale (Molm.
Quist. and Wiseley 1994) and it has been found to be highly reliable. In this experiment, the scale was found to have an alpha reliability of .90. Scores on the fairness scale could range from a minimum of 3 to a maximum of 21 and higher numbers indicate greater fairness.

**Controlling for Total Outcomes**

To control for possible inequality in total outcomes during the experiment, a number of steps were taken. First, within each trial, the amount of points that subjects could receive from exchanges was constant across both types of network connection. (Subjects could give 2 points to themselves or receive 10 points from their partner, B.) Second, because the conditional probability of B's behavior was constrained in the positively connected network by the behavior of C, the actual rate of reciprocation was somewhat lower in the positively connected networks than in the equivalent negatively connected networks. Since subjects were evaluating the behavior of their direct exchange partner, it was essential that the rate of reciprocation by B remain constant. However, this yielded a slight discrepancy between the conditional rate of reciprocation and the actual reciprocation that subjects experienced. In order to account for this discrepancy, the number of cents per point was adjusted for the positively connected networks so that subjects' earnings were as equivalent as possible between the two types of network connection. Thus, in the negative equal conditions, subjects earned 1 cent for every point.

---

4 The rate of reciprocation that subjects experienced in the positively connected networks was the product of the probability that C gave to B (.9) by the conditional probability that B would give to the subject. Thus, in the unequal condition, the experienced rate of reciprocation was .36 (compared to .4 in the negatively connected networks). In the equal condition, the rate was .81 (compared to .9 in the negatively connected networks).
they received. In the positive equal conditions, subjects earned 1.1 cents for every point they received and this served to equate subjects' earnings. A third step that I took to address inequality in outcomes was to equate as nearly as possible subjects' earnings between equal and unequal conditions. Because of the low rate of reciprocation in the unequal conditions, subjects were given double the number of cents per point as in the equal conditions. Thus, in the negatively connected networks, subjects earned 2 cents for every point they received while in the positively connected network subjects earned 2.2 cents for every point. This insured that all subjects in the experiment earned approximately $15 and the range of earnings was from $9-$18. Any differences in actual earnings that did occur were due to differences in the subjects' frequencies of giving to their partners (since the response of the partners was based on a conditional probability). Thus, differences in subjects' reciprocal justice evaluations are based on differences in the exchange partners' behaviors and not on differences in total outcomes. Throughout the experiment, subjects were aware of the number of cents per point they would receive. This information, along with the subjects' total accumulated points, was included in a points box on the subjects' screens. Figure 4.5 illustrates the points box from the subjects' screens during the experiment.

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5 Subjects' total points are also included as a covariate in the analysis to test whether subjects' outcomes affected evaluations.
Total Earnings:

You have ____ points

____ points = ____ cents

Figure 4.5 Points Box from Subjects' Computer Screens

Analysis

The data from the experiment are analyzed using analysis of variance. The three factors in the analysis are network connection, equality, and information. Each of these factors is tested initially as main effects and also for possible interaction effects. The first hypothesis predicts that unequal behavior will be perceived as more unfair than equal behavior. Support for this prediction would take the form of a main effect of equality. The second hypothesis argues that negatively connected networks will be perceived as more fair than positively connected networks. This prediction argues for a main effect of network connection. Finally, the third hypothesis predicts that the effects of network connection and equality will be stronger under full information conditions. This hypothesis would be supported by a three-way interaction between network connection, equality, and information.
CHAPTER 5
RESULTS

This research examines how the type of network connection, the information which actors have about a peripheral actor, and the equality of a direct exchange partner's behavior affect perceptions of fairness in social exchange. As discussed earlier, the perceptions of fairness in which I am interested are perceptions of reciprocal fairness, or the evaluation of the reciprocity of an exchange partner's behavior. Three hypotheses were developed for this experiment and the results of the analysis of variance that tested these hypotheses are discussed in this chapter. While the focus of each of my hypotheses was on the perceptions of the fairness of the direct exchange partner, analyses were also conducted examining perceptions of the peripheral network member.¹

Manipulation Checks

There were three manipulations involved in this experiment and items in the postexperimental questionnaire were used to check whether the subjects perceived these manipulations correctly.

Network Connection

One questionnaire item was designed to determine whether subjects understood how their particular network worked. Almost 1/4 of the subjects in the experiment answered the manipulation check question incorrectly.² In the positively connected network, this question asked whether the subjects' direct exchange partner had to receive

¹ See appendix B for a copy of the entire postexperimental questionnaire.
² The actual percentage of incorrect answers was 22.5%, which represents 18 out of 80 subjects.
points from the peripheral actor before the direct exchange partner could give points to the subject. Subjects were then directed to answer yes or no to this question (only 8 subjects answered incorrectly in the positively connected networks). In the negatively connected networks, subjects were asked whether their direct exchange partner, B, had to choose between the subject, A, and the peripheral actor, C, when deciding to give points to someone (10 subjects answered incorrectly in the negatively connected networks). During the debriefing, subjects who answered the question incorrectly were asked to explain to the experimenter how the network worked (or how they could get points from others). Based on these debriefings, only 3 subjects were eliminated based on clear misunderstandings of the network connection (2 in the positively connected networks and 1 in the negatively connected networks). The remaining subjects were able to explain to the experimenter how the network functioned and were thus retained in the subject pool and used in the data analysis.3

Inequality

Another item in the postexperimental questionnaire asked subjects to rate the extent of inequality in the points received by themselves and their direct partners. Thus, subjects were asked to indicate on a 7-point Likert scale whether the points they received

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3 Originally, sessions where subjects answered the network connection manipulation check incorrectly were redone with new subjects even in cases where the subject was able to explain to the experimenter how the network worked. The analysis for the experiment was also done using all of the redone cases. However, there were only minimal differences between the results obtained using all of the redone sessions and the results presented in this chapter.
were unequal in their favor (indicated by a rating of 1) or unequal in their direct partner's favor (indicated by a 7).

The results from this analysis indicate a borderline significant main effect of equality such that subjects in the unequal condition perceived the points to be unequal in their direct partner's favor (M=5.30) while subjects in the equal conditions perceived them to be about equal (M=4.65). In addition, a significant main effect of information indicates that subjects with full information perceived the points to be unequal in their direct partner's favor (M=5.35) while subjects with no information about the behavior of the peripheral actor perceived the points to be about equal (M=4.60). The interaction between equality and information reached borderline significance. The pattern of means indicates that subjects in the unequal conditions with full information rated the inequality of points to be strongly in their partner's favor (M=6.00) while subjects in all other conditions rated the points to be about equal (equal, no information: M=4.60; equal, full information: M=4.70; unequal, no information: M=4.60). This indicates that subjects with full information about the behavior of the peripheral actor perceive the distribution of points to be more unequal favoring their direct partner. Finally, the interaction between equality and sex was significant and the pattern of means is presented in table 5.1.
These results indicate that, when subjects experience unequal behavior, men perceive a greater level of inequality than women perceive. While this sex difference in the perception of the inequality was an unexpected finding, the results from this analysis reveal that men are perceiving the inequality in the points received by themselves and by their direct partners whereas women are perceiving the distribution of points to be somewhat unequal in their direct partner's favor regardless of how that partner behaves.

Information

Analyzing the perceptions of fairness of the peripheral actor allowed for an examination of the information manipulation. Since the information manipulation involved information about the behavior of the peripheral actor, it is expected that there would be a significant main effect of information on the perceptions of the fairness of the peripheral actor. Subjects were asked to rate the peripheral actor on 7-point Likert scales for three fairness items. These three items (fair/unfair, just/unjust, and equitable/inequitable) were summed to create a fairness scale for perceptions of the peripheral network member. Scores on the scale ranged from 3 to 21 with 12 as the
neutral midpoint. A rating below 12 indicates that subjects evaluated the peripheral actor as unfair (the lower the number, the greater the unfairness). A rating above 12 indicates that the subject evaluated the peripheral actor as fair (with a higher number indicating greater fairness). The alpha reliability of this scale was .83.

The results from the analysis of variance indicate a significant main effect of information on the perceptions of the fairness of the peripheral actor. In the conditions where subjects had no information about the behavior of the peripheral actor, the mean fairness rating was 12.63. In the conditions where subjects had full information about this actor's behavior, the mean fairness rating is higher at 14.48. Thus, when subjects did not have information for making a fairness evaluation, the mean fairness rating was near the neutral midpoint of the fairness scale indicating that subjects did not know whether the peripheral actor was behaving fairly or unfairly. When subjects did have information on which to base a fairness evaluation, they rated the peripheral actor as more fair. Since the peripheral actor was behaving equally (by giving 90% of the time), the higher fairness rating in the full information conditions indicates that subjects correctly perceived the information manipulation.

Testing the Hypotheses

Predictions

There were three hypotheses tested in this experiment. The first hypothesis was a replication of previous research, which argued that an exchange partner who behaved in an unequal manner would be perceived as more unfair than an exchange partner who behaved in an equal manner. This finding has received consistent support within the
literature and was tested again in this research. Support for this hypothesis would be indicated by a significant main effect of equality on perceptions of fairness of the direct exchange partner.

The second hypothesis for this experiment predicted that negatively connected networks would be evaluated as more fair than positively connected networks. The argument underlying this hypothesis was that different network connections would lead to expectations of cooperation or competition which, in turn, affect evaluations of the fairness of a direct exchange partner. Positive network connections create expectations of cooperation, which means that equal behavior by an exchange partner is expected and thus not evaluated as highly as in negative connections where competitive behavior is expected. On the other hand, unequal behavior in a positively connected network is a violation of the expected cooperation and is thus evaluated as very unfair. In the negative connections, the expectation of competition means that unequal behavior is somewhat expected and is thus perceived to be not as unfair as in the positively connected networks. For this hypothesis to be supported, a significant main effect of network connection should appear in the analysis of variance on fairness perceptions.

Finally, the third hypothesis for this experiment predicted a three-way interaction between network connection, equality, and information about the behavior of the peripheral network member. More specifically, this hypothesis predicted that the effect of network connection would be greater when subjects have full information than when subjects have no information. Since the peripheral actor was behaving equally, the attributions made by subjects in the unequal conditions concerning the responsibility of
the direct partner as a cause of the inequality they experience would depend upon the type of network connection in which they are involved. Thus, in the positively connected networks, the subject attributes full responsibility for the inequality to their direct exchange partner. In the negatively connected networks, subjects attribute some of the responsibility for the inequality to the competition inherent in the negative connection.

Results

Evaluations of the fairness of the direct exchange partner involved three items from the postexperimental questionnaire, which asked subjects to rate their partners in terms of whether they were unfair/fair, unjust/just, and inequitable/equitable. These three items were summed to create a fairness scale ranging from 3 to 21 with a neutral midpoint of 12. As with the evaluations of the peripheral actor, a rating below 12 indicates the direct partner is being evaluated as unfair (lower numbers indicating increasing unfairness) and a rating above 12 indicates the direct partner is being evaluated as fair (higher numbers indicating greater fairness). Table 5.2 shows the means and standard deviations for perceived fairness of the direct exchange partner by experimental condition.
While examining the pattern of means is interesting, I now turn to the results from the analysis of variance that provides the actual test of each of the hypotheses. These results are presented in table 5.3.¹

¹ Sex was a blocking variable in this study and analyses were initially run using sex as a factor. Sex was not found to have any significant effects in any of the analyses presented here and was thus dropped as a factor in the ANOVA.

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<td>(3.63)</td>
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Table 5.2 Mean Perceived Fairness of the Direct Exchange Partner by Experimental Condition
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**** p<.0001
+ p=.05

Table 5.3 Analysis of Variance Predicting the Perceived Fairness of the Direct Partner

**Hypothesis 1: Main Effect of Equality**

Results from the analysis of variance run on the data showed that the first hypothesis was supported in this study as it has been in previous research. Using the perceived fairness of the direct exchange partner as the dependent variable, I found a main effect of equality on fairness perceptions. Subjects in the unequal conditions evaluated their direct exchange partner as significantly more unfair (x=10.65) than subjects in the equal conditions (x=16.78).
Hypothesis 2: Main Effect of Network Connection

Results from the analysis of variance predicting the fairness of the direct exchange partner show this hypothesis to not be supported. There was virtually no difference in the mean perceptions of fairness between the two types of network connection. Subjects in the positively connected networks had a mean fairness rating of 13.75 while subjects in the negatively connected networks had a mean fairness rating of 13.68. Comparing across equivalent conditions, partners in the positively connected networks are evaluated as equally fair or more fair than partners in the negatively connected networks with the exception of the full information, equal exchange conditions. In the full information, equal exchange conditions, subjects evaluated their partners as somewhat more fair in the negatively connected networks (M=17.40) than in the positively connected networks (M=14.90) although this difference was not statistically significant.

Hypothesis 3: Interaction Between Connection, Equality, and Information

Results from the analysis of variance on the perceived fairness of the direct exchange partner also did not support this hypothesis. The third hypothesis predicted that, in the unequal conditions, full information would lead to perceptions of lower fairness in the positively connected networks and greater fairness in the negatively connected networks when compared to the no information conditions. This hypothesis was not supported although the patterns of means in some conditions were in the predicted directions. The predicted pattern did occur in the positively connected networks. Under conditions of no information about the behavior of the peripheral actor.
subjects in positively connected networks evaluated their unequal direct partner as neutral on fairness (M = 12.50). In the full information conditions, subjects evaluated their unequal direct partner as more unfair (M = 9.80). In the negatively connected networks, a pattern opposite to the predicted pattern merges. Subjects with no information evaluated their unequal direct partner as somewhat unfair (M = 10.70) while subjects in full information conditions evaluated their unequal partner as more unfair (M = 9.60).

Although the means for the equal exchange conditions were not predicted to be different, the pattern of means for the equal exchange conditions appears to be in the direction predicted for the unequal exchange conditions although the differences between the means were not statistically significant. Subjects in the positively connected networks with full information evaluated their equal direct partner as less fair (M = 14.90) than subjects with no information (M = 17.80). In the negatively connected networks, subjects with full information evaluated their equal direct partners as more fair (M = 17.40) than subjects with no information (M = 17.00), although this difference is negligible.

The analysis of the perceived fairness of the direct exchange partner also indicated that information had a borderline significant main effect (F(1.72) = 3.89, p = .05). While this effect was of only borderline significance, the pattern of means suggests that subjects who had full information about the behavior of the peripheral actor evaluated their direct exchange partner as more unfair (M = 12.93) than subjects who had
no information about the behavior of the peripheral actor (M=14.50). In light of the third hypothesis, this main effect of information leads to two unanswered questions. First, why do subjects in the positively connected networks evaluate their direct partner who is behaving equally as more unfair when there is full information about the peripheral actor? Second, why do subjects in negatively connected networks evaluate their exchange partner who is behaving unequally as more unfair when there is full information about the behavior of the peripheral actor? In addition to these unanswered questions, the failure of the second hypothesis, which argued for a main effect of network connection, needs to be examined further.

**Expectations of Cooperation and Competition**

The mechanism for the second hypothesis argued that the type of network connection in which subjects were involved would create expectations of cooperation (in the positively connected networks) or competition (in the negatively connected networks) that would affect evaluations of fairness. The lack of support for this hypothesis in this experiment could be due either to the failure of the network connections to create the

---

5 An analysis of covariance was also run to examine whether total outcomes affected subjects' evaluations. The total points received by subjects during the experiment were included as a covariate and this analysis found that total points were a significant predictor of fairness evaluations. When total points were included as a covariate, the effects of equality were still very significant (F=61.64, p<.0001) and the effects of information are significant as well (F=4.08, p<.05). In this experiment, the level of outcomes received by subjects in the equal and unequal conditions was equated as nearly as possible (subjects in the unequal conditions were given twice as many cents for every point they received). Thus, while total outcomes (in terms of points) may have had some effect on subjects' evaluations, the large differences in evaluations of fairness between the equal and unequal conditions can be attributed to subjects' evaluations of their exchange partner's behavior and not simply to their evaluations of their total outcomes.
predicted expectations or to the failure of the expectations to affect the evaluations of justice.

Given the failure of the second hypothesis, items from the postexperimental questionnaire were analyzed post hoc in order to indirectly evaluate whether the underlying mechanism regarding the effects of network connection on expectations might be operating. Using the same logic as was applied to the analysis of the fairness items. I argue that subjects in positively connected networks would evaluate their direct partners as less cooperative than subjects in negatively connected networks. Since subjects in positively connected networks expect cooperation. they would evaluate their direct partners as less cooperative than subjects in negatively connected networks who expect competitive behavior from their partners. Subjects were asked to evaluate the degree of cooperativeness vs. competitiveness in the behavior of their direct exchange partner. As with the items comprising the fairness scale. subjects rated their partners on a 7-point Likert scale with a high score indicating greater cooperativeness and a low score indicating greater competitiveness (a score of 4 is the neutral midpoint between cooperative and competitive). If the network connection is creating the predicted expectations of cooperation and competition. then there should be a significant main effect of network connection as was predicted for the second hypothesis. When the direct partner is behaving equally. subjects in positively connected networks should evaluate their partners as less cooperative than subjects in negatively connected networks since subjects in positively connected networks expect cooperation. When the direct partner is behaving unequally. subjects in positively connected networks should evaluate their
direct partner as less cooperative than subjects in negatively connected networks because of the violation of their expectations. Results from an analysis of variance on this questionnaire item are included in table 5.4.

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**** p<.0001  
+ p=.08

Table 5.4 Analysis of Variance on the Cooperativeness of the Direct Exchange Partner

The results indicate that there is a significant main effect of equality on the evaluations of the cooperativeness of the direct exchange partner. An examination of the means indicates that subjects in the equal conditions viewed their direct partner as more cooperative (\(x=5.35\)) while subjects in unequal conditions viewed their partners as more competitive (\(x=2.73\)). However, the predicted main effect of network connection is not significant although it does approach significance with a p value of .08. An analysis of the means indicates that subjects in negatively connected networks evaluated their direct
partners as more cooperative (M=4.33) than subjects in positively connected networks (M=3.75). Thus, the difference in the means is in the predicted direction although it is not statistically significant.

In examining these mechanisms, which were predicted to underlie the hypotheses, attention also needs to be paid to the evaluations of the peripheral actor. As with the behavior of the direct exchange partner, subjects were asked to evaluate the degree of cooperativeness/competitiveness of the peripheral actor. This was a single questionnaire item that asked subjects to rate the peripheral network member on a 7-point Likert scale where a high score indicates greater cooperativeness and a low score indicates greater competitiveness (a score of 4 is the neutral midpoint). In the evaluations of the cooperativeness of the peripheral actor, a significant interaction effect between network connection and information would support the idea that the type of network connection creates different expectations of cooperation and competition. Since the peripheral actor is behaving equally, subjects in positively connected networks with full information about the behavior of the peripheral actor should evaluate that actor’s behavior as more cooperative than subjects in negatively connected networks. In the no information conditions, subjects should not be able to evaluate the peripheral actor and so there should be no difference between the types of network connection in the cooperativeness evaluations. Table 5.5 presents an analysis of variance on the perceptions of the cooperativeness of the peripheral actor.
Table 5.5 Analysis of Variance on the Cooperativeness of the Peripheral Actor

The results show a significant main effect of information, an interaction between equality and information, and a three-way interaction between connection, equality, and information. The main effect of information indicates that the peripheral actor is seen as more cooperative when subjects have full information about this actor’s behavior than when subjects have no information about the actors behavior (M=4.63 in full information conditions: M=3.68 in the no information conditions). The predicted interaction effect was not found although there was a significant three-way interaction between network connection, equality, and information. The means and standard deviations used in analyzing the interaction effect are presented in table 5.6.
An analysis of simple effects was undertaken to determine the form of the three-way interaction since this finding may provide some support for the logic that was used to predict an interaction effect between network connection and information. The effects of network connection were analyzed at each of the four combinations of equality and information. The results of this analysis indicate that there is a significant difference in the evaluations of cooperativeness of the peripheral actor in the no information conditions where the direct exchange partner is behaving equally (F(1.18) = 6.04, p<.05). The means for these conditions indicate that subjects who experienced equal behavior from their direct exchange partner and did not have information about the behavior of the peripheral actor had very different evaluations of the cooperativeness of the peripheral actor depending upon the type of network connection in which subjects were involved. Subjects in the positive connections evaluated the peripheral actor as quite cooperative (x=5.20) while subjects in the negative connections evaluated the peripheral actor as slightly competitive (x=3.80). This difference may be due to the expectations created by the type of network connection. In the positive connections, the peripheral actor is

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Table 5.6 Means and Standard Deviations for Evaluations of the Cooperativeness of the Peripheral Actor
evaluated as quite cooperative when the subject is receiving a high level of outcomes since the subjects realize their high level of outcomes are due in part to a high rate of giving by the peripheral actor. In the negative connections, the subject is at times being excluded and may attribute this exclusion not to the direct partner, but to the competitive behavior of the peripheral actor.

Overall, the results of these additional analyses seem to indicate that the network connections have a small effect on the perceptions of cooperativeness or competitiveness of actors within the network. Some possible explanations for this will be considered further in the discussion. Now, I turn to an examination of the attributions subjects made during the experiment. Analyses of these attributions should provide insight into the lack of support for the third experimental hypothesis.

**Subjects' Attributions**

**Actor versus Structure Attributions**

The logic underlying the third hypothesis argued that actors would attribute full responsibility for the inequality they experienced (under unequal exchange conditions and with full information) to their direct exchange partner in the positively connected networks since the peripheral actor is behaving equally and cooperatively. This would be an internal, actor attribution. In the negatively connected networks, on the other hand, subjects would be expected to make an external, structure attribution. Under these same conditions of unequal exchange and full information, actors would attribute some of the responsibility for the inequality they experienced to the competitive structure of the
negatively connected network since the direct partner would be expected to exchange
with the peripheral actor some of the time.

This section of the analysis examines whether subjects made actor or structure
attributions. First, I examine attributions concerning the behavior of the direct exchange
partner. For this question, subjects were asked to evaluate on a 7-point Likert scale the
degree to which they thought the behavior of their direct exchange partner could be
attributed to internal characteristics of that actor versus to the external aspects of the
experiment (structure). The results of an analysis of variance on this question are
presented in table 5.7.

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Table 5.7 Analysis of Variance on Attributions Concerning the Behavior of the Direct
Exchange Partner

Attributions to the experiment would include attributions to the network structure or the
type of network connection.
The results indicate that none of the manipulated factors had any significant effects on attributions concerning the direct exchange partner’s behavior. Thus, network connection does not affect whether responsibility for unequal outcomes is attributed more to the direct exchange partner or to external factors.

Subjects were also asked to evaluate the degree to which the behavior of the peripheral actor was influenced by characteristics of that person or by characteristics of the experiment. In terms of the attributions concerning the behavior of the peripheral actor, I expect to find an interaction effect between network connection and equality. In this main experiment, the peripheral actor is behaving equally in all conditions and this behavior will not always make sense in light of the behavior of the direct partner. In the positive connections, subjects expect their exchange partner to behave equally and thus their expectation is sometimes violated by the partners’ unequal behavior. However, subjects would also expect the peripheral network member to react to this violation of expectations by the direct partner by behaving unequally themselves. When this expectation is violated, subjects attribute the behavior of the peripheral network member to their internal characteristics. In the negative connections, the expectation for the direct exchange partner is that of competitiveness and so equal behavior on the part of the direct exchange partner violates subjects’ expectations. By virtue of behaving equally toward the subject, the central actor must be behaving unequally toward the peripheral actor in the negative connection since a high rate of exchange between the central actor and the subject results in a low rate of exchange between the central actor and the peripheral actor. Thus, when the peripheral network member persists in behaving equally even
though the central actor is behaving unequally towards them, subjects attribute this behavior to internal characteristics of the peripheral network member rather than to the experimental setting. The results from an analysis of variance are included in table 5.8.

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* p<.05

Table 5.8. Analysis of Variance on Attributions Concerning the Behavior of the Peripheral Network Member

The results of this analysis show a significant interaction between network connection and equality, as predicted. An analysis of the simple effects found that, in the positive connections, there was a borderline significant effect of equality (F(1.38) = 4.04, p=.05). In the negative connections, the difference between the means in the equal and unequal conditions is not significant and it is in the opposite direction from the pattern in the positive connections. This indicates that there is a significant difference between the equal and unequal condition means in the positively connected networks but no
significant difference in the negatively connected networks. Table 5.9 shows the means broken down by type of network connection and equality of the direct exchange partner.

<table>
<thead>
<tr>
<th></th>
<th>Equal Conditions</th>
<th>Unequal Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Connections</td>
<td>4.20 (1.44)</td>
<td>3.25 (1.55)</td>
</tr>
<tr>
<td>Negative Connections</td>
<td>3.65 (1.90)</td>
<td>4.20 (1.51)</td>
</tr>
</tbody>
</table>

Table 5.9 Means and Standard Deviations for the Attributions Concerning the Behavior of the Peripheral Actor

The pattern of means and the significant interaction effect indicate that the behavior of the peripheral network member is attributed more to characteristics of that person than to the experiment when the direct partner is behaving unequally in the positive connections and when the direct partner is behaving equally in the negative connections (a low score on this item indicates an attribution to the person while a high score would indicate an attribution to the experiment and 4 is the neutral midpoint). Thus, in those conditions where the behavior of the direct exchange partner is counter to subjects' expectations (and the behavior of the peripheral actor is thus also counter to subjects' expectations), the behavior of the peripheral actor is attributed to their internal characteristics rather than to the external setting of the experiment.
Attributions of Responsibility

One of the differences between the types of network connection concerns the effect of the peripheral actor’s behavior on the ability of the direct partner to exchange with the subject. In the positively connected networks, the peripheral actor must exchange with the direct partner before the direct partner can exchange with the subject. In the negatively connected networks, the direct partner can exchange with the subject regardless of the behavior of the peripheral actor. Based on this, it is expected that actors in positively connected networks would be more likely to attribute some of the equality or inequality of the points they receive to the peripheral actor.

In order to assess whether there is a difference between the two types of network connection in attributions of responsibility to the peripheral actor, a questionnaire item was included which asked subjects to indicate who was responsible for the equality or inequality in the points they received during the experiment. There were five response choices for this question: the subject, the direct partner, the peripheral actor, both the direct partner and peripheral actor, or the experiment. A chi-square analysis was run comparing the frequency of responses for each type of network connection and the results showed that network connection did not affect attributions of responsibility.

The chi-square analysis did find that attributions of responsibility differed by sex (chi-square=11.48, p=.02). The frequency for each response by sex is included in table 5.10.
These results indicate that men are more likely than women to attribute responsibility for the outcomes they receive to themselves. Women, on the other hand, are more likely than men to attribute responsibility for their outcomes to their direct partner. In conjunction with the earlier sex difference that men experiencing unequal exchange perceive the points to be unequal in favor of the direct partner, it is interesting that men are also less likely to attribute responsibility for the inequality to their partner. While the finding may be interesting, it should be interpreted with caution, as there were no other significant sex differences in any of the other analyses presented in this chapter.

Conclusion

The focus of this experiment was on the evaluations of the fairness of the direct exchange partner. The hypotheses developed focused on the effects of network connection, information, and equality. While the hypothesis concerning the effects of equality was supported, the two other hypotheses, which were derived from ideas concerning the different expectations created by different types of network connection, were not supported. Despite this lack of support in examining perceptions of the direct exchange partner, there was some limited support for the underlying mechanisms.
Overall, these results indicate some support for the idea that the different types of network connection may have a small effect on expectations for the behavior of other actors in the network. These results will be discussed further in the concluding chapter.

In the next chapter, I turn to a presentation of a follow-up study that was also conducted as part of this dissertation. The focus of the follow-up study was to examine how variations in the behavior of the peripheral actor (as opposed to variations in the information about the behavior) affected evaluations of the direct exchange partner. In addition, the follow-up study examines perceptions of the peripheral actor, as in this chapter.
CHAPTER 6
FOLLOW-UP EXPERIMENT

This dissertation has thus far focused on how the types of network connection affect perceptions of fairness. In addition, consideration was given to how the amount of information that actors have about the behavior of other actors within their larger networks (with whom they are not direct exchange partners) affects perceptions of fairness. In the main experiment, the amount of information that subjects had about the behavior of a peripheral network member was manipulated such that subjects either knew or did not know what behavior the peripheral actor chose on each exchange opportunity. While subjects did not always have full information about the behavior of the peripheral actor, the actual behavior of this actor was the same in both information conditions in that the peripheral actor gave benefits to their exchange partner on ninety percent of the trials. Thus, the peripheral actor was a cooperative participant in the network.

The purpose of this follow-up study is to examine further the effects of information about the behavior of a peripheral actor on perceptions of fairness. Instead of varying the amount of information, as in the main study, the follow-up study varies the type of information. Thus, the follow-up study examines how perceptions of fairness of a direct exchange partner are affected by variations in the behavior of the peripheral actor. Thus, conditions where the peripheral actor behaves equally (as in the main experiment) are compared to conditions where the peripheral actor behaves unequally.

One difference between positively and negatively connected networks lies in whether the behavior of a direct exchange partner is contingent upon the behavior of
other actors in the network. In positively connected networks, the behavior of a direct partner is contingent upon the behavior of a peripheral actor. If figure 4.2 is positively connected, exchange between C and B is necessary in order for exchange to occur between B and A. Thus, if C refuses to exchange with B, this has a direct negative effect on A’s outcomes since B would then be unable to exchange with A. In the negatively connected networks, on the other hand, the behavior of the direct partner is not contingent upon the behavior of a peripheral actor. If figure 4.2 is negatively connected, then actors A and C are competing with one another for exchange with B. The behavior of actor C may influence actor B and could thus affect A’s outcomes but B’s capacity to exchange with A is not contingent upon any behavior by C. Given these differences in the contingency of the behavior of the direct partner on the behavior of the peripheral actor, this follow-up study will focus only on how variations in the behavior of a peripheral actor affect perceptions of fairness in positively connected networks.

**Effects of the Inequality of an Indirect Partner**

One of the interesting findings from the main experiment was that there was a borderline significant main effect of information on the perceptions of the fairness of the direct exchange partner. This finding indicated that having full information about the behavior of the peripheral actor led to perceptions of the direct exchange partner as less fair. This was particularly true for subjects in positively connected networks. In the main experiment, full information involved telling subjects that the peripheral actor was behaving equally (giving to the direct partner on 90% of the trials). One explanation for this finding from the main experiment is that subjects with full information about the
behavior of the peripheral actor are able to fully attribute any inequality they experience to their direct exchange partner. Since the peripheral actor was giving to the direct partner at a high rate, withholding by the direct partner may have seemed particularly unfair. In order to further examine this question, the follow-up study examines the effects of variations in the behavior of the peripheral actor on evaluations of the fairness of the direct partner in positively connected networks.

This study will also address an important theoretical issue concerning the underlying mechanism upon which my hypotheses for the main study were based. The underlying mechanism in the main study was that the violation of expectations (created by the type of network connection) would affect perceptions of fairness. Thus, a negative violation in the positively connected networks (unequal behavior by the direct partner) and a positive violation in the negatively connected networks (equal behavior by a direct partner) would result in perceptions of greater unfairness and greater fairness, respectively. This follow-up study allows an examination of how violations of expectations by a peripheral actor affect evaluations of the direct exchange partner and this allows further examination of the role of expectations in fairness evaluations. When actors have knowledge that the indirect partner is behaving unequally, it is expected that they will view their direct partner as more fair than when they have information that the indirect partner is behaving equally. Thus.
H₄: Unequal behavior by an indirect exchange partner will lead to perceptions that a direct exchange partner is more fair than when the indirect exchange partner is behaving equally.

When the indirect partner (peripheral actor) is behaving unequally, then some of the inequality in outcomes experienced by the subject should be attributed to the peripheral actor. In attributing some of the inequality to the indirect partner, subjects should then attribute less of the inequality to their direct exchange partner and they will thus seem not as unfair when compared to conditions where the peripheral actor is behaving unequally.

Methods

Examining this question of how variations in the behavior of the peripheral actor affect evaluations of the fairness of the direct partner involves running two follow-up conditions where subjects in positively connected networks are given information that actor C (the peripheral actor) is behaving unequally. These additional two conditions require an additional 20 subjects. As in the main experiment, subjects were undergraduates between the ages of 18 and 25 at a large public university. The subjects were recruited from classes and from a table outside the student union based on their desire to earn money.

The subjects' perceptions of B's fairness in these two additional conditions (which I label condition 9 and condition 10) are compared with the comparable conditions from the main experiment (conditions 3 and 4) in which subjects had full
information about the behavior of actor C (where actor C was behaving equally).\textsuperscript{1} The experimental conditions that were used for analysis are presented in table 6.1.

<table>
<thead>
<tr>
<th>Equal Behavior by Direct Exchange Partner</th>
<th>Unequal Behavior by Direct Exchange Partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal Behavior by Peripheral Actor</td>
<td>Condition 3</td>
</tr>
<tr>
<td>Condition 4</td>
<td></td>
</tr>
<tr>
<td>Unequal Behavior by Peripheral Actor</td>
<td>Condition 9</td>
</tr>
<tr>
<td>Condition 10</td>
<td></td>
</tr>
</tbody>
</table>

Table 6.1 Experimental Conditions Used in Analyzing Hypothesis 4

**Manipulations**

**Equality of the Peripheral Actor**

In the main experiment, the peripheral actor behaved equally by giving to the direct partner on 90% of the trials. In the two follow-up conditions, the peripheral actor gave benefits to the subject's direct exchange partner B only 60% of the time.

**Equality of the Direct Partner**

The equality of the direct partner was manipulated in the same way as in the main experiment. The conditional probability determining the rate at which the direct partner would reciprocate the subject's giving was varied. In the equal conditions, the direct partner would reciprocate giving by the subject 90% of the time. In the unequal conditions, the direct partner would only reciprocate the subject's giving 40% of the time. Table 4.2 in chapter 4 details the conditional probabilities for the manipulation of the equality of the direct partner's behavior.

\textsuperscript{1} Using conditions from the main experiment to compare with new experimental conditions violates strict random assignment. However, subjects were drawn from the same subject pool and they were randomly assigned within the two new experimental conditions for the follow-up study.


**Experienced Inequality**

Due to the contingency of the behavior of actor B (the direct partner) on the behavior of actor C (the peripheral actor) in the positively connected networks, the actual amount of inequality experienced by the subjects is affected by the probabilities of behavior for both the direct partner and the peripheral actor.

In the equal conditions, B behaved equally by reciprocating the subjects' rewarding 90% of the time. When the indirect partner was also behaving equally (by giving to the direct partner 90% of the time), subjects would experience a rate of reciprocation of .81 (B reciprocates at a rate of 90% but can only do so 90% of the time). In the conditions where the indirect partner is behaving unequally, B (the direct partner) is only able to reciprocate on 60% of the trials. Thus, subjects in this condition actually experience a rate of reciprocation of .54 (.9 x .6).

In the unequal conditions, B reciprocated the subjects' rewarding only 40% of the time (a low rate of reciprocation). Here again, B's behavior was constrained by the behavior of the peripheral actor. When the peripheral actor was behaving equally, the subject would experience .36 as the rate of reciprocation (B reciprocates 40% of the time and can do so on only 90% of the trials). When the peripheral actor was behaving unequally, the rate of reciprocation experienced by the subjects was .24 (.4 x .6). Table 6.2 illustrates the rates of reciprocation which subjects in the experiment experienced.
### Table 6.2 Degree of Inequality Experienced by Subjects

<table>
<thead>
<tr>
<th>Equal Behavior by Peripheral Actor (90% giving)</th>
<th>Unequal Behavior by Peripheral Actor (60% giving)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal Behavior by Direct Partner (90% reciprocation)</td>
<td>.81</td>
</tr>
<tr>
<td>Unequal Behavior by Direct Partner (40% reciprocation)</td>
<td>.36</td>
</tr>
</tbody>
</table>

The procedures for the follow-up study were the same as in the main experiment. Subjects interacted in three actor networks where two of the actors were computer simulated. There were 200 trials in the experiment after which subjects completed a questionnaire where they evaluated the other actors in the network.

**Results**

**Manipulation Checks**

To insure that subjects understood the functioning of the network, subjects were asked in the postexperimental questionnaire to answer a question about the network. This question asked whether their direct partner needed to receive points from the peripheral actor before the direct partner could give points to the subject. Overall, only 5 subjects out of 40 (12.5%) answered this question incorrectly and the distribution of incorrect answers was almost uniform across the four conditions. In three of the conditions, only one subject answered the question incorrectly. In the condition with unequal behavior by the direct partner and equal behavior by the peripheral actor, two subjects answered the
question incorrectly. However, all of the subjects who answered the connection question incorrectly were able to explain during the debriefing how the network worked. Thus, based on the same principle in the first experiment, no subjects were excluded from the analysis.

In order to examine whether subjects perceived the manipulation of the inequality of the behavior of the peripheral actor, analyses were run examining the perceptions of the fairness of the peripheral actor. If subjects perceive the manipulation of the equality of the peripheral actor, then there should be a main effect of the equality of the peripheral actor on the perceptions of the fairness of that actor. The results of an analysis of variance on the perceptions of the fairness of the peripheral actor are shown in table 6.3.²

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean Square</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equality of the Direct Partner [DP]</td>
<td>115.60</td>
<td>11.93**</td>
</tr>
<tr>
<td>Equality of the Peripheral Actor [PA]</td>
<td>115.60</td>
<td>11.93**</td>
</tr>
<tr>
<td>[DP] x [PA]</td>
<td>32.40</td>
<td>3.34</td>
</tr>
</tbody>
</table>

² p<.01

Table 6.3. Analysis of Variance on Perceptions of the Fairness of the Peripheral Actor

The results show main effects of both the peripheral actor's behavior and the behavior of the direct partner on perceptions of fairness of the peripheral actor. The main effect for the equality of the peripheral actor indicates that when the peripheral actor

² Sex was also included as a blocking variable. In analyses where there were no effects of sex, results are reported for the overall pool of males and females.
behaves equally, they are perceived as more fair \( (M=15.00) \) than when they behave unequally \( (M=11.60) \). This indicates that subjects correctly perceive the manipulation of the equality of the peripheral actor's behavior. The interesting finding in this analysis is the effect of the behavior of the direct exchange partner on the perceptions of the peripheral actor. This effect indicates that when the direct partner is behaving equally, the peripheral actor is viewed as more unfair \( (M=11.60) \) than when the direct partner is behaving unequally \( (M=15.00) \). This finding will be discussed in more detail later in this chapter.

**Hypothesis Test**

Hypothesis 4, which was presented earlier, predicted a main effect of the equality of the peripheral actor on the perceptions of the fairness of the direct exchange partner. More specifically, it was predicted that unequal behavior by the peripheral actor would lead to perceptions that the direct exchange partner is more fair than when the peripheral actor is behaving equally. The results from the analysis of variance are presented in table 6.4.
Table 6.4 Analysis of Variance on Perceptions of Fairness of the Direct Exchange Partner

The results indicate that hypothesis 4 was not supported. There was no effect of the behavior of the peripheral actor on perceptions of the fairness of the behavior of the direct exchange partner. There was a significant main effect of the equality of behavior of the direct exchange partner, which supports the finding from the main experiment about the strong effects of equality on perceptions of fairness.

Given the lack of support for my hypothesis, I now turn to an examination of the attributions underlying the fairness evaluation. The mechanism for the prediction that the behavior of the peripheral actor would affect perceptions of the direct partner was based on the idea that behavior of the peripheral actor would serve as a partial explanation for the inequality being experienced by the subject. Thus, unequal behavior by the peripheral actor would lead to perceptions that the direct partner is more fair than when the peripheral actor is behaving equally.
Attributions Concerning the Direct Exchange Partner

Subjects were asked to evaluate the degree to which they attributed the behavior of their direct exchange partner to characteristics of that person versus to the experiment. This question establishes whether subjects perceive the direct partner as responsible for the equality or inequality of their behavior. When the peripheral actor is behaving unequally, it is expected that subjects will attribute the direct partner's behavior more to the experiment than to internal characteristics of the direct partner. When the peripheral actor is behaving equally, it is expected that subjects will attribute the direct partner's behavior more to their internal characteristics. Thus, a main effect of the equality of the peripheral actor's behavior is expected. The results of an analysis of variance on the attributions concerning the behavior of the direct exchange partner are shown in table 6.5.

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean Square</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equality of Direct Partner [DP]</td>
<td>.40</td>
<td>.28</td>
</tr>
<tr>
<td>Equality of Peripheral Actor [PA]</td>
<td>2.50</td>
<td>1.74</td>
</tr>
<tr>
<td>Sex [S]</td>
<td>8.10</td>
<td>5.63*</td>
</tr>
<tr>
<td>[DP] x [PA]</td>
<td>.10</td>
<td>.07</td>
</tr>
<tr>
<td>[DP] x [S]</td>
<td>.10</td>
<td>.07</td>
</tr>
<tr>
<td>[PA] x [S]</td>
<td>10.00</td>
<td>6.96*</td>
</tr>
<tr>
<td>[DP] x [PA] x [S]</td>
<td>.40</td>
<td>.28</td>
</tr>
</tbody>
</table>

* p<.05

Table 6.5 Analysis of Variance on Attributions Concerning the Direct Exchange Partner
The results do not support the prediction: there is no main effect of the equality of the behavior of the peripheral actor on the attributions concerning the direct partner. However, these results do indicate a main effect of sex such that women attribute the behavior of the direct exchange partner more to internal characteristics of that person (M=3.65) while men attribute this behavior more to the experiment (M=4.55). An analysis of the interaction effect between sex and the equality of the peripheral actor’s behavior indicates that when the peripheral actor is behaving unfairly, men attribute their direct partner’s behavior more to the experiment whereas women attribute the direct partner’s behavior more to internal characteristics of that person. The pattern of means is shown in table 6.6.

<table>
<thead>
<tr>
<th>Peripheral Actor Behaves</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equally</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.80</td>
<td>3.90</td>
</tr>
<tr>
<td></td>
<td>(1.14)</td>
<td>(.99)</td>
</tr>
<tr>
<td>Unequally</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.30</td>
<td>3.40</td>
</tr>
<tr>
<td></td>
<td>(1.25)</td>
<td>(1.17)</td>
</tr>
</tbody>
</table>

Table 6.6 Means and Standard Deviations for Attributions Concerning the Behavior of the Direct Exchange Partner

The means indicate that men perceive the behavior of the peripheral actor as a constraint on the behavior of their direct exchange partner (which is a correct perception). Thus, when the peripheral actor is behaving unfairly, men perceive their direct exchange partners to be less responsible for their own behavior. This finding supports the logic of
the prediction, but only for men’s attributions. Men perceive the direct partner’s behavior to be attributable more to the experiment whereas women are not making this attribution. The reason for this sex difference is not clear.

**Discussion**

The hypothesis for this follow-up experiment centered on the effects of variations in the behavior of the peripheral actor on perceptions of fairness of the direct exchange partner in positively connected networks. This hypothesis was not supported since the only variable which affected evaluations of the direct exchange partner’s behavior was the equality of that actor’s behavior. While the main hypothesis was not supported, the logic underlying this prediction did receive some support. When the peripheral actor is behaving unequally, men attribute the behavior of the direct partner more to the experiment rather than to internal characteristics of the direct partner. The reason that women do not make this attribution remains unexplained at this point.

However, while the behavior of the peripheral actor did not affect evaluations of a direct exchange partner, the results clearly show that the behavior of a direct exchange partner does affect evaluations of a peripheral network member. When evaluating the behavior of their direct exchange partner, actors seem to invoke a justice standard based on whether the direct partner behaves in an equal or unequal manner. However, the justice standard invoked in evaluating a peripheral network member may not be as clear to subjects. They are not directly interacting with the peripheral network member so there is no norm of reciprocity upon which they can base their evaluations of the peripheral actor. Instead, subjects may be evaluating the fairness of the peripheral actor
relative to the behavior of the direct exchange partner. When the direct exchange partner
is behaving equally, the peripheral actor seems less fair. Then, when the direct exchange
partner is behaving unequally, the peripheral actor seems more fair.

In part, the behavior of the peripheral actor may have only been salient to subjects
when they did not receive points. Thus, when the direct partner was behaving equally,
subjects may have only taken note of the peripheral actor's behavior when that actor was
withholding from the direct partner. If subjects were only noting the behavior of the
peripheral actor when that actor was withholding, then the peripheral actor may have
appeared to be more unfair than the direct partner.

Conversely, when the direct partner was behaving unequally, subjects could have
noted that, although the subject did not receive points, the indirect partner was not
withholding as often as the direct partner. Thus, the indirect partners' behavior seemed
relatively more fair. Essentially, while subjects always had information about the
behavior of the peripheral actor, this information may not have been salient except on
those trials when the subject did not receive points. Assuming subjects only selectively
attended to this information, it seems likely that subjects would use the behavior of the
direct partner as a baseline justice standard when evaluating the behavior of the
peripheral actor.

In the next chapter, I summarize the main findings from this dissertation research
and discuss some explanations for the lack of support for my main hypotheses. In
addition, the implications of this study for a larger program of research examining
differences between negatively and positively connected exchange networks are
discussed and further consideration is given to possible avenues for future research.
CHAPTER 7
CONCLUSION

Previous research has long neglected the study of positively connected exchange networks. This dissertation attempted to address this gap in previous research by examining the effects of the type of network connection on perceptions of justice in social exchange. The focus of the theoretical development was on how the type of network connection creates different expectations for the behavior of exchange partners. In the positively connected networks, there is an expectation of cooperation while in the negatively connected networks there is an expectation of competition. The experimental hypotheses were based on the idea that these differential expectations would lead to differential justice standards and that violations of these standards would affect perceptions of fairness.

In addition, this dissertation examined the effects of information about the behavior of a peripheral network member on the perceptions of the fairness of a direct exchange partner. Having information about the behavior of others in the network can affect the attributions concerning who is responsible for the outcomes an actor receives. The different roles played by the peripheral actor in the two types of networks (indirect partner in the positively connected network versus exchange competitor in the negatively connected network) were expected to provide possible causal explanations for the behavior of the direct partner. These causal attributions were then expected to affect actors' evaluations of the fairness of their direct partner.
The follow-up study, which focused exclusively on positively connected networks, examined how variations in the behavior of the peripheral actor affected perceptions of the fairness of the direct partner. Since the behavior of the direct partner was constrained by the behavior of the peripheral actor, it was hypothesized that the behavior of the peripheral actor would provide a causal explanation for the inequality experienced by the subject and would thus affect perceptions of the direct exchange partner. Overall, the new hypotheses developed for this experiment were not supported. There was no support for the prediction that negatively connected networks would be evaluated as more fair than positively connected networks. In addition, the prediction that the effects of network connection on perceptions of fairness would be greater under conditions of unequal exchange with full information was not supported. Finally, the prediction from the follow-up study concerning the effects of unequal behavior by a peripheral actor on perceptions of the fairness of a direct partner was also not supported. Given these findings, I now turn to a discussion of some possible explanations for the failure to find support for the hypotheses. The three potential explanations are the operation of an alternative mechanism, the overwhelming of differences in expectations based on the network connection by the extreme violation of inequality, and methodological explanations.

**Possible Explanations for Lack of Support**

**Alternative Mechanism**

The lack of support for the hypotheses concerning the effects of network connection could be due to the operation of an alternative mechanism. Lawler's (1998)
work argues that actors in positively connected networks should feel more positively about their interaction and this should translate into perceptions of greater fairness. Essentially, the cooperative aspect to positively connected networks should generate a more positive affective state for actors within those networks. This positive affect, in turn, translates into perceptions of greater fairness. This mechanism would be expected to operate not only when exchange partners are behaving equally but also when they are behaving unequally. Even when an exchange partner is behaving unequally, the successful completion of exchanges, which involve a greater degree of cooperation in positively connected networks, should result in more positive feelings in the positively connected networks. The operation of this mechanism would lead to the exact opposite prediction as compared to the second hypothesis in this dissertation. This alternative mechanism would predict that partners in positively connected networks would be evaluated as more fair than partners in negatively connected networks.

In examining only the no information conditions, there seems to be a slight general trend (albeit not significant) towards support for this alternative mechanism. In both the equal and unequal conditions, partners in the positively connected networks were evaluated as more fair than partners in the negatively connected networks. However, this argument breaks down when examining the results from the full information equal conditions where partners in the positively connected networks were evaluated as less fair than in the negatively connected networks. Given that this positive affect mechanism leads to opposite predictions compared to the violation of expectations mechanism presented in this dissertation, it may be possible that both mechanisms may
be operating within different experimental conditions or even at different times during the experiment.

Perhaps Lawler's (1998) mechanism operates in the no information conditions since subjects do not have all of the information they need to accurately evaluate the fairness of the direct partner. In other words, they do not know how the peripheral actor is behaving although they realize the behavior of the peripheral actor is affecting the behavior of the direct partner. Thus, in the positive connections where subjects realize their receipt of rewarding outcomes is contingent on the completion of two exchanges, subjects develop a more positive affect towards their relations and evaluate their direct exchange partner as more fair. Conversely, in the full information conditions, subjects have all of the information they need to evaluate whether their direct exchange partners' behaviors matched their expectations. Thus, the mechanism predicted in this dissertation concerning the effects of expectations may have been operating in the full information conditions.

In addition, consideration should be given to the temporal component to each of these mechanisms. Actors' expectations can be met or violated right from the beginning of the experiment. If fairness evaluations had been made earlier in the experiment, actors' evaluations may have more closely matched the pattern predicted by the expectations mechanism. Over time, two additional things could happen which could affect fairness evaluations. First, actors may adjust their expectations based on their experiences as the interaction proceeds. Second, Lawler's affective mechanism may begin to operate once actors have had time to develop positive affect towards their exchange partners.
Thus, the alternative mechanism concerning positive affect may also be operating in this experiment. Given that the affective mechanism predicts opposite effects compared to the expectations mechanism, the operation of both mechanisms in this experiment may explain the lack of support for the experimental hypotheses.

**Overwhelming the Effects of Connection**

One possible explanation for the failure to find any effects of network connection on fairness perceptions in the present study could be the extent of the inequality experienced by the subjects. The degree of inequality may have been such a large departure from what subjects expect in an exchange relationship that the small difference in expectations created by the network connection were simply overwhelmed.

Essentially, I am arguing that the differences in the expectations for the negatively and positively connected networks may be small compared to the degree of inequality which subjects experienced in the unequal conditions. The degree of inequality may have been such a strong departure from expectations in both the negatively and positively connected networks that no difference would be found in evaluations of fairness based on the type of network connection.

**Methodological Explanations**

Finally, there may be a methodological reason for the failure to find support for the experimental hypotheses. For example, the manipulation of the network connection may not have created the predicted expectations. While subjects understood how the networks operated, they may not have understood or developed expectations for the behavior of others based on the operation of the network. Although there was some
tangential support for the expectation mechanism which I have proposed, the evidence is certainly not clear on the matter of whether the network connections were creating differential expectations that I predicted.

Along these same lines, it is possible that although different network connections were created through the experimental manipulations, the networks may have been structurally isomorphic from the subject's perspective. From the subject's perspective, their experience in the network is essentially a product of B's behavior. Since B's behavior was held constant across the types of network connection, the subjects in both the positively and negatively connected networks had similar experiences, and thus, similar evaluations.

**Evaluations of the Peripheral Actor**

The focus of this dissertation was on evaluations of a direct exchange partner. The role played by the peripheral actor as an indirect partner or an exchange competitor was expected to affect actors' attributions and thus their evaluations of the fairness of their direct partner. Although the type of network connection did not have significant effects on the evaluations of the direct exchange partner, the network connection did affect attributions concerning the peripheral actor. When the peripheral actor engaged in behavior which violated actors' expectations (by maintaining a high rate of giving in the unequal, positive conditions and in the equal, negative conditions), the behavior of that actor was attributed more to internal characteristics than to some external factor.

In addition, the results from the follow-up study indicate that actors may experience some ambiguity in deciding how to evaluate a peripheral actor. The follow-
up study demonstrated that actors were taking the behavior of their direct exchange partner into account when evaluating the peripheral actor. The equality or inequality of the direct partner's behavior had a significant effect on evaluations of the fairness of the peripheral actor. Actors may use the behavior of the direct partner as a benchmark from which to compare and evaluate the behavior of the peripheral actor.

**Interesting Findings**

There are two additional findings from this experiment that are worth discussing. First, it is surprising that the equality of the direct partner's behavior showed only a borderline significant effect on subjects' perceptions of the inequality while it had a very significant effect on subjects' perceptions of fairness. This indicates that although subjects did not perceive the difference in points received by themselves and their direct partners to be very unequal, they still evaluated their direct partner's behavior to be very unfair.

This finding is related to the other interesting findings that involved gender differences. The first gender difference was in the perception of the inequality in points between the subject and their direct partner. Men correctly perceived the inequality to be in favor of the direct partner whereas women did not perceive the difference in points to be very unequal. The second gender difference was in the attributions concerning the behavior of the direct partner in the follow-up study. When the peripheral actor was behaving unequally, men were attributing the behavior of their direct partner to external factors rather than to internal characteristics of the direct partner. It appears that men perceived the unequal behavior of the peripheral actor as a constraint on the behavior of
the direct partner and thus attributed the behavior of the direct partner more to external factors. In these instances, it appears that men are perceiving the inequality and thinking about the causes of the inequality in the ways predicted in the hypotheses, whereas women are not. If this type of gender difference is robust, future theorizing may need to reconsider how our conception of the rational exchange actor may be more suited to explaining males' evaluations of exchanges and not females.

**Future Research**

**Theoretical**

There are several important avenues for future research that would help increase our understanding of the differences between positively and negatively connected networks. In this dissertation, I presented a new conceptualization of structural power in the negatively and positively connected networks. The first step to further incorporate positively connected networks into our research and theorizing would be to test this conceptualization. Does the type of network connection affect the distribution of power in exchange networks?

The next question for future research would be to examine power use in these different types of networks. By manipulating the equality of the direct partner's behavior, this experiment assumed that power use would result in both negatively and positively connected networks. However, while power use may be an inevitable consequence of interaction in a negatively connected network, it may not be in a positively connected network. Actors in power-advantaged positions may feel inhibited in the use of power due to the inherently cooperative aspect to the positively connected
networks. Examining possible differences in power use between these two types of networks would contribute to our understanding of the effects of network connection on patterns of interaction. Comparing the process of power use between negatively and positively connected networks may also shed light on the failure to support the hypotheses in this study. Perhaps, the two types of network connection differ in how power use is realized and this may have affected subjects' justice evaluations (and the failure to reproduce these differences may have contributed to the possible structural isomorphism from the subject's perspective).

Future research should examine the basis on which subjects evaluate the fairness of a peripheral actor in the network. In the case of positively connected networks, the behavior of the peripheral actor has direct implications for subjects' outcomes and yet subjects do not evaluate that behavior purely on its own but also relative to the behavior of the direct partner. Future research should also consider how this process may be different in negatively connected networks. When the behavior of a peripheral actor has only indirect effects on the outcomes received by a particular actor, it would be interesting to understand how subjects evaluate the fairness of a peripheral actor in these situations.

**Methodological**

As discussed earlier, the extent of the inequality subjects experienced may have overwhelmed any differences based on the different expectations created by the type of network connection. One way for future research to test this possibility would be to examine the effects of network connection at a lower level of inequality. Perhaps, the
expectation of competition in the negatively connected networks would account for a smaller degree of inequality (for example, if the subjects giving were reciprocated only 70% of the time) and would thus be perceived as more fair than the positively connected networks at that level of inequality. However, it is important to note that the equality of the direct partner's behavior had only a borderline significant effect on the perception of inequality. Thus, using a smaller level of inequality may simply not be perceived by subjects as unequal.

Another important avenue for future research would be to examine subjects' expectations before they engage in any interaction. The mechanisms proposed in the hypotheses for this study focused on the effects of network connection on expectations for behavior. The present design did not allow for a test of whether network connections create differential expectations. So, after the instructions and practice trials in a future experiment, one could ask the subjects how they expect the other members in the network to behave or what they consider to be fair behavior in this situation. It would be interesting then to examine not only subjects' responses to these questions, but then to also examine what effects these types of questions about fairness have on the interaction and later evaluations.

While this study did not directly focus on the effects of structural power positions on perceptions of fairness, the structural power position of the actor being evaluated may be another possible explanation for the lack of findings concerning the effects of network connection on the perceptions of the direct exchange partner. Perhaps, the expectations created by the type of network connection affect perceptions of disadvantaged actors but
do not affect perceptions of power-advantaged actors. This is another possibility which deserves further attention. Another related issue for further research would be to examine whether there are differences when the subject is in a power advantaged position versus a power-disadvantaged position (as in this study).

The effects of information on the perceptions of fairness of the direct exchange partner indicates a need for future research and theorizing to consider both the amount and content of information that actors have in various settings. While this effect on the perceptions of fairness of the direct exchange partner was only borderline significant, there were several significant interaction effects involving the information variable. As research settings within the exchange tradition have become largely standardized, the effects of the amount of information given to actors has received little attention. There are a few exceptions, of course, such as the work of Skvoretz and Burkett (1994). A subject’s ability to evaluate an exchange relationship depends not only on the information the subject has about their direct exchange partner, but also on the information he/she has about the behavior of others in the larger network. Outside the laboratory, subjects do not always have full information about the larger network and so it is important for future research to further consider how various amounts of information affect actors’ evaluations. For example, would having information about the behavior of the direct partner towards the peripheral actor affect subjects’ evaluations of the direct partner’s fairness? Lawler (1998) argues that actors in positively connected networks should feel more attachment to the network whereas actors in negatively connected networks should feel greater attachment to their direct exchange relations. Thus, having information about
the behavior of the direct partner towards the peripheral actor may affect actors’
evaluations in positively connected networks but not in negatively connected networks.
This dissertation provides the initial step in a program of research examining differences
between positively and negatively connected exchange networks. Although the results
from this first study did not support the hypothesized differences between the types of
network connection, the differences between types of network connection remain a
promising area for future research. Within the exchange tradition, differences between
the types of network connection have been largely unexplored. The avenues for future
research that I have discussed point to some promising directions for further study in this
area.
APPENDIX A

INSTRUCTIONS

Negative Connection, Full information Conditions

WELCOME TO THE SOCIAL NETWORK EXPERIMENT!

You are participating in this experiment with 2 other people. Like you, they volunteered for the experiment to earn money. Because we don't want your interaction to be influenced by personal characteristics like sex or appearance, you will not meet or talk to each other either during or after the experiment. You will interact only through your computers.

At the top of your computer is a label indicating that you are person W, X, or Y. We'll refer to each of you by these letters during the experiment and in a questionnaire after the experiment.

During the experiment, you will make choices on your computers that will affect how much money you earn. You will use only a few keys on your keyboard: the SPACEBAR, the ARROW KEYS, and the ENTER (return) KEY.

To continue the instructions, please press the spacebar at the bottom of your keyboard. The next screen will appear when all three of you are ready to continue.

We will now explain how the experiment works, and give you a chance to practice making choices on your keyboard. The instructions will take about half an hour. Make sure you read each screen of the instructions carefully. You won't be able to go back to previous screens. After the instructions, you'll have a chance to ask questions.
PAY ATTENTION TO THE INSTRUCTIONS!!

YOU MUST UNDERSTAND THEM COMPLETELY TO MAKE MONEY.

If you wish, you can write down questions as you are reading, on the notepad on your desk. Each screen has a page number on it, in the lower right-hand corner, that you can refer to in your questions if you wish.

PLEASE DON'T USE YOUR NOTEPAD FOR OTHER WRITING. IN PARTICULAR, PLEASE DON'T KEEP A WRITTEN RECORD OF CHOICES MADE BY YOU AND THE OTHER PARTICIPANTS DURING THE EXPERIMENT. We want you to respond to the interaction as you experience it.

To continue the instructions, please press the spacebar.

First, we're going to give you a brief overview of what you'll be doing in the experiment. Then we'll describe the procedures in more detail.

During the experiment, you'll be able to interact with one of the other participants. Each of you will make choices that will GIVE POINTS to another participant or GIVE POINTS to yourself. Your earnings in the experiment will depend on the points you gain when others give to you and on the points you gain when you give to yourself. The earnings of the other participants will depend on the points they gain when you and others give to them and on the points they gain when they give to themselves.

At the end of the experiment, you'll be paid \( CP \) cents for every point accumulated. The more points you have, the more money you will make.

Please press the spacebar to continue the instructions.
The experiment will consist of a large number of choice opportunities. On each opportunity, each of you will choose to give points to one person or to give points to yourself. All of you will make your choices at the same time, without knowing what others intend to do. Once you've made your choices, your computer screen will show whether or not other persons gave points to you and whether you gave points to yourself. The computer screen will also show how many points you received on each opportunity.

WHEN YOU GIVE POINTS TO OTHERS. THESE POINTS ARE NOT SUBTRACTED FROM YOUR OWN EARNINGS. They are simply added to the other person's earnings.

Please press the spacebar to continue the instructions.

Throughout the experiment, the number of points that you can give to and receive from others, as well as the number of points you can give to yourself on each choice opportunity, will be displayed on your computer screen.

The total points you've accumulated will also be shown on your screen at all times and will change whenever you receive points. You will not be shown the total points of the other participants.

Please press the spacebar to continue the instructions.

YOU SHOULD TRY AT ALL TIMES TO MAKE AS MUCH MONEY AS
YOU CAN.

How much money you make depends on how often the other people give points to you, how often you give points to yourself, and how many points you can receive from these actions. The choices you make during the experiment are entirely up to you: there are no right or wrong responses in the experiment.

To continue the instructions, please press the spacebar.

With that brief overview, let's turn to a more detailed description of how you will actually interact with each other using your computers.

First, throughout the experiment, a figure will be displayed in a box on the top left of your screen. This figure will show all of the possible connections between the participants in the experiment: i.e., who can interact with whom.

To see what this figure looks like, please press the spacebar.

The figure shows the three participants in the experiment, by letter: W, X, and Y. You are person \S\, and so your letter is highlighted. Lines connecting the different letters show who can interact with whom. You can only interact with person \1\ during the experiment. THESE CONNECTIONS WILL REMAIN THE SAME THROUGHOUT THE EXPERIMENT.

To continue the instructions, please press the spacebar.

On each choice opportunity, You, Person \1\, and Person \2\ will decide whether
to give points to another person or to give points to yourselves. You and Person 2 only have the option of giving points to Person 1 or giving points to yourselves. On the other hand, Person 1 has the option of giving points to You, to Person 2 or to him/herself. If Person 1 decides to give points to another person, he/she must decide between You and Person 2.

To continue the instructions, please press the spacebar.

The box on the upper right of your screen will also be displayed throughout the experiment. This box shows that you can give WX points to Person 1 and Person 1 can give XW points to you. You will not know the number of points that Person 1 and Person 2 can give to each other. You will also have the option of giving W points to yourself. THESE VALUES WILL REMAIN THE SAME THROUGHOUT THE EXPERIMENT.

To continue the instructions, please press the spacebar.

The TOTAL POINTS you've made in the experiment will also be shown on your screen at all times, in the lower right-hand corner. Whenever you receive points, your TOTAL POINTS will change. They'll blink for several seconds to signal the change.

As this box indicates, each point you receive is worth CP cents. At the end of the experiment, you'll be paid CP cents for every point you've accumulated, or $CP for every 100 points.

AT ALL TIMES, YOU SHOULD TRY TO MAKE AS MUCH MONEY AS
YOU CAN.

To continue the instructions, please press the spacebar.

The experiment consists of a large number of choice opportunities. Each opportunity begins with a request that you choose one of the following actions: Give WX points to \1\ or give W points to yourself. You should use your UP and DOWN arrow keys to select the choice you want to make, and then press the return key. The choice you have selected will be highlighted in green on the screen.

To see how this works, press the spacebar. Then, on the next screen, choose to give points to person \1\ or give points to yourself, by using the arrow keys. The choice you select will be highlighted. After observing it, press the spacebar to continue the instructions.

Over the course of the experiment, your choices are entirely up to you. The choice request will remain on your screen until you select one of the options. THE SPEED OF YOUR RESPONSES DOES NOT AFFECT YOUR EARNINGS. The experiment has the same number of choice opportunities regardless of how quickly or how slowly you respond.

To continue the instructions, please press the spacebar.

As soon as you and the other participants have made your choices, you will learn what choices others made. The computer screen will show your own choice (as a


reminder), and it will show what Person \1\ chose: whether \1\ gave points to you, or did not act toward you. If Person \1\ does not act toward you, that means that he or she gave points to Person \2\ or gave points to him/herself instead. REMEMBER THAT ON EACH OPPORTUNITY PERSON \1\ MUST CHOOSE BETWEEN GIVING POINTS TO YOU, GIVING POINTS TO PERSON \2\, OR GIVING POINTS TO HIM/HERSELF. The screen will also indicate whether Person \2\ chose to give points to Person \1\.

The screen will also show the number of points you received on that opportunity. If you gained points, your TOTAL POINTS will change to show the increase.

Let's try the full sequence now. When the next screen appears, respond to the choice request by choosing to give points to Person \1\ or to give points to yourself. Then, watch carefully when the information about the choices you and the other participants made appears, and see whether your TOTAL POINTS change.

To start this demonstration, please press the spacebar.

We have now gone through the sequence of events on each choice opportunity. After each opportunity ends, a new choice opportunity begins. The computer screen will signal the start of a new opportunity by once again requesting that you make a choice. This sequence of events will be repeated a large number of times during the experiment.

To continue the instructions, please press the spacebar.

Before we start the experiment, we're going to have a short practice exercise. It
will consist of five choice opportunities in a row. This will give you a chance to become familiar with making choices with the arrow keys and then reading the choices that Person 1 and Person 2 have made.

Because this is just a practice, it won't be realistic. We want you to try out different choices and become familiar with reading the information in the choice box. But because all of you will be trying various choices, just for practice, you won't be interacting with each other in the same way that you will be in the experiment. So, this exercise won't tell you how the other persons are likely to behave in the experiment. It will just give you practice making choices and reading the screen. Also, because it's a practice, you won't be paid for any points you have at the end of it.

During the practice exercise, the screen will automatically change after your choices, just as it will in the experiment. You won't need to press the spacebar to produce a new screen.
Okay, to start the five choice opportunities, press the spacebar. When all of you are ready, the practice exercise will begin.

Okay that was very good. As you've just seen, your task in the experiment is really very simple. You just use your arrow and return keys to give points to \( l \) or to give points to yourself over repeated opportunities. You receive money whenever \( l \) gives points to you or you give points to yourself. You should try to make as much money as you can.

That concludes the instructions. If you have any questions, please write them on the notepad on your desk. We will collect the questions, and then answer them over the intercom system. When you are ready, please select one of the choices below to indicate either that you have a question for the experimenter to collect and answer, or that you have no questions and are ready to begin the experiment.

We're now ready to start the experiment. When all three of you have pressed your spacebars, the screen will change and begin the experiment.

**Positive Connection, Full Information Conditions**

WELCOME TO THE SOCIAL NETWORK EXPERIMENT!

You are participating in this experiment with 2 other people. Like you, they volunteered for the experiment to earn money. Because we don't want your interaction to be influenced by personal characteristics like sex or appearance, you will not meet or talk
to each other either during or after the experiment. You will interact only through your computers.

At the top of your computer is a label indicating that you are person W, X, or Y. We'll refer to each of you by these letters during the experiment and in a questionnaire after the experiment.

During the experiment, you will make choices on your computers that will affect how much money you earn. You will use only a few keys on your keyboard: the SPACEBAR, the ARROW KEYS, and the ENTER (return) KEY.

To continue the instructions, please press the spacebar at the bottom of your keyboard. The next screen will appear when all three of you are ready to continue.

We will now explain how the experiment works, and give you a chance to practice making choices on your keyboard. The instructions will take about half an hour. Make sure you read each screen of the instructions carefully. You won't be able to go back to previous screens. After the instructions, you'll have a chance to ask questions.

PAY ATTENTION TO THE INSTRUCTIONS!!

YOU MUST UNDERSTAND THEM COMPLETELY TO MAKE MONEY.

If you wish, you can write down questions as you are reading, on the notepad on your desk. Each screen has a page number on it, in the lower right-hand corner, that you can refer to in your questions if you wish.

PLEASE DON'T USE YOUR NOTEPAD FOR OTHER WRITING. IN PARTICULAR, PLEASE DON'T KEEP A WRITTEN RECORD OF CHOICES MADE
BY YOU AND THE OTHER PARTICIPANTS DURING THE EXPERIMENT. We want you to respond to the interaction as you experience it.

To continue the instructions, please press the spacebar.

First, we're going to give you a brief overview of what you'll be doing in the experiment. Then we'll describe the procedures in more detail.

During the experiment, you'll be able to interact with one of the other participants. Each of you will make choices that will GIVE POINTS to another participant or GIVE POINTS to yourself. Your earnings in the experiment will depend on the points you gain when others give to you and on the points you gain when you give to yourself. The earnings of the other participants will depend on the points they gain when you and others give to them and on the points they gain when they give to themselves.

At the end of the experiment, you'll be paid \CP\ cents for every point accumulated. The more points you have, the more money you will make.

Please press the spacebar to continue the instructions.

The experiment will consist of a large number of choice opportunities. On each opportunity, each of you will choose to give points to one person or to give points to yourself. Once you've made your choices, your computer screen will show whether or not other persons gave points to you and whether you gave points to yourself. The computer screen will also show how many points you received on each opportunity.

WHEN YOU GIVE POINTS TO OTHERS, THOSE POINTS ARE NOT
SUBTRACTED FROM YOUR OWN EARNINGS. They are simply added to the other person's earnings.

Please press the spacebar to continue the instructions.

Throughout the experiment, the number of points that you can give to and receive from others, as well as the number of points you can give to yourself on each choice opportunity, will be displayed on your computer screen.

The total points you've accumulated will also be shown on your screen at all times, and will change whenever you receive points. You will not be shown the total points of the other participants.

Please press the spacebar to continue the instructions.

YOU SHOULD TRY AT ALL TIMES TO MAKE AS MUCH MONEY AS YOU CAN.

How much money you make depends on how often the other people give points to you, how often you give points to yourself, and how many points you can receive from these actions. The choices you make during the experiment are entirely up to you; there are no right or wrong responses in the experiment.

To continue the instructions, please press the spacebar.

With that brief overview, let's turn to a more detailed description of how you will actually interact with each other using your computers.
First, throughout the experiment, a figure will be displayed in a box on the top left of your screen. This figure will show all of the possible connections between the participants in the experiment: i.e., who can interact with whom.

To see what this figure looks like, please press the spacebar.

The figure shows the three participants in the experiment, by letter: W, X, and Y. You are person S, and so your letter is highlighted. Lines connecting the different letters show who can interact with whom. You can only interact with Person 1 during the experiment. THESE CONNECTIONS WILL REMAIN THE SAME THROUGHOUT THE EXPERIMENT.

To continue the instructions, please press the spacebar.

On each choice opportunity of the experiment, you and Person 2 will begin by choosing whether to give points to Person 1 or to give points to yourselves. Once you and Person 2 have made your decisions, Person 1 will then be informed of your decisions. Person 1 must receive points from either you or Person 2 before Person 1 is allowed to do anything. So, if both you and Person 2 decide to give points to yourselves, then Person 1 will not be able to give any points to either you or Person 2 or even give points to him/herself.

If Person 1 receives points only from you, then Person 1 will have to choose whether to give points to Person 2 or to give points to him/herself. Additionally, if
Person 1 receives points only from Person 2, then Person 1 will have to choose whether to give points to you or to give points to him/herself. If Person 1 receives points from both you and Person 2, then Person 1 will have to make two separate decisions: 1) whether to give points to You or to give points to him/herself; and 2) whether to give points to Person 2 or to give points to him/herself.

REMEMBER THAT PERSON 1 WILL NOT BE ABLE TO GIVE POINTS TO YOU UNLESS HE OR SHE FIRST RECEIVES POINTS FROM PERSON 2.

To continue the instructions, please hit the spacebar.

Because Person 1 must receive points before he or she can give points to a partner, there may be some choice opportunities where Person 1 is not able to give points to you (or to Person 2). Your earnings in the experiment will depend not only on the behavior of Person 1 but also on the behavior of Person 2. If Person 2 does not give points to Person 1, then it will not be possible for Person 1 to give any points to you. By the same token, Person 2’s earnings depend upon your behavior as well as the behavior of Person 1. If you do not give points to Person 1, then Person 1 will not be able to give any points to Person 2.

To continue the instructions, please press the spacebar.

The box on the upper right of your screen will also be displayed throughout the experiment. This box shows that you can give WX points to Person 1 and Person 1 can give XW points to you. You will not know the number of points that Person 1 and
Person \(2\) can give to each other or give to themselves. In the experiment, Person \(1\) can give points to you only if he or she first receives points from Person \(2\). In addition, Person \(1\) can give points to Person \(2\) only if he or she has first received points from you. You also have the option of giving \(W\) points to yourself. THESE VALUES WILL REMAIN THE SAME THROUGHOUT THE EXPERIMENT.

To continue the instructions, please press the spacebar.

The TOTAL POINTS you've made in the experiment will also be shown on your screen at all times, in the lower right-hand corner. Whenever you receive points, your TOTAL POINTS will change. They'll blink for several seconds to signal the change.

As this box indicates, each point you receive is worth \(CP\) cents. At the end of the experiment, you'll be paid \(CP\) cents for every point you've accumulated, or \$\(CP\) for every 100 points.

AT ALL TIMES, YOU SHOULD TRY TO MAKE AS MUCH MONEY AS YOU CAN.

To continue the instructions, please press the spacebar.

The experiment consists of a large number of choice opportunities. Each opportunity begins with a request that you choose one of the following actions: Give \(WX\) points to \(1\), or give \(W\) points to yourself. You should use your UP and DOWN arrow keys to select the choice you want to make, and then press the return key. The choice you have selected will be highlighted in green on the screen.
To see how this works, press the spacebar. Then, on the next screen, choose to give points to person \1\ or give points to yourself, by using the arrow keys. The choice you select will be highlighted. After observing it, press the spacebar to continue the instructions.

Over the course of the experiment, your choices are entirely up to you. The choice request will remain on your screen until you select one of the options. THE SPEED OF YOUR RESPONSES DOES NOT AFFECT YOUR EARNINGS. The experiment has the same number of choice opportunities regardless of how quickly or how slowly you respond.

To continue the instructions, please press the spacebar.

Because Person \1\ needs to know what choices you and Person \2\ made before he/she can make a choice, there will be a delay after you and Person \2\ have made your choices. Once you and Person \2\ have made your choices, your selection will be highlighted on the screen and you will be asked to wait while Person \1\ is making a decision. As soon as Person \1\ has made his/her choice, you will learn what choices others made. The computer screen will show your own choice (as a reminder), and it will show what Person \1\ chose: whether \1\ gave points to you, or did not act toward you. If Person \1\ does not act toward you, that means that he or she gave points to him/herself. If Person \1\ could not give points to you (because he or she did not receive points from Person \2\), you will be told on your computer screen. The screen will also show whether
Person 2 chose to give points to Person 1.

In addition, the screen will show the number of points you received on that opportunity. If you gained points, your TOTAL POINTS will change to show the increase.

Let's try the full sequence now. When the next screen appears, respond to the choice request by choosing to give points to Person 1 or to give points to yourself. Then, watch carefully when the information about the choices you and the other participants made appears, and see whether your TOTAL POINTS change.

To start this demonstration, please press the spacebar.

We have now gone through the sequence of events on each choice opportunity. After each opportunity ends, a new choice opportunity begins. The computer screen will signal the start of a new opportunity by once again requesting that you make a choice. This sequence of events will be repeated a large number of times during the experiment.

To continue the instructions, please press the spacebar.

Before we start the experiment, we're going to have a short practice exercise. It will consist of five choice opportunities in a row. This will give you a chance to become familiar with making choices with the arrow keys and then reading the choices that Person 1 and Person 2 have made.

Because this is just a practice, it won't be realistic. We want you to try out different choices and become familiar with reading the information in the choice box.
But because all of you will be trying various choices, just for practice, you won't be interacting with each other in the same way that you will be in the experiment. So, this exercise won't tell you how the other persons are likely to behave in the experiment. It will just give you practice making choices and reading the screen. Also, because it's a practice, you won't be paid for any points you have at the end of it.

During the practice exercise, the screen will automatically change after your choices, just as it will in the experiment. You won't need to press the spacebar to produce a new screen.

Okay, to start the five choice opportunities, press the spacebar. When all of you are ready, the practice exercise will begin.

Okay that was very good. As you've just seen, your task in the experiment is really very simple. You just use your arrow and return keys to give points to \( \text{\textbackslash I} \) or to give points to yourself over repeated opportunities. You receive money whenever \( \text{\textbackslash I} \) gives points to you or you give points to yourself. You should try to make as much money as you can.

That concludes the instructions. If you have any questions, please write them on the notepad on your desk. We will collect the questions, and then answer them over the intercom system. When you are ready, please select one of the choices below to indicate either that you have a question for the experimenter to collect and answer, or that you have no questions and are ready to begin the experiment.
We're now ready to start the experiment. When all three of you have pressed your spacebars, the screen will change and begin the experiment.
APPENDIX B

QUESTIONNAIRES AND DEBRIEFINGS

Negative Connection Questionnaire

All right, that's the end of the Social Interaction Experiment! You ended the experiment with a total of \( P \) points; that means you made \( M \) (or $6.00, whichever is greater). In a few minutes, the experimenter will come in your room, pay you your earnings, and answer your questions about the experiment.

While the experimenter is getting ready to pay you, we would like you to answer a few questions about the experiment and your interaction with the other participants. For most of the questions, we will show you a scale with two opposite descriptive labels, one on either end of the scale, and 7 response points in between. We will ask you to answer the question by selecting one of the 7 numbers on the scale.

To continue, please press your spacebar.

For example, we might ask you to describe how "easy" or "difficult" you thought the experiment was by choosing a number on the following scale:

Very easy---1----2----3----4----5----6----7---Very difficult

A '1' would indicate that you thought the experiment was very easy, and a '7' would indicate that you thought the experiment was very difficult. A '4' would indicate that you thought the experiment was in between, that is, neither easy nor difficult. The other numbers would indicate varying degrees of similarity to the descriptive labels; for example, a little easy (or difficult) or somewhat easy (or difficult).
We will show you the scales one at a time. For each, type in the number on the scale that you wish to select, and then press return. Be careful--ONCE YOU HIT RETURN, YOU CANNOT CHANGE YOUR RESPONSE!

When you are ready to begin, please press your spacebar.

First, we'd like you to answer several questions about the other people in the network: Person \1\ and Person \2\.

Just as a reminder, we have included a picture of the network for you to look at before you begin.

We'll begin by asking you some questions about your interaction with PERSON \1\. For each of the following scales, please type in the number you wish to select and then hit return.

To display the first question, please press your spacebar.

Please evaluate Person \1\’s behavior toward you:

Fair - Unfair

Please evaluate Person \1\’s behavior toward you:

Helpful - Unhelpful

Please evaluate Person \1\’s behavior toward you:

Awful - Nice
Please evaluate Person \( \text{'s} \) behavior toward you:

Unjust - Just

Please evaluate Person \( \text{'s} \) behavior toward you:

Tough - Soft

Please evaluate Person \( \text{'s} \) behavior toward you:

Equitable - Inequitable

Please evaluate Person \( \text{'s} \) behavior toward you:

Cooperative - Competitive

Please evaluate Person \( \text{'s} \) behavior toward you:

Untrustworthy - Trustworthy

Please evaluate Person \( \text{'s} \) behavior toward you:

Good - Bad

In general, how would you describe your feelings toward Person \( \text{'s} \) during the experiment?

Positive - Negative
How much did you TRUST Person \1\ during the experiment?

Very little - Very much

In general, how much did your behavior affect Person \1\'s behavior during the experiment?

Very much - Very little

Now we'd like you to answer some questions about PERSON \2\. For each of the following scales, please type in the number you wish to select and then hit return.

To display the first question, please press your spacebar.

Please evaluate Person \2\'s behavior:

Fair - Unfair

Please evaluate Person \2\'s behavior:

Helpful - Unhelpful

Please evaluate Person \2\'s behavior:

Awful - Nice
Please evaluate Person 2's behavior:
Unjust - Just

Please evaluate Person 2's behavior:
Tough - Soft

Please evaluate Person 2's behavior:
Equitable - Inequitable

Please evaluate Person 2's behavior:
Cooperative - Competitive

Please evaluate Person 2's behavior:
Untrustworthy - Trustworthy

Please evaluate Person 2's behavior:
Good - Bad

In general, how would you describe your feelings toward Person 2 during the experiment?
Positive - Negative
How much did you TRUST Person 2 during the experiment?

Very little - Very much

In general, how much did Person 2's behavior affect Person 1's behavior during the experiment?

Very much - Very little

Now we'd like you to think about the number of POINTS that you and PERSON 1 received from agreements with each other over the course of the experiment.

Please press your spacebar for the next question.

How EQUAL or UNEQUAL would you say the points were that you and 1 received from each other: very unequal in your favor, very unequal in 1's favor, or somewhere in between? (If you think the points were 'equal,' mark '4' on the scale):

Unequal, my favor - Unequal, X's favor

Do you think 1's behavior towards you was influenced primarily by characteristics of PERSON 1 (the kind of person that 1 is), primarily by characteristics of the EXPERIMENT, or by characteristics of both? (If you think both contributed equally, mark '4' on the scale.)

Person X - Experiment
Do you think Person \( \text{\textdollar}\)'s behavior was influenced primarily by characteristics of PERSON \( \text{\textdollar}\) (the kind of person that \( \text{\textdollar}\) is), primarily by characteristics of the experimentation, or by characteristics of both? (If you think both contributed equally, mark '4' on the scale.)

Person Y - Experiment

Who would you say was RESPONSIBLE for how equal or unequal the points were that you and \( \text{\textl}\) received:

Myself

Person X

Person Y

Both Person X and Person Y

The Experiment

How often did Person \( \text{\textl}\) give points to you?

Less than I expected - More than I expected

How much did your knowledge of (or lack of knowledge of) the behavior of Person \( \text{\textl}\) affect your evaluation of Person \( \text{\textl}\)\'s behavior?

Very much - Very little
In this experiment, if Person 1 decided to give points to a partner, did Person 1 have to choose between YOU or Person 2?

Yes

No

Which of the following best describes your primary concern during the experiment?

Earning as much money as I could

Equalizing the money earned by me and the others

Earning more money than the other participants

Trying to figure out what the experiment is about

In thinking about your own behavior during the experiment, were you influenced more by concerns with FAIRNESS (making exchanges of points that were fair to everyone), or by a desire to earn MONEY (obtaining as many points for yourself as you could)?

Fairness - Money

Finally, we would like you to write, on the notepad on your desk, an explanation of how you evaluated the fairness of Person 1. In other words, did you think Person 1 behaved fairly or unfairly during the experiment? Why or why not?

When you are done writing, please turn your notepad over and PRESS YOUR SPACEBAR to indicate you are ready.

Thank you very much.
A NOTE FROM THE EXPERIMENTER

Thank you for taking the time to participate in this experiment. Now that you have finished, I would like to tell you more about it. In this experiment, I am interested in studying power and inequality in social relations. By power, I mean the type of power that people have over one another when they control something that others value. In the experiment, the thing of value was money, and you earned money by exchanging points with others or keeping points for yourself.

In some experiments, like this one, people are placed in a situation where they are forced to compete with others for exchange with valued partners. In other experiments, people can achieve valued exchanges through cooperation. I am interested in how the competitive or cooperative setting affects people's behavior, and their perceptions of others.

To continue this message, please press the spacebar.

This particular experiment had one other feature that you were probably not aware of. The other participants, \\1\\ and \\2\\, were not real people. Their responses were made by the computer, which was programmed to respond in particular ways to your behavior. We used computer-programmed partners because we wanted to study how people (like you) respond to exchange partners who behave in different ways: ones who exchange very equally, or ones who exchange unequally. Using the computer to simulate the other people in the experiment was the only way in which we could create partners who reliably
used these different strategies.

We are sorry that we could not tell you this in the beginning. If we had, it might have affected your behavior in some way. It was very important for our research that you believed you were interacting with real people. In most of our experiments, participants DO interact with real people. Those experiments look just like this one, and it is very difficult for most people to tell the difference between interacting with real people and with the computer. The "people" you interacted with in this experiment may have been very nice, or not so nice according to how they were programmed just like real people!
Thank you again for participating in the experiment. The experimenter will come in your room shortly, to pay you and to answer any questions you have about the experiment. It may be a few minutes, since we talk to each of you individually. We appreciate your patience.

Positive Connection Conditions

All right, that's the end of the Social Interaction Experiment! You ended the experiment with a total of \( P \) points; that means you made \( M \) (or $6.00, whichever is greater). In a few minutes, the experimenter will come in your room, pay you your earnings, and answer your questions about the experiment.

While the experimenter is getting ready to pay you, we would like you to answer a few questions about the experiment and your interaction with the other participants. For most of the questions, we will show you a scale with two opposite descriptive labels, one on either end of the scale, and 7 response points in between. We will ask you to answer the question by selecting one of the 7 numbers on the scale.

To continue, please press your spacebar.

For example, we might ask you to describe how "easy" or "difficult" you thought the experiment was by choosing a number on the following scale:

Very easy---1-----2-----3-----4-----5-----6-----7---Very difficult

A '1' would indicate that you thought the experiment was very easy, and a '7'
would indicate that you thought the experiment was very difficult. A '4' would indicate that you thought the experiment was in between, that is, neither easy nor difficult. The other numbers would indicate varying degrees of similarity to the descriptive labels: for example, a little easy (or difficult) or somewhat easy (or difficult).

We will show you the scales one at a time. For each, type in the number on the scale that you wish to select and then press return. Be careful—ONCE YOU HIT RETURN, YOU CANNOT CHANGE YOUR RESPONSE!

When you are ready to begin, please press your spacebar.

First, we'd like you to answer several questions about the other people in the network: Person \1\ and Person \2\.

Just as a reminder, we have included a picture of the network for you to look at before you begin.

We'll begin by asking you some questions about your interaction with PERSON \1\. For each of the following scales, please type in the number you wish to select and then hit return.

To display the first question, please press your spacebar.

Please evaluate Person \1\'s behavior toward you:

Fair - Unfair
Please evaluate Person's behavior toward you:
Helpful - Unhelpful

Please evaluate Person's behavior toward you:
Awful - Nice

Please evaluate Person's behavior toward you:
Unjust - Just

Please evaluate Person's behavior toward you:
Tough - Soft

Please evaluate Person's behavior toward you:
Equitable - Inequitable

Please evaluate Person's behavior toward you:
Cooperative - Competitive

Please evaluate Person's behavior toward you:
Untrustworthy - Trustworthy
Please evaluate Person \1\'s behavior toward you:

Good - Bad

In general, how would you describe your feelings toward Person \1\ during the experiment?

Positive - Negative

How much did you TRUST Person \1\ during the experiment?

Very little - Very much

In general, how much did your behavior affect Person \1\'s behavior during the experiment?

Very much - Very little

Now we'd like you to answer some questions about PERSON \2\. For each of the following scales, please type in the number you wish to select and then hit return.

To display the first question, please press your spacebar.

Please evaluate Person \2\'s behavior:

Fair - Unfair
Please evaluate Person \( \text{\textquoteright}s \) behavior:

Helpful - Unhelpful

Please evaluate Person \( \text{\textquoteright}s \) behavior:

Awful - Nice

Please evaluate Person \( \text{\textquoteright}s \) behavior:

Unjust - Just

Please evaluate Person \( \text{\textquoteright}s \) behavior:

Tough - Soft

Please evaluate Person \( \text{\textquoteright}s \) behavior:

Equitable - Inequitable

Please evaluate Person \( \text{\textquoteright}s \) behavior:

Cooperative - Competitive

Please evaluate Person \( \text{\textquoteright}s \) behavior:

Untrustworthy - Trustworthy
Please evaluate Person \(\text{2}\)'s behavior:

Good - Bad

In general, how would you describe your feelings toward Person \(\text{2}\) during the experiment?

Positive - Negative

How much did you TRUST Person \(\text{2}\) during the experiment?

Very little - Very much

In general, how much did Person \(\text{2}\)'s behavior affect Person \(\text{1}\)'s behavior during the experiment?

Very much - Very little

Now we'd like you to think about the number of POINTS that you and PERSON \(\text{1}\) received from agreements with each other over the course of the experiment.

Please press your spacebar for the next question.
How EQUAL or UNEQUAL would you say the points were that you and \1\ received from each other: very unequal in your favor, very unequal in \1\'s favor, or somewhere in between? (If you think the points were 'equal,' mark '4' on the scale):

Unequal, my favor - Unequal, X's favor

Do you think \1\'s behavior towards you was influenced primarily by characteristics of PERSON \1\ (the kind of person that \1\ is), primarily by characteristics of the EXPERIMENT, or by characteristics of both? (If you think both contributed equally, mark '4' on the scale.)

Person X - Experiment

Do you think \2\'s behavior towards you was influenced primarily by characteristics of PERSON \2\ (the kind of person that \2\ is), primarily by characteristics of the EXPERIMENT, or by characteristics of both? (If you think both contributed equally, mark '4' on the scale.)

Person Y - Experiment
Who would you say was RESPONSIBLE for how equal or unequal the points were that you and \1\ received:

Myself
Person X
Person Y
Both Person X and Person Y
The Experiment

How often did Person \1\ give points to you?
Less than I expected - More than I expected

How much did your knowledge of (or lack of knowledge of) the behavior of Person \2\ affect your evaluation of Person \1\'s behavior?
Very much - Very little

Was it a requirement of the experiment that Person \1\ receive points from Person \2\ before Person \1\ could give points to YOU?
Yes
No
Which of the following best describes your primary concern during the experiment?

Earning as much money as I could

Equalizing the money earned by me and the others

Earning more money than the other participants

Trying to figure out what the experiment is about

In thinking about your own behavior during the experiment, were you influenced more by concerns with FAIRNESS (making exchanges of points that were fair to everyone), or by a desire to earn MONEY (obtaining as many points for yourself as you could)?

Fairness - Money

Finally, we would like you to write on the notepad on your desk an explanation of how you evaluated the fairness of Person \(\text{I} \). In other words, did you think Person \(\text{I} \) behaved fairly or unfairly during the experiment? Why or why not?

When you are done writing, please turn your notepad over and PRESS YOUR SPACEBAR to indicate you are ready.

Thank you very much.

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21 May 1999

Gretchen Peterson, Ph.D. Candidate  
c/o Linda D. Molm, Ph.D.  
Department of Sociology  
Social Sciences Building, Room 400  
PO BOX 210027

RE: THE PERCEPTION OF FAIRNESS IN SOCIAL EXCHANGE: A COMPARISON OF NEGATIVELY AND POSITIVELY CONNECTED NETWORKS
Dear Ms. Peterson:

We received documents concerning your above cited project. Regulations published by the U.S. Department of Health and Human Services [45 CFR Part 46.101(b)(2)] exempt this type of research from review by our Committee.

Thank you for informing us of your work. If you have any questions concerning the above, please contact this office.

Sincerely,

[Signature]

John D. Palmer, Ph.D., M.D.
Chairman
Human Subjects Committee

JDP/js
cc: Departmental/College Review Committee
REFERENCES


