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The Interplay Between Personality And Structure: How Do Actors With Differing Social Values Behave In Economic Exchange?

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THE INTERPLAY BETWEEN PERSONALITY AND STRUCTURE: HOW DO ACTORS WITH DIFFERING SOCIAL VALUES BEHAVE IN ECONOMIC EXCHANGE?

by

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DEDICATION

To my parents, without whom none of this would be possible. Thank you for always encouraging me to pursue my interests. This would have never been completed or even imagined without everything you have always done for me.

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ABSTRACT

This dissertation integrates Network Exchange Theory (NET) with Social Value Orientations (SVO) literature. Previous SVO research has consistently found strong differences between prosocial and proself actors in social dilemmas and similar settings. That research has not, however, examined the behavior of actors engaging in negotiated exchange. Willer, Gladstone, and Berigan (2013) derived metric predictions for embedding actors of differing social values within exchange structures. I followed their work by testing these predictions in laboratory experiments using three types of exchange structures. While the predictions anticipated strong differences in earnings between orientation types, the results suggested otherwise. The earnings of prosocials and proselfs were instead generally indistinguishable. A second experiment placed actors with differing social values in exchange structures that allowed for coalition formation; here, too, there were greater similarities than differences between SVO types. Why do the findings from these experiments contradict the extensive body of research on social values which has found strong differences between SVO types? Why was NET, which also has a long history of supported predictions, not able to accurately anticipate the behavior of actors with social values? My goals in this dissertation are to examine the potential explanations for these findings and provide suggestions for further research which would explore additional conditions under which prosocials and proselfs will act in a similar, rather than different, manner. I argue that social structures override individual differences.

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CHAPTER 1

INTRODUCTION: AN INTEGRATION OF TWO THEORIES

Both exchange theories such as Network Exchange Theory and rational choice theories had, at one time, recognized only the 'economic man' model, one who is narrowly self-interested (Von Neumann and Morgenstern ([1944] 2004; Willer and Anderson 1981; Willer 1992; Willer and Emanuelson 2008). Scholars such as Roth suggest that this is a reasonable and "useful approximation of behavior" (1995:78). Nevertheless, not all cases can be explained using the narrowly rational, self-interested actor. There are multiple instances of behavior which are not self-interested, and would be seen as 'irrational' following the narrow rationality model. For instance, players in the Dictator Game sometimes transfer points to their ostensible partners, while the rational egoist model predicts that they should give zero. Players also sometimes choose to cooperate in the Prisoner's Dilemma Game, in which defection is predicted as the rational choice (Henrich et al. 2001; Sally 1995).

There is a body of literature which recognizes not one, but multiple types of rationality. Social Value Orientations research postulates three types of rationality, only one of which, the individualist, corresponds to the narrowly rational actor. This research also recognizes the prosocial and competitive types.[1]

[1] While it is conventional in most of the SVO literature to place emphasis on the three major orientation types, some researchers recognize additional types or subtypes, such as masochism, aggression, martyrdom, altruists, and reciprocators (McClintock and Van Avermaet 1982; Kurzban and Houser 2001; Perugini and Gallucci 2001; Van Lange 2004.)

These orientation types seek, respectively, equality with the maximization of joint outcomes and the maximum difference in outcomes between self and other. This recognition of multiple types of rationality developed in part as a reaction to the narrowly rational actor model and as an explanation of other-regarding (rather than self-interested) behaviors seen in experimental settings (Messick and McClintock 1968; Au and Kwong 2004).

Of interest in this dissertation is the integration of Network Exchange Theory and Social Value Orientations literature. In the following sections, I review Network Exchange Theory (hereafter NET) and Social Value Orientations (hereafter SVO), emphasizing major theoretical concepts and general research findings. I conclude with a discussion of the potential benefits of such an integration, such as expansion of scope within the Network Exchange Theory framework and generating new predictions for the inclusion of differing social values within exchange networks.

ELEMENTARY THEORY AND NETWORK EXCHANGE THEORY

Elementary Theory (Willer and Anderson 1981; Willer 1984, 1999; Willer and Emanuelson 2008) is a sociological theory which models social relations between actors in social structures. Elementary Theory investigates structures composed of the following three types of relations that are differentiated by the types of sanctions flowing between actors: exchange, coercion, and conflict. In this section, I will explain actors and sanctions in social relations within structures, and then turn my discussion to concepts from Network Exchange Theory, the exchange component of Elementary Theory.

Actors and Sanctions in Social Relations

Theoretic models are developed for actors and social relations in social structures examined by Elementary Theory. Actors are entities, such as individuals or firms, which occupy positions in networks. Actors can transmit sanctions to one another. A sanction is an action "which alters the 'preference state' of the actor receiving the sanction" (Willer 1999:24). Arrows and value signs model the direction of the sanction and positive or negative value. A positive sanction is a social action that an actor wants to receive, such as money. A negative sanction is a social action that an actor does not want to receive, such as an insult.

Conflict, coercion, and exchange relations are differentiated by these positive and negative sanctions. Conflict and exchange are marked by a two-way flow of sanctions, negative sanctions and positive sanctions, respectively. Coercion is modeled as a one-way flow of either a positive or a negative sanction.

A coercive relation involves two positions and two types of sanctions – the coercer, holding a negative sanction and the coercee, with a positive sanction. Willer asserts that "coercers use threat of transmission of the negative to extract the positive from the coercee" (1999:27). The coercer threatens the transmission of a negative sanction, such as a gunshot, in order to receive the transmission of a positive sanction, such as a wallet, from the coercee. In a coercive relation, only one of these sanctions is transmitted. If the threat is believed, the positive sanction will be sent to the coercer. At agreement, when the mugger's threat to shoot is believed, the person to whom the threat is directed will give up his/her wallet. Alternatively, when agreement is not reached, not the positive sanction but the negative sanction is sent.

Conflict occurs when actors paired in a relation hold negative sanctions that may be sent to one another. According to Willer, in "conflict, because the two sanctions are negative, neither actor benefits when the sanction of the other is transmitted. Therefore, agreements are concerned with the conditions under which no sanctions flow" (1999:27). In confrontation, when the actors cannot reach an agreement, both will send their negative sanctions. Conflict can sometimes precede a coercive relation. For example, the victorious group in a tribal conflict has the ability to extract resources from the defeated group through coercion.

Exchange relations, like conflict relations, are modeled as a two-way flow of sanctions. In exchange, however, sanctions are positive. Actors in an exchange relation each seek to receive a positive sanction from the other. For example, a car dealer wishes to receive money from a buyer. A potential buyer enters the relation in order to purchase (receive) a new car from the dealership. Importantly, in economic exchange relations such as the purchase of a new car, the relation "is composed of 'negative-positive sanctions'" (Willer 1999:28). To expand,

> When *A* sends a positively valued resource to *B*, that transmission is a loss that is reflected in the negative transmission sign. *B* positively values the resource, so its reception is a gain and the reception sign is positive. Exactly the same is the case for the sanction linking *B* to *A* . . . and, in economic exchange, actors positively value both resources moving between them (Willer 1999:28).

Therefore, the dealer values both the car s/he is selling and the money given for the car. The same can be said for the buyer. Yet if confrontation occurs because they cannot reach an agreement on the purchase price, neither will benefit from the relation.

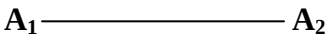
Network Exchange Theory (NET) developed as an "outgrowth of the elementary theory of social structures" due to the increasing focus "on power in exchange networks" (Walker et al. 2000:324). I now turn my discussion to power conditions and research within the NET framework.

NET Terms and Research

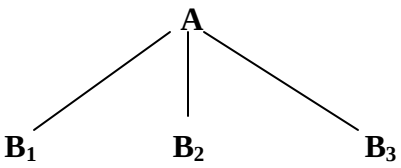
Network Exchange Theory has found seven power conditions, five of which are connection types: exclusive connection, inclusive connection, null connection, inclusive-exclusive connection, inclusive-null connection, ordering, and hierarchy/mobility (Patton and Willer 1990; Szmatka and Willer 1995; Willer 1999; Bell, Walker, and Willer 2000; Corra 2000; Walker et al. 2000). Willer (1999) provides an *N*, *M*, and *Q* typology for the five connection types to describe the number of connections for a position in a network and the number of possible exchanges. Using this typology, "[f]or any node *i*, *Ni* is the number of connected exchange relations; *Mi* is the maximum number of relations from which the node can benefit; and *Qi* is the minimum number of exchanges that must be completed if the node is to gain benefits" (Walker et al. 2000:325).

Actor *i* is "exclusively connected when $Ni > Mi \geq Qi = 1$" (Willer 1999:53). For example, consider position A in the branching structure in Figure 1.1B. Position A has three connected exchange relations, thus $N = 3$. This position is exclusively connected when its maximum number of exchanges (*M*) is less than 3, and must exchange with at most one to benefit (*Q*); A can exchange with only one or two of the peripheral connections. Then one or two of the peripheral positions will be *excluded* from exchange. Because of exclusion, the central A position is advantaged. Each of the peripherals in

A. Dyad



B. Br31



C. 4-Line

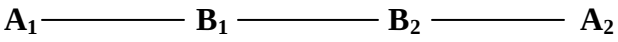


Figure 1.1 Study 1 Exchange Networks.

this structure is singularly connected; thus $Ni = Mi = Qi = 1$. None has another exchange relation from which to benefit if an agreement with A is not reached. Therefore, the peripherals will compete with each other to avoid being excluded, sending the central position increasingly better offers.

Actor *i* is "null connected when $Ni = Mi > Qi = 1$" (Willer 1999:53). Like exclusion, null connection is "defined by comparing the number of relations incident at *i* to the largest number in which *i* can *benefit*" (Willer 1999:198). In this comparison of *N* and *M*, "[w]hen $Ni = Mi$ the connection is null and none of *i*'s partners must be excluded" (Willer 1999:198). Position A in Figure 1.1B is null connected when it can exchange with any or all of its relations and can benefit independently from each exchange. Therefore, changing the number of relations null connected at a node will not affect the power exercise.

Actor *i* is "inclusively connected when $Ni = Mi = Qi > 1$" (Willer 1999:53). It should be noted that inclusion alters the value of *Q* from being *equal to* one, as is the case for exclusion and null connection. Actor *i* is inclusively connected "when *Qi*, the minimum number of relations in which *i* must exchange, is larger than one" (Willer 1999:199). Inclusion occurs when a position must exchange with all of a set of related actors in order to benefit. Returning to Figure 1.1B, Position A is inclusively connected when it must exchange with all three relations in order to benefit from any. The peripheral positions are powerful in an inclusive structure; if any peripheral rejects exchange, the central position cannot benefit.

NET employs Elementary Theory's principle that "all social actors act to maximize their expected preference state alteration" (Willer 1999:30). The Resistance

factor captures the social actor's interest in maximizing, but also in avoiding the costs of confrontation. The Resistance equation is used to generate predictions for exchange ratios in relations. To generate such a prediction, we first must determine two initial conditions, P_{max} and P_{con} for each position. P_{max} is an actor's best hope or best payoff in a relation, while P_{con} represents payoff at confrontation, in which an agreement cannot be reached. A resistance factor can be calculated for any actor by weighing the best hope in an agreement with the worst fear, or cost of not exchanging. We can solve for the exchange rate in a relation by setting two actors' resistance factors equal to each other, following Principle 2 of the theory.[2]

In a typical NET experiment, participants occupying positions are in a "resource pool relation" (Willer 1999:8). A pool of resources is located between a pair of positions, but neither position owns or holds these resources (often framed as "points" to experimental participants). Actors make offers of resource divisions between self and other. When an exchange is completed, each actor receives the agreed upon amount as a payoff. If an agreement cannot be reached, the resource pool is not divided and neither actor receives a payoff. A power exercise occurs when one actor benefits at the expense of the other (Willer 1999).[3] Power differences occur due to conditions of the structures.

In more than one thousand experimental sessions, the metric predictions of NET have been routinely supported (Patton and Willer 1990; Markovsky et al. 1993; Skvoretz and Willer 1993; Willer and Skvoretz 1997; Willer 1999; Walker et al. 2000; Willer and Emanuelson 2008). 25 years of experience have resulted in well-proven theory and associated procedures; it is quite clear that the research paradigm captures dynamics and

[2] The Resistance equation is revisited in Chapter 2 with a modeled example.
[3] See Chapter 2 for an explanation of equal, weak, and strong power structures.

outcomes predicted by NET. In fact, a recent comprehensive comparison of ten exchange theories showed NET to be the most precise and to have the broadest scope of applicability (Willer and Emanuelson 2008). The scope of NET is much broader than the other exchange theories for it has formulated and investigated, not just one, but seven structural power conditions (Willer and Emanuelson 2008).

SOCIAL VALUE ORIENTATIONS: WHAT ARE THEY AND HOW ARE THEY STUDIED?

In this section, I first define social values and review the three major orientation types. I then review the main assessments of SVOs and key research findings. I conclude this section with some of the typical explanations of why the different orientation types so frequently produce contrasting behaviors in experimental settings.

Defining Social Values

According to Liebrand and McClintock, "different individuals assign different weights to their own and to others' outcomes" (1988:397). Based on these weights, we can assign orientation types to actors. These orientations are typically viewed as *preferences* for how outcomes should affect self and other (Liebrand 1986; Liebrand and McClintock 1988; Bogaert, Boone, and Declerck 2008).

Bogaert et al. (2008) offer definitions for the three major orientation types. When choosing between outcome options, prosocials express other-regarding concerns and "strive to maximize joint outcomes and equality in outcomes" (2008:456). Prosocials also make decisions such that the difference between self and other is minimized.

Individualists "strive to maximize their own outcome only" (2008:456). The individualist is narrowly self-interested in that s/he is only concerned with his or her own payoffs, and not the outcomes for the other.

Competitors "strive to maximize their own gains relative to other's gains" (2008:456). The competitor's preference state is highest when he or she gains maximally relative to the other, without regard to the amount of the competitor's outcome. For instance, consider that a competitor can choose payoffs for self and other, and has 2 choices. In option A, the competitor can earn 10 points and the other can earn 7 points. In option B, the competitor can earn 7 points, and the other can earn 1 point. Option B is preferred for the competitor because it provides the greater difference in payoffs, despite the fact that 7 is suboptimal relative to 10.

From these definitions, it becomes clear that prosocials and competitors base their preferences on a comparison of self and other's potential outcomes, while the individualist's preferences are based on a ranking of outcomes affecting self alone. It should be noted, though, that because individualists and competitors act similarly in many experimental conditions and are both considered self-interested orientations, they are frequently collapsed into a single type, the proself (De Cremer and Van Lange 2001; Smeesters et al. 2003; Simpson 2004; Simpson and R. Willer 2008).

That these orientation types are stable, fundamental traits is frequently accepted throughout the SVO literature (Messick and McClintock 1968; Bogaert et al. 2008). This is sometimes explained through assumed genetic origins. An individual is thought to be biologically predisposed to a particular orientation type, self- or other-regarding (Van Lange et al. 1997; De Cremer and Van Lange 2001; Smeesters et al. 2003). Researchers

also point to the temporal stability of SVO found in test-retest studies (Sheldon 1999; Van Lange 2000). Van Lange (2000) notes two test-retest studies of varying lengths of time which reflected temporal stability. Van Lange and Semin-Goossens (1998) found that 75% of study participants maintained their SVO over a period of 6 months; a similar study found that almost 59% of study participants expressed the same SVO when retested after a 19 month period. Although these results reflected less temporal stability, this percentage was still comparable to that found for other factors considered to be stable traits, such as attachment style (Van Lange 1999).

Importantly, some of the SVO research shows that these orientations are prone to manipulation (Johnson et al. 1981; Bogaert et al. 2008). While SVO can be seen as a stable and consistent trait in many situations, individuals' choices may be dampened or overwhelmed by particular conditions. SVO has been found to be subject to influence from framing, priming, and other situational conditions (Hertel and Fiedler 1994; Van Lange et al. 1997; Van Lange 2000; Smeesters et al. 2003). Therefore, it is argued that predictions must be grounded in orientation *and* the conditions of the situation.

SVO Assessments and Research Findings

Extensive SVO research supports the predicted differences between orientation types. The majority of this research places participants in games and social dilemmas. Social dilemmas are situations in which the individual's interests are at odds with the collective interests. An individual may choose to maximize his or her own gains, but this will reduce the collective gain (Schroeder 1995; Komorita and Parks 1996). The most common assessments of SVO include decomposed games and the Ring Measure

(Kuhlman and Marshello 1975; Liebrand and McClintock 1988; De Bruin and Van Lange 1999; Van Lange 1999; Simpson 2004; Murphy, Ackermann, and Handgraaf 2011). Choices made in the Prisoner's Dilemma Game and Dictator Game have also been shown to be indicative of orientation type differences, although they are not used as assessments to measure SVO (Poundstone 1992).

The Ring Measure (Liebrand 1986; Liebrand and McClintock 1988; Van Lange 1999) is an assessment of choice preferences which takes into account utility functions capturing consideration of outcomes for self and other. Study participants are presented with multiple pairs of options (typically 24) for monetary allotments to self and a partner. These outcomes may be positive or negative; for example, a participant may choose between 10 dollars for self and 10 dollars for other or 13 dollars for self and -7 dollars for other.

An individual's choices are then mapped onto an outcome plane based on the calculated weights assigned to self and other. Location on the plane determines orientation type, but at least 60% of the choices must be consistent for classification. Each quadrant on the plane corresponds to how individuals value positive and negative outcomes for self and other. For example, the top right quadrant covers positive outcomes for both self and other, suggesting a cooperative orientation. Figure 1.2 provides a model of the Ring Measure based on Liebrand's conceptualization (1984).

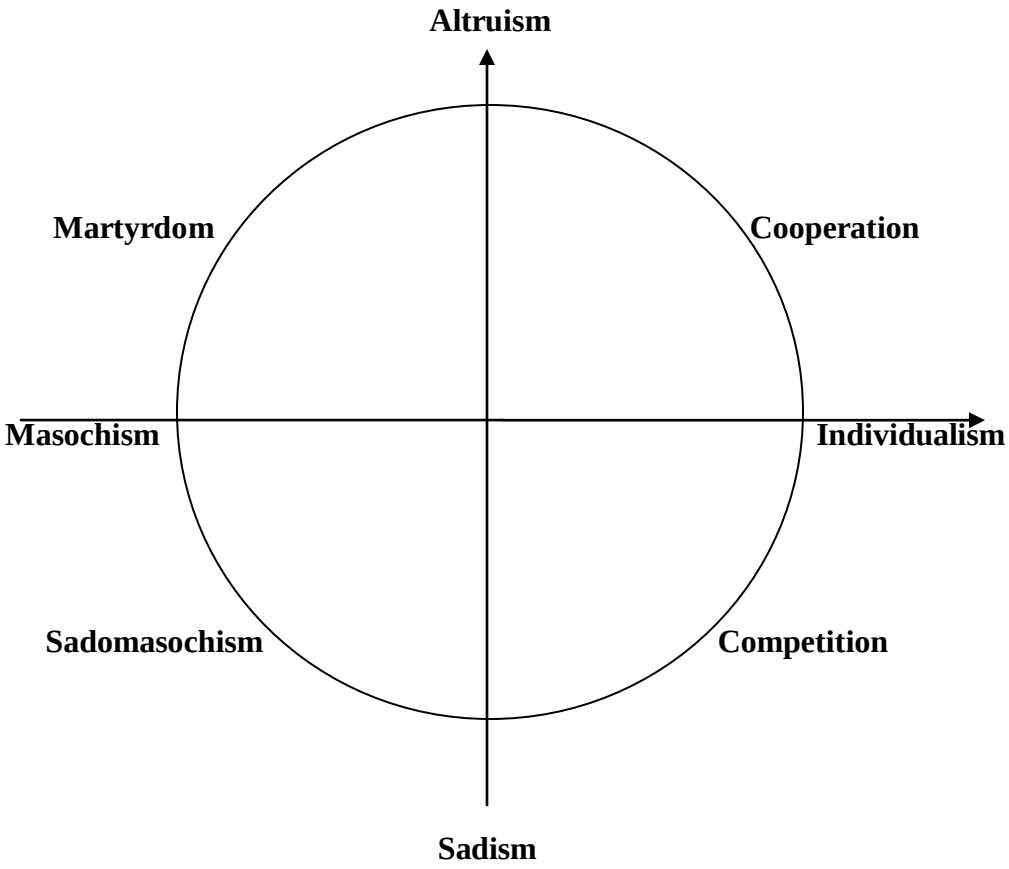


Figure 1.2 An Example of the Ring Measure.

Decomposed games are the most common measure of SVO. The most frequent decomposed game assessment is the Triple-Dominance Measure of Social Values (Van Lange and Kuhlman 1994; De Bruin and Van Lange 1999; Van Lange 1999; Simpson 2004; Bogaert et al. 2008) known also in similar forms as the Nine Item Social Value Inventory. In this measure, respondents are presented with 9 decisions, each with 3 options from which to choose.

Within a decision round, each outcome option corresponds to one of the major orientation types. For example, a participant must select between the following three options: 1) 500 points for self and 500 points for other (prosocial choice), 2) 540 points for self and 280 points for other (individualist choice), and 3) 480 points for self and 80 points for other (competitor choice). Option 1 corresponds to the prosocial orientation as it allows for equal outcomes. Option 2 represents an individualist choice because it provides the respondent with the highest payoff outcome to self. Option 3 corresponds to a competitive orientation because it allows the respondent to have the largest advantage over the other. Participants must make consistent decisions in 6 out of 9 rounds in order to be classified. This classification is somewhat more stringent than the Ring Measure, as it requires 66.67% consistency in participants' responses, compared to the 60% response consistency of the Ring Measure.

That the Ring Measure and the Triple-Dominance Measure of Social Values both require less than 100% consistency for classification suggests that test-retest reliability of SVOs should be high. Even with some degree of drift among responses, participants can still be classified as the same orientation type at Time 1 and Time 2. That test-retest

reliability is frequently lower than 100% correspondence adds support to the argument that social values are flexible states.

Empirical studies have found differences between prosocials and proselfs in cooperation levels, expectations, and negotiation strategies. Not surprisingly, prosocials are more cooperative than proselfs and share more resources in the Dictator and Public Goods games. These games measure cooperation by asking participants if they would be willing to share points or resources with a partner or a collective (De Cremer and Van Lange 2001; Van Lange 1999; Van Lange and Visser 1999; Fisman, Kariv, and Markovits 2007).

Simpson and R. Willer (2008), however, found that situational conditions can increase the amount of resources shared by proselfs in a Dictator Game. The authors found that "[e]goists act prosocially when reputational incentives are at stake" (2008:37). In Study One, participants who had been classified as altruists or egoists first played a Dictator Game for a measure of prosocial behavior. Next, "a new (third) participant ostensibly decided how much of a $12 resource pool to send to the participant" (2008:41). To establish reputational incentives, Simpson and R. Willer (2008) created public and private conditions for this second phase. In the private condition, study participants were told that their decision in the first phase would not be shared with this new participant. In the public condition, concern for reputation was introduced by informing participants that this new participant would know their decision in the first phase. Egoists in the public condition shared significantly more resources than egoists in the private condition, supporting the argument that establishing a prosocial reputation is expected to lead to a higher payoff in the second phase of the public condition.

Research investigating expectations asks how participants of varying SVOs will expect perceived partners to act based on skills or characteristics, and how participants will behave toward these ostensible partners. De Bruin and Van Lange (1999) found that when prosocials believed their partners were moral, they expected greater cooperation and they were willing to be even more cooperative.[4] Proselfs expected greater levels of cooperation when they faced unintelligent partners.

Utz, Ouwerkerk, and Van Lange (2004) also explored how orientation types might respond differently to intelligent or unintelligent partners. Prosocials responded with greater cooperation when they were led to believe their partners were competent, and their actions were more sensitive to partners' strategies. When proselfs (in this case, competitors) were primed with competence, they reduced their cooperation and exploited their partners more often. Another study found support for a "false consensus effect," a trend in which proself and prosocial participants expected others to share their orientation (Iedema and Poppe 1994:573). While the frequency of false consensus differed, prosocials more frequently expected others to be prosocial rather than proself, and proselfs more frequently expected others to be proself rather than prosocial.

Some SVO research has examined differences in negotiation and found that the strategies of prosocials are more closely tied to fairness. De Dreu and Van Lange (1995) reported that prosocials demanded less, conceded more often, more often viewed their partners as fair, and expressed concern for their partners' outcomes, as compared to proselfs. In a study by Kuhlman and Marshello (1975), prosocial and proself participants played Prisoner's Dilemma games with computers programmed to cooperate all the time,

[4] De Bruin and Van Lange define 'morality' as a "social desirability" dimension based on "a tendency to be good or bad to other people" which "includes traits such as '(dis)honest' and '(in)considerate'" (1999:306-307).

defect all the time, or play tit-for-tat (Axelrod 1984). Prosocials cooperated most often, but adjusted their strategy when they encountered the defection strategy. Proselfs were less inclined to adjust their negotiation strategies, but individualists were more likely than competitors to cooperate with tit-for-tat.

Why Do Prosocials and Proselfs Differ?

Why do these differences between prosocials and proselfs exist? I now review the major explanations for these differences. First, some researchers claim that actors with differing orientation types view games differently. In a Prisoner's Dilemma, proselfs will tend to view defection as the rational choice. Prosocials, however, assign a different payoff matrix to this game. For this orientation, cooperation is perfectly rational (Liebrand 1986). Simpson (2004) makes a similar claim. Proselfs view the Prisoner's Dilemma payoff matrix as the standard game, while prosocials tend to transform the payoffs into an Assurance game where the dominant strategy is cooperation.

Actors with differing orientation types are also thought to have different individual inclinations toward action. For example, De Cremer and Van Lange (2001) explain differences in cooperation with inclination toward social responsibility. Prosocials feel a much greater sense of social responsibility, which is why they want to contribute more often than do proselfs and improve the collective interest. Others claim that behavioral differences are a result of different inclinations toward cooperation. Individuals who are identified as prosocial express a greater willingness to act cooperatively (Van Dijk, De Cremer, and Handgraaf 2004). In general, it is frequently asserted that we should routinely observe behavioral differences between prosocial and

proself orientation types because they undergo contrasting cognitive processes when making decisions.

INTEGRATING NET AND SVO

As reviewed above, both theories have a long history of research supported by experimental findings. Previous research in SVO has firmly established that social values produce strong effects in various games and social dilemmas (Bogaert et al. 2008; De Cremer and Van Lange 2001; McClintock and Liebrand 1988; Simpson and Willer 2008; Van Lange 1999; Van Lange et al. 1997). Likewise, the NET experimental setting has been used countless times to test exchange theories. Those experiments firmly supported NET.

If both bodies of literature have routinely demonstrated consistent experimental support over time, what is the objective of this dissertation research? What knowledge is left to be discovered from these heavily researched areas? First, the integration of SVO and NET offers the possibility of expanding the scope of NET to include multiple types of rationality, beyond the narrowly rational actor model. The fact that there is evidence of individuals engaging in other-regarding behaviors (seemingly "irrational" behavior) suggests that we should consider modifying NET equations to allow for multiple preferences. Willer asserts that "[w]hen a social relation is embedded in one type of structure, people produce one kind of behavior" (1999:xiii). The inclusion of differing values carried into relations by actors, however, has the potential to produce an array of contrasting behaviors.

Second, the study of SVO within NET structures provides the opportunity to investigate how people of differing SVOs might differently relate to power. Power, as stated by Russell, "is the fundamental concept in social science" (1938:4). It has been identified in the past as both control of another actor (Weber [1918] 1968) and benefit at the expense of another (Marx [1867] 1967). In this dissertation, power is defined as an outcome which is "more favorable to one actor and less favorable to another than an equipower baseline rate" (Willer 1992:191).[5]

In previous research, some exchange networks have routinely produced the exercise of power by certain people over others. Now consider an actor who favors equality and outcomes which are beneficial to self and other who is placed in a powerful position in an exchange structure. Will the actor succumb to the temptation of exploiting others, or will s/he seek equality? If the former, has the actor been affected by the kind of interactions that occur in exchange relations as actors seek agreement? We can also consider actors occupying equal power positions in a dyad. If a proself is paired with a prosocial, how might the negotiation process be altered? Will the proself have the negotiation skills to exploit the prosocial, even in a structure which is absent of power differences between positions?[6]

Furthermore, the following research integrating SVO and NET provides a new test of SVO effects. To my knowledge, negotiation within economic exchange relations has not yet been investigated. Previous SVO research has focused on mixed-motive

[5] It should be noted that Willer's (1992) assertion does not compare actors' utilities, unlike the concept of equipower utilized in Power-Dependence Theory, which does compare actors' utilities (Emerson 1962; Cook and Yamagishi 1992).

[6] Chen et al. (2001) investigated a similar set of questions in their study of differing conceptualizations of power. Communally oriented individuals "associate power with self-oriented goals," while exchange oriented individuals see power "linked to social responsibility goals" (173). The actions of participants primed with power corresponded to the power-related goals specific to their orientation.

social dilemmas where differing SVOs have resulted in highly contrasting behaviors. The study of SVO within NET structures provides the opportunity to investigate how people of different SVOs behave in a different mixed- motive environment. Exchange relations, too, have mixed motives. In both settings, actors' interests are opposed but also complementary (Weber [1918] 1968; Willer 1999). The interest situation of exchange relations differs in one important regard from the settings of most previous SVO research: resource divisions in exchange experiments are zero sum games.

The outline of the dissertation is as follows. In the three following chapters, I will provide a more detailed explanation of how NET and SVO theoretical elements are integrated, present two experimental studies which embedded actors of differing orientations in exchange networks, and then discuss possible reasons for why these findings so often contrast with the majority of the SVO literature.

Chapter 2 explains how we can test for SVO effects in exchange structures, beginning with a review of metric predictions for combinations of SVO actors in multiple types of networks. Next, I review the experimental design and results of my first dissertation study. In this experiment, participants of varying SVOs were placed into exchange networks. Despite the extensive amount of research on social values, this is the first time orientation types have been examined within such social relations. Study 1 placed actors of differing SVOs into one of three types of exchange networks. The earnings of participants with differing SVOs were generally indistinguishable, rather than contrasting.[7]

[7] Negotiation processes, which yielded some differences between prosocials and proselfs, were also examined.

Chapter 3 follows with Study 2, which compared coalition formation between groups of prosocials and groups of proselfs in exchange networks. The results of this experiment were similar to those of Study 1; rather than revealing strong differences between prosocials and proselfs, these resulted tended to suggest commonalities. I conclude Chapter 3 by asking why this set of experiments produced findings which differ so greatly from the majority of SVO research.

Chapter 4 provides two possible explanations for such an overlap of behavior between proselfs and prosocials. These explanations are not intended to be exhaustive or definitive, but rather possibilities which could be tested at a future date. As I explain in the chapter, one of these explanations, that prosocials may experience cognitive overload when managing multiple relations, can be tested in the sociology laboratory. The other explanation suggests that different structural and situational conditions produce different sets of behaviors, and have the potential to override individual proclivities. I will argue that the most likely explanation is that social structural conditions prescribe what should be considered rational behavior; in the case of economic exchange, social structural conditions call forth proself behavior. Then, I discuss the implications of the dissertation research, such as support for the recognition of SVO as a flexible trait that is subject to situational influences. I conclude the chapter by considering future research directions that incorporate social values and exchange.

CHAPTER 2

TESTING SVOs IN EXCHANGE STRUCTURES: STUDY ONE

A body of literature on Social Value Orientations (hereafter SVO) postulates three orientations to rational action: the individualist, the prosocial, and the competitor. These orientations are preferences for how outcomes should affect self and other (Liebrand 1986; Liebrand and McClintock 1988; Bogaert, Boone, and Declerck 2008). Only one of these orientations, the individualist, corresponds to the narrowly self-interested rational actor. As discussed in Chapter 1, SVO effects have been studied and found in a variety of conditions, but, to my knowledge, have not yet been investigated in economic exchange. The question for this research is, "How, if at all, will SVO effects alter the negotiation processes and outcomes in exchange networks?"

The organization of this chapter is as follows. I first review the SVO types and their utility functions. Then SVO actors are embedded in exchange relations and structures. They are embedded by reformulating NET's Resistance equation in light of SVO utility functions. As a result, new predictions for SVO actors in exchange structures are generated. Here, I review how such predictions are generated for equal and strong power structures (Willer, Gladstone, and Berigan 2013) and offer new predictions for a weak power structure.

I then introduce Study One, which placed actors of differing SVOs into exchange structures. Contrary to the findings in the majority of previous SVO research, these new findings revealed more similarities between orientation types than differences.

In general, proselfs and prosocials earned similar payoffs within each type of exchange structure. The most convincing evidence of SVO effects is within the analysis of negotiation processes. As discussed below, prosocials and proselfs exhibited some moderate to significant differences in actions and timing during rounds of exchange.

EMBEDDING SVO IN EXCHANGE NETWORKS

Utility Functions

Bogaert et al. (2008) offer definitions for the three orientation types. Prosocials "strive to maximize joint outcomes and equality in outcomes." Individualists "strive to maximize their own outcome only." Competitors "strive to maximize their own gains relative to other's gains" (2008:456).

Following these definitions, Willer, Gladstone, and Berigan (2013) developed utility functions for prosocials, individualists, and competitors in terms of outcomes for self and other. Where *i* and *j* are respectively self and other in an exchange relation, U_i is the utility of *i*, P_i is *i*'s payoff and P_j is *j*'s payoff, SVO actors seek to maximize the following utility functions:

$$\text{Individualist:} \quad U_i = P_i \tag{1}$$

$$\text{Competitor} \quad U_i = P_i - P_j \tag{2}$$

$$\text{Prosocial:} \quad U_i = P_i + P_j - |P_i - P_j| \tag{3}$$

The individualist's utility function in Equation 1 corresponds to the rational actor typically produced in normal NET experimental conditions. The competitor's utility is defined as a difference function which offers a particular payoff set for the competitor. Willer, Gladstone, and Berigan explain that

> since any actor will exchange only if $U_i > 0$, the competitor will reject any settlement for which $P_j \geq P_i$. In words, because any actor exchanges only if its utility is greater than zero, the competitive actor will exchange only if its payoff is greater than the payoff of the other with whom it is exchanging (2013:116).

The prosocial is sometimes defined in the SVO literature as seeking maximum joint outcome for self and other (Kuhlman, Camic, and Cuhna 1986; Bogaert et al. 2008); Willer, Gladstone, and Berigan (2013) instead follow Simpson's (2004) more complete definition. Simpson recognizes the maximization of self and other's utilities, but also the minimization of inequality between self and other (2004). It is important to note that the prosocial's utility function in Equation 3 captures *both* the additive function of seeking joint maximum outcomes and the minimization of difference between outcomes. As Willer et al. state, "in Eq. (3), $P_i + P_j$ is the sum in Simpson's definition while subtracting the absolute value of $P_i - P_j$ gives the minimization of outcome inequalities" (2013:116).

Utility has historically been defined in vague terms, if defined at all. In some cases, scholars rely on von Neumann and Morgenstern's ([1944] 2004) comparison of utility to satisfaction (Luce and Raiffa 1957; Willer et al. 2013). Regardless of the lack of a precise definition, it should be noted that utility is not a measure to be compared *across* SVO types. Only comparisons of utility units *within* SVO type are permissible because "utility units are particular to each individual and cannot be compared interpersonally" (Willer et al. 2013:117). These within – type comparisons are possible because we consider each SVO type as a "theoretic person" (Willer et al. 2013:117). Furthermore, in generating predictions, Resistance equations make only ratio comparisons, ratios that are dimensionless because utility cancels out.

Embedding Utility Functions in the Resistance Equation

Using resistance NET makes metric predictions for exchange ratios in various structures. The actor is modeled as balancing its interest in gaining the best possible payoff with its interest in avoiding confrontation, in which no exchange is completed (Willer 1984; Willer 1999; Willer and Emanuelson 2008). Where *Ri* is actor *i*'s resistance, *Pi* is *i*'s payoff, $Pi_{\max}$ is *i*'s maximum payoff (i's best hope), and Pi_{con} is *i*'s payoff at confrontation when agreement is not reached,

$$Ri = \frac{Pi_{\max} - Pi}{Pi - Pi_{con}} \qquad (4)$$

For any given $Pi_{\max}$ and Pi_{con}, when the payoff to *i* is high, the actor's resistance will be low. By contrast, low payoffs produce high resistance. Willer et al. assert that "seen dynamically, resistance is the extent to which the pursuit of better outcomes is inhibited by the avoidance of confrontation" (2013:117).

To integrate SVOs into resistance, Willer et al. (2013) substitute utility for payoff:

$$Ri = \frac{Ui_{\max} - Ui}{Ui - Ui_{con}} \qquad (5)$$

When *i* is an individualist, and actors *i*'s and *j*'s payoffs sum to 10 and the smallest unit difference, $\Delta = 1$,

$$R_{Ii} = \frac{9 - Pi}{Pi - 0}$$

When *i* is prosocial,

$$R_{Pi} = \frac{10 - (Pi + Pj - |Pi - Pj|)}{Pi + Pj - |Pi - Pj| - 0}$$

And when *i* is a competitor,

$$R_{\mathrm{Ci}} = \frac{8-(Pi-Pj)}{Pi-Pj-0}$$

$P_{max} = 9$ for the individualist because that is the largest payoff when the smallest unit, $\triangle = 1$, $P_{max} = 10$ for the prosocial when that actor and its partner both gain 5, and $P_{max} = 8$ for the competitor when the competitor gains the maximum of 9 and its partner's payoff of 1 is subtracted. P_{con}, the value at confrontation, is 0 for all types.

The second principle of NET states "agreements occur at the point of equal resistance for undifferentiated actors in a full information system" (Willer 1999:43). Therefore, to solve for *i*'s and *j*'s payoffs in an exchange dyad for any combination of SVO types, the two actors' resistances are set equal to each other. For example, for individualist A and prosocial B,

$$\frac{9-P_A}{P_A-0} = \frac{10-(P_B+P_A-|P_B-P_A|)}{P_B+P_A-|P_B-P_A|-0} \qquad (6)$$

Because $P_A + P_B = 10$, substituting, $P_A = 6.43$ and $P_B = 3.57$. We count this outcome as a power exercise because power is exercised when one actor benefits at the expense of the other (Cook et al. 1983; Willer 1999). Here the proself is benefitting at the expense of the prosocial. According to Willer et al. (2013), all SVO combinations, save one, result in unique solutions. This exception is paired prosocials, in which a unique solution is found by utilizing the condition that "exchange occurs at the lowest resistance value" (2013:119).[8]

[8] It is important to note that equations with absolute values will have two potential solutions because the absolute value must be solved by splitting the equation into two cases. For some equations, as in a proself – prosocial dyad, one of the two solutions will be mathematically impossible, leaving one unique solution. For other equations, as in paired prosocials, it may be necessary, as above, to select the solution in light of further criteria.

Willer et al. (2013) offer metric predictions for all dyadic configurations and the possible configurations for the Br21, a strong power structure. Strong power structures have high power and low power positions. High power positions are never excluded; low power positions are only connected to high power positions, and at least one low power position in the structure will be excluded. As noted by Willer et al., "[w]ith one high power position connected to two low power positions, Br21 . . . is the simplest strong power structure. The high power position exchanges once, excluding one of two low power positions" (2013:123).

Within the dyad, paired prosocials and paired individualists are predicted to exchange at equal power divisions. Paired competitors, by contrast, are expected to abstain from exchange, as neither actor would agree to an equal or less than equal offer. Willer et al. explain that "exchange can occur iff $U > 0$ for both actors. But $U_A = P_A - P_B$ and $U_B = P_B - P_A$. It follows that when $U_A > 0$, $U_B < 0$, and conversely. Two competitors cannot both have utilities greater than zero. Thus, they cannot exchange with each other" (2013:120). Individualists and competitors are expected to exploit prosocials, and competitors are expected to also exercise power over individualist partners.

The predictions for the Br21 suggest that the central, high power position will exercise power over peripherals, unless it is occupied by a prosocial or both peripheral positions are occupied by competitors. When all positions are occupied by competitors, no exchanges will occur, following the above discussion of competitor dyads. Paired competitors are predicted to abstain from exchange because they cannot both have utilities greater than zero. Those remaining structures with a prosocial occupying the central position or with competitors occupying both peripheral positions are considered

egalitarian; "their equilibrium exchange ratios are 5 – 5" (Willer et al. 2013:124). Prosocial centrals are predicted to negotiate in such a way that exploitation is *avoided* in the structure; Willer et al. (2013:124) assert that "*the central prosocial uses its power position to impose equality*" (italics in original). When an individualist occupies the central position and both peripherals are competitors, the structure is essentially egalitarian in that it is expected to iterate to conditions close to an equal exchange ratio, but "slightly more favorable to the" competitors (Willer et al. 2013:124).

Developing Predictions for the 4-Line

Willer et al. (2013) do not offer predictions for weak power structures, whose resource divisions fall between those of equal power structures such as the dyad, and the extreme divisions of strong power structures. Therefore, I developed predictions for the 4-Line network using their SVO utility functions.

The 4-Line network has two central positions connected to each other, with each connected to a peripheral position which has no other connections. Figure 1.1C displays this network. The exchanges which can occur in the 4-Line under a 1-exchange rule are as follows: the two central B positions can exchange with each other, excluding the peripheral A positions, or the structure may break into dyads if one A – B relation first completes an exchange. Markovsky and colleagues explain why resource divisions in weak power structures such as the 4-Line do not approach strong power divisions. They assert that

> weak power structures ensure that either all positions are prone to exclusion (as in the kite), or that no position – not even a position that of structural necessity is

never excluded (e.g., A in the stem) – is assured of being able to exclude another without cost. Thus, the certainty of exclusions in strong power networks is replaced by the possibility of exclusions in weak power networks (1993:202).

I embedded the utility functions of the three SVO types into the resistance factors for the A and B positions of the 4-Line to develop predictions for the various symmetric combinations of orientations, both pure and mixed. In a symmetric 4-Line, the actors occupying the central B positions are of the same SVO type, the actors occupying the peripheral A positions are of the same SVO type, and the SVOs of As and Bs are different in a mixed structure and the same in a pure structure. I will first review how predictions for weak power are formulated, and then explain how SVO effects were accounted for in my predictions.

Lovaglia and colleagues (1999) modify the Resistance equation to predict resource divisions in weak power structures. First, the Resistance equation for actor *i* where *Pi* is the payoff to *i* is now expressed as

$$Ri = \frac{Mi - Pi}{Pi - Ci}$$

where *M* is substituted for P_{max} as the term for 'best hope' and *C* is substituted for P_{con} as the term for 'worst fear' for actor *i*.

Lovaglia and colleagues present a modified Resistance equation to account for weak power by "first identifying theoretical restrictions for *Ci* and *Mi*" and assigning a likelihood of being included in exchange (1999:167). Specifically,

within these theoretical limits . . . *Ci* and *Mi* are proportional to an actor's likelihood of being included in exchange. That is, an actor's expectations for

profit, her worst fears and best hopes, depend on how often she expects to be included in profitable exchange (1999:167).

The way an actor's best hope and worst fear in a 4-Line network are modified is as follows. A key feature in weak power networks is that "actors cannot consistently exclude others from exchange without themselves suffering losses" (Lovaglia et al. 1999:168). This condition limits the range of values for an actor's conflict outcome; "the lower limit is zero – the amount an excluded actor receives – and the upper limit is half the total resource pool" (Lovaglia et al. 1999:168). Lovaglia and colleagues express the modified *Mi* as restricted to a range between and inclusive of half the resource pool up to the total resource pool. The lower limit is set as such because "half the pool is always a competitor because no actor is ever consistently excluded" (Lovaglia et al. 1999:168).

These two terms are further modified by factoring in the likelihood of being included in exchange because of the assumption that these expectations are proportional to actors' likelihoods of exchanging. The Resistance-Likelihood Assumption states "the higher an actor's likelihood of being included in exchange, (a) the higher the actor's perceived conflict outcome, *Ci*; and (b) the higher the actor's maximum profit expectation, *Mi*" (Lovaglia et al. 1999:169). It follows that for actor *i,*

$$M = \frac{P}{2}(l_i + 1) \; and \; C = \frac{P}{2} l_i$$

where *l* represents likelihood of being included in exchange and *P* is the size of the profit pool. Actors' likelihood values will vary depending on position in the network. Central B positions are predicted to be always included, with a calculated likelihood of 1; peripheral positions are calculated to have a likelihood of being included in exchange of 0.75

(Lovaglia et al. 1999). Substituting for *M* and *C*, and with P_i representing payoff, the Resistance equation for actor *i* in a 4-Line is

$$R_i = \frac{\frac{P}{2}(l_i + 1) - P_i}{P_i - \frac{P}{2} l_i}$$

As with other relations, resource divisions are solved by setting the resistance factors of two actors equal to each other.

To embed SVO effects in the 4-Line Resistance equation presented above, I follow Willer et al. (2013) by replacing *Pi*, the payoff term, in the numerator and denominator with the utility function for each SVO type.

When actor *i* is an individualist, the equation above remains unchanged. When actor *i* is a prosocial,

$$R_{Pi} = \frac{\frac{P}{2}(l_i + 1) - (P_i + P_j - |P_i - P_j|)}{(P_i + P_j - |P_i - P_j|) - \frac{P}{2} l_i}$$

When actor *i* is a competitor,

$$R_{Ci} = \frac{\frac{P}{2}(l_i + 1) - (P_i - P_j)}{(P_i - P_j) - \frac{P}{2} l_i}$$

To solve any SVO combination of the dyadic A—B portion of a 4-Line network, first substitute the SVO utilities for the payoff terms, then adjust the resistance factor to account for likelihood of being included in exchange based on network position.

For example, consider the division of 37 points between a competitor occupying the peripheral A position, with a 0.75 likelihood of being included in exchange, and a

prosocial occupying the central B position, with a likelihood of 1.[9] Where R_{CA} is the resistance of the peripheral competitor, P_C is the competitor's payoff term, R_{PB} is the resistance of the central prosocial, and P_P is the prosocial's payoff term,

$$R_{CA} = \frac{\frac{37}{2}(0.75 + 1) - (P_C - P_P)}{(P_C - P_P) - \frac{37}{2}(0.75)} = \frac{\frac{37}{2}(1 + 1) - (P_P + P_C - |P_P - P_C|)}{(P_P + P_C - |P_P - P_C|) - \frac{37}{2}(1)} = R_{PB}$$

and solving for P_C, the competitor is predicted to earn 26.59 points, despite occupying the lower power position, with the prosocial earning 10.41. Note that the competitor is predicted to exercise power from a lower power position. Table 2.1 presents the complete set of predictions for all A –B configurations.

From these predictions, it follows that prosocial centrals will exercise power over prosocial peripherals, but this A – B pairing is the closest to an equal resource division. A more surprising prediction is that prosocials should be exploited by individualists and competitors, regardless of location in the 4-Line network. Competitors are also expected to benefit when paired with individualists. Following Willer et al. (2013), competitors are predicted to abstain from exchange with each other.[10] It is important to note that two major expectations follow from this full set of predictions embedding SVO effects into exchange networks: prosocials will seek resource divisions which approach equality, thus resisting temptation to exploit, and proselfs will routinely exploit prosocials when possible.

[9] The use of 37 points is a departure from typical NET resource pools of 24 points. This departure is explained in Study 1.

[10] While competitors have been predicted to abstain from exchange with each other, I analyzed 4-Lines with competitors occupying the central B positions without breaking them into separate dyads. I analyzed these 4-Lines with the assumption that the threat of the B – B exchange between competitors could be used to gain a more favorable exchange with the peripheral. If analyzed as two dyads, a central competitor should earn 24.2 points when exchanging with an individualist peripheral (as compared to the predicted 26.2).

Table 2.1 4-Line Predictions.

Configuration (A—B—B—A)	**Exchange Rate for A-B relation**
P—P—P—P	17.34 – 19.66
I—I—I—I	16.06 – 20.94
C—C—C—C	No Exchange
I—P—P—I	23.13 – 13.87
C—P—P—C	26.59 – 10.41
P—I—I—P	10.79 – 26.21
C—I—I—C	23.13 – 13.87
P—C—C—P	8.09 – 28.91
I—C—C—I	10.79 – 26.21

Key:
P = Prosocial
I = Individualist
C = Competitor

STUDY 1: DO PROSOCIALS AND PROSELFS REACH DIFFERENT AGREEMENTS AND DO THEY NEGOTIATE DIFFERENTLY?

In this section, I will first describe the methods of Study 1, which placed actors of differing SVOs into one of three exchange networks. The first step was to measure participants' SVOs. In the second step I placed participants in light of their orientations into equal power dyads, the strong power Br31, or the weak power 4-Line. Figure 1.1 displays these networks. I will discuss the conditions, hypotheses, and exchange ratio results for each structure separately. Then I will describe the interaction processes of the exchange games. As the research progressed, I also included a third part, a one-shot Dictator game immediately prior to and immediately following the exchange rounds as a check on the measuring of SVOs. The results for the third part will be discussed last.

Methods

Participants were college undergraduates enrolled at a large state university. The Nine Item Social Value Inventory was used to measure social value orientation (McClintock et al. 1973; Van Lange 1999). The measure asks participants to decide how payoffs should be divided between the self and another. Nine scenarios are given, each with 3 options. A score of 7 consistent responses out of 9 was required to identify a participant as a prosocial, individualist, or competitor. I note that 7 consistent responses is one more than is commonly employed in SVO research (McClintock and Allison 1989; Van Lange and Kuhlman 1994; Van Lange et al. 1997). Those who received a consistent score were then contacted for the lab portion of the study.

Prospective participants could take the Nine Item Social Value Inventory early in the semester in which the research was carried out. In that case the Inventory was filled out in a classroom. Alternatively, students interested in volunteering for the study could take the Inventory online. As a result, the period of time between the Inventory and participation in an experiment could vary widely across participants. I felt justified in this design by the understanding, common across the SVO literature, that people's social value orientations are stable over time (Bogaert et al. 2008; Messick and McClintock 1968). Nevertheless, as the research went forward, further measures of SVO were instituted. As already mentioned, those new measures used the Dictator game and were given in the laboratory immediately prior to and immediately after the exchange experiment.

In the lab, participants were placed in individual rooms and read experimental instructions. In *prior* NET experiments, a proself orientation was intentionally produced by instructing participants that "Your goal is to earn as many points as possible." That instruction was omitted for this research. Instead, instructions suggested that they should "Negotiate as you see fit." These new instructions were given in order to allow participants to be guided by their social value orientations, rather than by an orientation cued for them.

Next, participants individually completed a computer tutorial for the ExNet program. ExNet allows participants to view a live display of the complete network, as well as all offers and completed exchanges in real time. The tutorial taught participants to use mouse control to make offers, counteroffers, and complete exchanges. After completing the tutorial, participants began the exchange portion in which they interacted

with each other. All sessions followed the '1-exchange rule,' in which each participant could complete a maximum of one exchange per round. Each experimental session lasted 10 to 20 rounds. Upon conclusion of the exchange sessions, all participants were paid by points earned and their questions about the research were answered.

In most previous research, exchange consisted of dividing a pool of 24 resources upon joint agreement (Cook and Emerson 1978; Willer and Emanuelson 2008). For these dissertation studies the number of resources in each pool was fixed at 37. This change was made in order to avoid possible priming effects for equity; 24 is obviously divisible by 2, whereas 37 is a prime number.

For this study, participants of one or another SVO type were placed into one or another kind of position in the structure. Because of behavioral similarities described in Chapter 1, individualists and competitors were collapsed into a single type, the proself (De Cremer and Van Lange 2001; Simpson 2004; Simpson and Willer 2008). Thus there are two SVO types to allocate. For the dyad, where there are two identical positions, I studied all three pairings: "pure types," proself – proself pairs and prosocial - prosocial pairs, and "the mixed type" proself – prosocial pairs. For the Br31 and the 4-Line there are two types of positions and thus four types of "pure" and "mixed" pairings for each, all of which are investigated.

Dyads

Dyads are equal power structures in that neither position is advantaged. The two positions are identical in terms of connection, as neither has a structural basis of power. Because dyadic positions are equal power, completed exchanges result in equal division

of resources unless pairs of participants carry different conditions with them into the exchange that affect results (Willer 1999).

Hypotheses

Embedding identical SVO types into the Resistance equation for the dyad produces a prediction of equal resource divisions. I expect proselfs, however, to earn more than half of the resource pool when paired with prosocials. The Resistance equation solution for this pairing is a 25.25 payoff for the proself and 11.75 points for the prosocial. This follows previous SVO literature which suggests that prosocials can be subject to exploitation by proselfs.

> *H1: Identical dyadic pairs will exchange at equal power, with each actor receiving 18.5 points on average.*
>
> *H2: Prosocials and proselfs in the dyad will earn average payoffs of 11.75 and 25.25, respectively.*

Results

Table 2.2 provides the average earnings in the three types of dyads studied here. As shown, participants in all dyads earned average payoffs nearly identical to equal power payoffs. Hypothesis 1 was thus supported. The observed mean for prosocial pairs was 18.72 (n= 10, SD= 0.74), which was not significantly different from the expected mean of 18.5 (p= 0.37, t= 0.94). Proself pairs earned an average payoff of 18.86 (n= 10, SD= 1.39); this observed mean was also not statistically different from the expected 18.5 (p= 0.43, t= 0.83).

Table 2.2 Average Earnings for the A Position in the Dyad.

CONFIGURATION A – B	M	N
P – P	18.72 (0.74)	10
P – I	18.56 (2.08)	21
I – I	18.86 (1.39)	10

Key:
P= Prosocial
I= Proself

***Numbers in parentheses are standard deviations.**

Hypothesis 2 expects SVO effects to alter conditions within the dyad by introducing power differences into a network with no structural means for power exercise; this hypothesis was not supported. The observed mean of 18.56 for prosocials when paired with proselfs (n= 21, SD= 2.08) was significantly different from the predicted 11.75 payoff ($p< 0.0001$, $t= 15.00$), but is *not* different from the equal power payoff ($p= 0.89$, $t= 0.13$).

SVO effects were absent in the dyad. Equal exchange means were found across all SVO combinations; this finding stands in contrast to the metric prediction for mixed pairs and numerous SVO studies which have found differences between SVO types. A possible explanation is that prosocials were not willing to succumb to the demands of proselfs and be exploited, but instead sought equality. Alternatively, it could be argued that the equal power structure overwhelmed the social value differences. Such explanations will be discussed in the following chapter.[11]

Br31 Structures

The Br31 is a strong power structure because it has two types of positions: the central position which can never be excluded, and the three peripherals, two of which will be excluded. The risk of exclusion drives competition between these positions to push resource divisions to the extreme as peripherals make increasingly favorable offers to the central – as observed in all previous research. (Willer 1999).

[11] Further analyses of interaction processes, including first offers and timing of negotiations, are discussed in a later section.

Hypotheses

Prosocial orientation suggests that, when central, prosocials should seek to complete exchanges with equal payoffs. That is to say, a prosocial occupying the central position should resist the temptation to exploit the peripherals. Proselfs are not subject to this concern for equity, and should behave in a manner consistent with previous NET findings, seeking only to maximize their own payoffs.[12]

H3: Prosocial centrals should receive an average payoff of 18.5.

H4: Proself centrals should receive an average payoff significantly higher than 18.5.

Results

I examined the following four structural configurations: 1) pure prosocial (prosocial central with all prosocial peripherals), 2) a prosocial central with all proself peripherals, 3) pure proself, and 4) a proself central with all prosocial peripherals. Because of my interest in the payoffs and actions of centrals, I focused on comparing configurations 1 and 2 to configurations 3 and 4. Table 2.3 reports the average earnings of centrals.

Prosocials earned an average of 25.01 points when occupying the central position (n=20, SD= 5.09). Hypothesis 3 predicted an average payoff 18.5 points for prosocial centrals. To test this hypothesis, a one-sample t-test showed a significant difference between the observed and expected means ($p < 0.0001$, $t= 5.72$). This finding does not

[12] It should be noted that power develops in strong power exchange structures through the actions of peripherals competing for exchange with the central, which should suggest that the peripheral's action is more important than the action of the central. Nevertheless, my interest in the central position stems from an argument made by Willer et al. As they suggest (2013:124), prosocial centrals may be more active as they seek out equal divisions to "impose equality" in the structure (italics removed).

Table 2.3 Br31 Average Earnings for Central Positions.

POSITION	MEAN	N
P Central	**25.01 (5.09)**	**20**
With P Peripherals	24.57 (5.45)	10
With I Peripherals	25.44 (4.95)	10
I Central	**27.69 (4.49)**	**14**
With P Peripherals	28.08 (4.91)	11
With I Peripherals	26.27 (2.50)	3

Key:
P= Prosocial
I= Proself

***Numbers in parentheses are standard deviations.**

support Hypothesis 3. As a follow-up test, I conducted a t-test to compare the prosocial centrals' observed mean to the observed mean of 27.69 points for proself centrals (n= 14, SD= 4.49). This difference was not statistically significant (p= 0.12, t= 1.59). Hypothesis 4 expected proself centrals to earn significantly more than an equal share of a resource pool. To test Hypothesis 4, I conducted a one-sample t-test to compare the observed proself central mean to 18.5 points, the expected prosocial payoff. A significant difference (p< 0.0001, t= 7.66) supported this hypothesis.

Taken together, these findings do not support hypothesized SVO effects. Proself power exercises are predicted by NET for strong power structures. Equally strong power exercised by prosocial centrals, however, is a departure from predictions based on resistance calculations and expectations formed from previous SVO research. As in the dyad, expected SVO effects were not found. Both prosocials and proselfs occupying the central position engaged in exploitation.

4-Line Structures

The 4-Line is a weak power structure. The central B positions are never excluded from exchange. The actors in these B positions can exchange with each other, or with the actors occupying the peripheral positions. The peripheral A positions are excluded if the Bs exchange with each other. Because of these possibilities, resource divisions in the 4-Line fall between equal divisions of equal power structures and extreme splits of strong power structures (Markovsky et al. 1993).

Hypotheses

I placed participants in the 4-Line with differing SVOs in the following configurations: 1) pure prosocial (prosocials occupying A and B positions), 2) prosocial central Bs with proself peripherals, 3) pure proself and 4) proself central Bs with prosocial peripherals. Because the initial metric predictions for the 4-Line distinguished individualists and competitors, I adjusted these to new predictions for the proself category. Following much of the SVO literature and the metric predictions, I expect prosocials to be exploited by proselfs, regardless of their position in the 4-Line, as shown in Hypotheses 6 and 7 below.

> *H5: Centrals in pure structures (configurations 1 and 3) should earn an average payoff that is slightly more favorable than an equal division. Prosocial centrals should receive an average payoff of 19.66, and proself centrals should earn an average payoff of 20.94.*
>
> *H6: When proselfs occupy the central B positions and prosocials occupy the peripheral A positions (configuration 4), proself centrals should receive an average payoff of 27.56.*
>
> *H7: When prosocials occupy the central B positions and proselfs occupy the peripheral A positions (configuration 2), prosocial centrals should receive an average payoff of 12.14.*

Results

For each experimental run, I combined the mean payoffs for both central Bs into one overall mean payoff. That is to say, I averaged payoffs across the two A – B relations of

the 4-Line. Table 2.4 presents the average earnings for the B positions in each configuration.

The findings partially support my predictions for the 4-Line structures. The predictions for the pure structures in Hypothesis 5 were partially supported. Prosocial Bs in configuration 1 earned a mean payoff of 17.95 (n= 8, SD= 2.17); this mean was not significantly different from the expected value of 19.66 (p= 0.06, t= 2.23).[13] Nevertheless, a p value of 0.06 is worth noting. While this is not technically significant by the arbitrary standard p value of 0.05, it is on the cusp of significance. This difference between the observed and expected means for pure prosocial 4-Line could be argued as a real and important difference. It is possible that with a larger cell size, this would become a statistically significant finding.

For mixed 4-Line structures, neither Hypothesis 6 nor Hypothesis 7 was supported. The findings were not consistent with the predicted payoffs. Looking first at Hypothesis 6, proself centrals in configuration 4 were expected to exercise power over prosocial peripherals and benefit at their expense. The observed mean of 19.69 for proself centrals in these structures (n= 11, SD= 1.18) was significantly different (p< 0.0001, t= 22.12) from the predicted payoff of 27.56. Hypothesis 7 also suggested that proselfs, even when occupying the peripheral positions, would benefit at the expense of prosocials. Said differently, prosocial centrals were expected to be exploited by proself peripherals. This expectation was not supported. The observed mean of 18.91 (n= 11, SD= 1.15) for prosocial Bs in configuration 2 was significantly different (p< 0.0001, t= 19.52) from the expected value of 12.14 points.

[13] Proself centrals in the pure proself structures earned a mean payoff of 19.68 points (SD= 1.19), compared to an expected mean of 20.94. Because of a low n for this configuration (n= 4), a t-test was not conducted.

Table 2.4 Average Earnings for Central B Positions in the 4-Line.

CONFIGURATION A – B – B – A	MEAN	N
P – P – P – P	17.95 (2.17)	8
I – P – P – I	18.91 (1.15)	11
P – I – I – P	19.69 (1.18)	11
I – I – I – I	19.68 (1.19)	4

Key:
P= Prosocial
I= Proself

***Numbers in parentheses are standard deviations.**

Despite the correspondence between the prediction for pure prosocial 4-Line structures in Hypothesis 5 and the results, the overall findings are more consistent with those in the previous structures. The means of all four SVO configurations were near 19 points; the central positions earned similar payoffs, in comparison to the power exercise expected from the initial predictions in Hypotheses 6 and 7. Evidence of SVO effects in these exchange networks rarely, if ever, occurred. Of the three types of exchange networks studied here, only the prosocial 4-Line structures revealed potential SVO effects in that the prosocial centrals did not exercise power over the prosocial peripherals.

Interaction Processes

In addition to investigating exchange payoffs, I also looked for possible differences in the negotiation processes within structures. A focus on exchange means alone looks past the series of offers and counteroffers preceding the completed exchange. Analyses of resource divisions at agreement ignore the negotiation process leading up to the completed exchange. For example, in dyads, if prosocials are seeking equality, they will reach agreement with each other more quickly than do proselfs whose motives are mixed.

To check for negotiation differences between SVOs, I first compared 'actions'. ExNet records all offers and completed exchanges; each offer, counteroffer and agreement is recorded as a separate 'action'. To compare configurations within each structure type, I counted the number of actions per experimental session and calculated means for each group. I will report these results for the dyad and 4-Line[14]. Additionally, I compared the timing of rounds and examined first offers in the dyad. Below, I will first

[14] The Br31 was not included in the analyses of interaction processes because of an interest in negotiations in equal and weak power networks rather than strong power.

review the action comparisons within the dyads and 4-Lines, and then discuss the supplementary tests of first offers and time to complete an exchange in the dyads.

Dyads

No differences in resource divisions between SVO combination types have been found. Nevertheless, differences in the negotiation process are also predicted. Prosocials should more quickly agree to exchange with less bargaining than proselfs.

H6: The number of actions in the negotiation process ranked from small to large is predicted to be: prosocial-prosocial, prosocial-proself, and proself-proself.

Paired prosocials had the fewest actions (M=145, n=11, SD= 69.14). Prosocial-proself dyads averaged 167 actions (n=26, SD= 60.41). Proself-proself dyads had the highest number of actions, with a mean of 186 actions (n=12, SD= 102.33). A comparison of the two types of pure structures was not significant (p= 0.28, t= 1.09). Neither the actions in the pure prosocial structures (p= 0.36, t= 0.92) nor the actions in the pure proself structures (p= 0.47, t= 0.72) were different from the actions in the mixed structures. These results are not strong enough to support Hypothesis 6. While the observed means are in the predicted direction, there were no significant differences.[15] These findings do, however, underscore the fact that predicted SVO differences either do not occur or are, at best, only weakly present.

4-Lines

Assuming SVO effects, I predicted results similar to those predicted for the dyad. Pure prosocial 4-Lines (prosocials occupying all A and B positions) should have the fewest

[15] It is important to note that this could be due to large standard deviations or the relatively small cell sizes.

negotiations, while pure proself 4-Lines (proselfs occupying all A and B positions) should have the most.

H7: I predict the following order for the negotiation process: pure prosocial 4-Lines should have the fewest negotiations, followed by prosocial centrals with proself peripherals and proself centrals with prosocial peripherals, and pure proself 4-Lines should have the most negotiations.

Pure prosocial 4-Lines had the fewest number of actions with a mean of 241.5 (n= 8, SD= 77.99). Pure proself 4-Lines had the next fewest number of actions with a mean of 315.75 (n=4, SD= 105.93). This was followed by 336.54 actions on average for prosocial centrals with proself peripherals (n= 11, SD= 131.40) and 426.54 actions on average for proself centrals with prosocial peripherals (n= 11, SD= 217.34).

The possible t-test comparisons revealed moderate support for Hypothesis 7.[16] A t-test found a significant difference (p= 0.035, t= 2.29) between the mean actions for pure prosocial 4-Lines (the smallest mean) and the mean actions for proself centrals with prosocial peripherals (the largest mean). The remaining comparisons were not statistically significant, yet are still worth noting because of important differences. Actions within pure prosocial 4-Lines were only different from actions in structures with prosocial centrals and proself peripherals (p= 0.08, t= 1.82). The actions of structures with proself centrals with prosocial peripherals were not significantly different from those in structures with prosocial centrals with proself peripherals (p= 0.25, t= 1.17). As an additional comparison, I grouped the four configurations into two types based on the SVOs of the centrals Bs. Structures with prosocial centrals averaged 296.52 actions per

[16] The pure proself 4-Line configuration was not included in the analyses due to the small n.

session (n= 19, SD= 119.50). Structures with proself centrals averaged 397.00 actions per session (n= 15, SD= 196.77). These means were marginally different in the predicted direction (p= 0.07, t= 1.84).

At first glance, these 4-Line results coupled with the dyad results suggest that I have found weak support for the presence of SVO effects. Yet despite only one statistically significant finding, what these results reflect is that there were other notable differences worth discussing. It is very likely that due to small cell sizes and large standard deviations, the differences in most of these comparisons were weakened. For example, proself centrals averaged almost 50% more actions than did prosocials. While the p value of this t-test was not within the range of statistical significance, I would argue that this is a real effect, as it is very close to 0.05. Simply ignoring p values of 0.07 and 0.08 would lead to overlooking notable findings. At this point, it would be premature to conclude that there is clear evidence of no differences in negotiation processes. A lack of statistical power is likely to have led to these findings, rather than an absence of different negotiation behaviors.

Supplemental Dyad Analyses: Timing and First Offers

Along with actions, ExNet records the time in seconds for each event within each round of exchange. After finding no statistically significant differences between dyad configuration actions, I next looked at the average time in seconds for completed rounds of exchange. Pure proself pairs averaged 61.7 seconds per completed round (n= 10, SD= 38.20). Pure prosocial pairs averaged 50.57 seconds (n= 10, SD= 37.70), and mixed pairs completed exchange at an average of 66.4 seconds (n=21, SD= 31.95).

I conducted the three possible t-tests, finding no significant differences in timing. Time to complete rounds in prosocial pairs was neither significantly different from time in proself pairs (p= 0.52, t= 0.66) nor from time to complete rounds in mixed pairs (p= 0.23, t= 1.22). Proself pairs and mixed pairs were also not significantly different in time to complete rounds (p= 0.72, t= 0.35).

To further explore potential timing differences between dyad configurations, I compared blocks of exchange rounds. I used the first five rounds of exchange and the last five rounds of exchange to examine how the timing of negotiation processes might differ over the course of experimental sessions. For example, do rounds of exchange reach completion faster over time? Which type(s) of dyads negotiated for the longest period of time?

In pure prosocial, pure proself, and mixed dyads, the average time to complete a round of exchange decreased between the first five rounds and the last five rounds. Prosocial pairs showed the largest time difference between first (M= 72.64 seconds, n= 10, SD= 55.68) and last rounds (M= 44.66 seconds, SD= 34.29). This difference in average time in seconds between the first five and last five rounds was significant (p= 0.02, t= 2.76). Neither of the other dyad configurations showed a significant difference in timing of negotiations between the first and last rounds. Proself pairs averaged 76.88 seconds (n= 10, SD= 37.79) per round during the first five rounds and 63.18 seconds (SD= 49.03) during the last five rounds (p= 0.4, t= 0.84). Mixed pairs averaged 68.22 seconds (n= 21, SD= 38.44) during the first five rounds and 58.85 seconds (SD= 35.87) during the last five rounds (p= 0.43, t= 0.80). Comparisons between dyad configurations

during the first five rounds and the last five rounds revealed no significant differences in timing.[17]

Overall, these tests of timing revealed almost no significant findings within the negotiation process between prosocials and proselfs. Nevertheless, these results suggest some differences in negotiation. Prosocial pairs showed a significant difference in the time to complete rounds of exchange between the first and last rounds. This finding perhaps suggests that, at least in terms of timing, prosocials negotiated with each other differently than did proselfs.

To analyze the first offer in each round of exchange, I noted the SVO of the participant making the offer and the points s/he wished to earn in the proposed offer. I compared all prosocials' offers to all proselfs' offers across the three types of dyads. When making a first offer to their exchange partners, prosocials proposed to keep a mean of 20.43 out of 37 points (n= 35, SD= 2.27). When proselfs made the first offer, they proposed to keep 20.75 points out of 37 on average (n= 37, SD= 2.57). A t-test found that this difference was not significant (p= 0.57, t= 0.57).

Within the mixed pair dyads, I also compared how often prosocials and proselfs conceded (accepted the partner's offer and completed the round of exchange). Prosocials accepted their partners' offers in 52% of the rounds, while proselfs accepted their partners' offers in 48% of the rounds; this difference was not significant (p= 0.47, t= 0.72).

[17] The average time per round during the first five rounds within prosocial pairs was not significantly different from that of proself pairs (p= 0.84, t= 0.20) or from that of mixed pairs (p=0.80, t= 0.25). Proself pairs and mixed pairs were also similar during the first five rounds (p= 0.56, t= 0.59). The average time per round during the last five rounds within prosocial pairs was not significantly different from that of proself pairs (p= 0.34, t= 0.98) or mixed pairs (p= 0.30, t= 1.04). Proself pairs and mixed pairs were also not significantly different in the last five rounds (p= 0.78, t= 0.28).

Dictator Games

Because of varying times between the completion of the Nine Item Social Value Inventory and the lab portion of the study, as the research progressed, a one-shot Dictator Game was introduced during two parts in the study. Along with the Nine Item Social Value Inventory measure, the Dictator Game has been used as a standard indicator of SVO (Fisman et al. 2007; Simpson and R. Willer 2008). The Dictator Game was administered just prior to the tutorial as an additional SVO measure (n=79). A post-test one-shot Dictator Game was added to check for potential effects of the exchange game on orientation, such as orientation drift (n=333). I also administered the Dictator Game to participants who were scored by the Nine Item Social Value Inventory but did not participate in the exchange portion of the study (n=94). This was done as a check for experimental effects on SVO.

In the Dictator Game, a player is given an endowment of resources and is asked to decide how these resources should be divided (if at all) with another person. The recipient is passive and has no role in the decision. In this experiment, each participant played a paper-and-pencil one-shot game. The directions informed each participant that s/he had been given 37 points, and these points could be kept or shared with another person in the study. The giver could choose any amount between 0 and 37 to give, and the recipient would never know the identity of the giver. Each person would then be paid based on the number of points earned in the game. These directions were the same for all Dictator Games. I expected prosocials to give more points than proselfs in all Dictator Game assessments.

Results

I performed a Pearson correlation test on the results of participants who completed both the pre-test and post-test games (n= 79). There was a correlation (r= 0.77) between points given in the pre-test and points given in the post-test, which suggests that participants' pre-experiment SVOs were not altered after the exchange game. In the post-experiment Dictator Game, prosocials gave an average of 14.06 points out of 37 to an ostensible partner (n= 187, SD= 8.47). Proselfs gave an average of 9.18 points out of 37 (n= 146, SD= 9.47). This difference in points given away by prosocials and proselfs was statistically significant ($p < 0.0001$, t= 4.95). The difference between points given by prosocials in the non-experiment Dictator game (M= 15.89, n= 46, SD= 7.12) and points given by proselfs in the non-experiment game (M= 9.71, n= 48, SD= 9.52) was also significant (p= 0.0006, t= 3.55).

I found no differences within SVO type across these conditions. The mean number of points given away by prosocials in the experiment and the mean number given away by prosocials not in the experiment were not significantly different (p= 0.2, t= 1.35). Similarly, the mean number of points given away by proselfs was not significantly different between post-experiment and non-experiment conditions (p= 0.73, t= 0.33). Regardless of pre-, post-, or non-experiment conditions, prosocials gave similarly, proselfs gave similarly, and prosocials were more generous to their ostensible recipients than were proselfs.

Discussion

The results from the three types of exchange structures in Study 1, along with the supplementary analyses described above, reveal an absence of significant SVO effects in exchange networks. The end results of negotiation, points earned in completed exchange, were indistinguishable between prosocials and proselfs. Both SVO types earned similarly in the dyad, Br31, and 4-Line structures. Moderate SVO effects were only found in the pure prosocial 4-Line; other hypotheses that predicted SVO effects were not supported.

Yet the examination of interaction processes suggested that there were some substantive differences between SVO types. While only sometimes statistically significant, these trends in the results revealed that prosocials required fewer actions to reach agreement in the 4-Line and were able to do so at a faster rate over time in dyads, as compared to paired proselfs and mixed pairs. What can be said at this point about these initial results in exchange rates and negotiation processes?

The exchange rates in the three structures currently provide the stronger set of evidence; despite some trends in the negotiation process, SVO effects were generally absent in the completed exchange rates. Regardless of how participants arrived at their agreements, their payoffs in all structures, except for the prosocial 4-Line, were indistinguishable from previous NET predictions that did not embed SVO factors. While my primary goal in this study was to focus on an examination of exchange outcomes rather than the processes leading up to completed exchanges, future work can return to the investigation of negotiations.

Nevertheless, these findings do not threaten the validity of previous SVO or NET research. Both research programs have a substantial history of repeated support for predicted outcomes in research. What my findings instead suggest is that there is a social structural effect (or multiple effects) which dampen SVO effects. What is most interesting about the lack of SVO effects is the action of prosocials. Proself actions corresponded with the expectations of SVO literature and normal NET conditions. Yet why did the behavior of prosocial participants in most structures converge with the behavior of proselfs? Perhaps the conditions in these exchange networks were too limiting for prosocials to signal and act on cooperative motivations. Yet that suggestion seems doubtful. Certainly when prosocials negotiated with prosocials, there were many opportunities to signal prosociality including making more cooperative first offers and making concessions more readily. In the next chapter, I introduce a second study which allowed for cooperation among participants in exchange networks.

CHAPTER 3

SOCIAL VALUES AND COALITION FORMATION IN EXCHANGE NETWORKS: STUDY TWO

As shown in the previous chapter, the experiments of Study 1 produced findings which revealed more similarities than differences between participants of differing SVOs. When placed in exchange structures, both prosocials and proselfs exchanged and exploited (when possible) in a similar manner. The majority of exchange results in the previous chapter corresponded to those of previous NET experiments in which an individualist orientation was encouraged and did not correspond to SVO findings reported in the literature or to the new resistance-based predictions discussed earlier in the chapter.

The dissertation research now turns to opportunities for collective action. Forming coalitions is a cooperative and collective task, one that should be more readily taken up by prosocials than by proselfs. If we are to find differences between prosocials and proselfs, it should be in their proclivity toward collective action.

A second study allowing coalition formation among low power actors was conducted to test for differences between prosocials and proselfs. Perhaps prosocials did not have the opportunity to signal cooperative intentions in the previous exchange experiments. If so, will SVO effects present themselves when the power conditions of

exchange structures are countered by the availability of a cooperation choice? If SVO effects are observed it will show that prosocials are more collectively oriented than proselfs in at least one exchange setting.

In this chapter, I will review previous research on collective action from both the exchange literature and the SVO literature. Then, I will discuss the methods and results of Study 2, which tested differences between prosocials and proselfs within exchange structures that allowed for coalition formation. Experimental conditions of the exchange structure and coalition formation replicated those of Simpson and Macy (2001).

Coalitions and Cooperation in Exchange and SVO Settings

In the hope of finding stronger SVO effects in exchange structures, interest has turned to structures in which actors can countervail power by acting collectively. Previous NET studies have investigated coalition formation within exchange structures (Simpson and Macy 2001, 2004; Simpson and Willer 2005; Borch and Willer 2006). A primary goal of these studies was to investigate how and when low power actors will form coalitions to countervail the power of a central actor.

Simpson and Macy (2001) found that low power actors who were able to countervail power, and complete coalitions (coalition formation by all low power actors in a network) could potentially reverse the power difference. In a later study, the authors investigated the relationship between cooperation levels in coalition formation and social identity (2004). Simpson and Willer (2005) investigated coalition formation in networks with differing power conditions. Borch and Willer (2006) examined the games embedded within exchange structures, and found that certain coalition conditions could

transform the game played by low power actors from a Prisoner's Dilemma to the Privileged Game. All found that coalitions countervailed power to some degree.

Allowing actors in peripheral positions to act collectively against a powerful, central actor has the potential to reduce inequalities in exchange. According to Simpson and Macy (2001), most NET experiments only allow communication related to negotiation of offers. Furthermore,

> the inability to communicate outside an exchange relation precludes coordination of offers by low-power actors who may be competing to exchange with a common partner but are unable to exchange with one another. Without the option of collusion, structurally disadvantaged actors must accept inferior allocations or risk exclusion from exchange (2001:89).

Following this argument, prosocials in Study 1 may have defaulted to competitive behavior because they had no means of signaling cooperative intentions.

SVO research proposes differences in preferences and behavior in collective orientation. Prosocials are more cooperative and more willing to share in the Dictator and Public Goods games (De Cremer and Van Lange 2001; Van Lange 1999; Van Lange and Visser 1999; Fisman, Kariv, and Markovits 2007). Another study suggested a projection effect when asking participants to guess the orientations of ostensible partners. The researchers found that participants expected others to share their orientation (Iedema and Poppe 1994). For instance, more prosocials expected others to be prosocials, than did proselfs. Proselfs more frequently expected others to be proself than did prosocials.

In general, the prosocial orientation type has been found to be associated with higher rates of cooperation, concern for others' outcomes, and collective motivation (De Dreu and Van Lange 1995; Bogaert et al. 2008). Prosocials feel a much greater sense of social responsibility, which is thought to be why they contribute more often than do proselfs and improve the collective interest in games (De Cremer and Van Lange 2001). In Study 1 of their 2001 research, De Cremer and Van Lange found that prosocials contributed at higher rates in a Public Goods dilemma and reported a greater sense of duty to benefit the group. Those who are identified as prosocial express a greater willingness to act cooperatively (Van Dijk, De Cremer, and Handgraaf 2004).

STUDY 2: ARE PROSOCIALS MORE COLLECTIVELY ORIENTED IN FORMING AND ACTING IN COALITIONS THAN PROSELFS?

In this section, I will describe the methods of the study. This study consisted of two experimental portions. First, the orientations of the participants were measured. Next, those that could be assigned one of the three orientation types interacted in a two-part exchange structure which replicated the structure and design used in Simpson and Macy's coalition study (2001). Figure 3.1 displays the network in which they interacted. After describing the methods, I will offer hypotheses and report results of the experiment.

Methods

Participants were college undergraduates enrolled at a large state university. The first step was to determine orientation type by administering an online survey. As in Study 1, The Nine Item Social Value Inventory was used to measure social value orientation

The Br32 Network

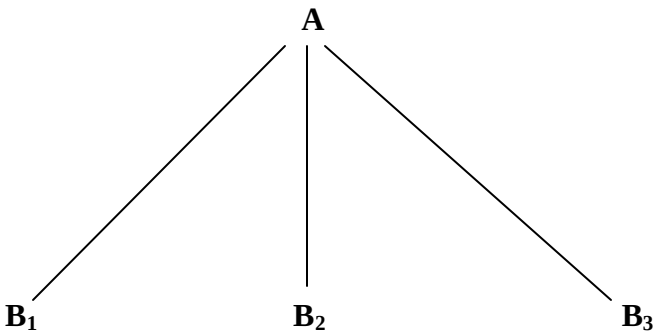


Figure 3.1 Study 2 Coalition Networks.

(McClintock et al. 1973; Van Lange 1999). Following the previous study, I collapsed individualists and competitors into the proself category (De Cremer and Van Lange 2001; Simpson 2004; Simpson and R. Willer 2008). Those who consistently answered 7 out of 9 items were then contacted for the lab portion of the study.

In the lab, the initial experimental setup was identical to Study 1. Participants were placed in individual rooms, read experimental instructions that they should "Negotiate as you see fit," and completed the ExNet computer tutorial. After individually completing the tutorial, participants began the interactive exchange portion.

The Br32 structure was used in the two-part exchange game in the lab. This power structure, shown in Figure 3.1, has one central position connected to three peripheral positions, which have no other connections. In each round, the central actor can complete only 2 of the 3 possible exchanges, meaning that at least one peripheral can be excluded per round. Each relation held a resource pool of 24 points.

Since the actions of the participants in the peripheral positions, rather than the central, are of interest in this study, following Simpson and Macy (2001, 2004), the central position of the Br32 was simulated in both parts. This simulation was a parametrically rational actor similar to those used in other NET research (Willer and Skvoretz 1997; Simpson and Macy 2001). A simulated central actor ensured that exclusion would occur in each round to the subject making the lowest offer. The simulated central actor "accepted the best offer and chose randomly among tied offers" (Simpson and Macy 2001:95). Furthermore, the actor did "not simply accept the first offer made" because it "was not activated at the beginning of each negotiation period but

only after a brief time period" (Willer and Skvoretz 1997:22). No participant expressed suspicion of the simulation.

Practice Exchange Structure (No Coalition)

The first exchange structure was designed to be a practice session for participants to familiarize themselves with ExNet before engaging in the coalition action. This practice session consisted of 6 rounds of exchange, with one peripheral excluded per round. Participants knew they would engage in several rounds of exchange, but did not know the exact number. Another benefit of this strong power structure as a practice session was to introduce participants to exclusion. Presumed negative reactions to exclusion from exchange were expected to make the benefits of coalition formation more salient (Simpson and Macy 2004).

I examined this precoalition data to check for similar rates of exposure to exploitation among the peripheral positions. Said differently, there was an interest in how power developed in prosocial and proself sessions. If prosocial and proself sessions experienced different exchange rates, then they might have acted differently according to differing perceptions regarding the need to countervail power. The peripherals in prosocial sessions earned a mean of 9.63 points out of 24 (n= 7, SD= 1.74). The peripherals in proself sessions earned a mean of 8.71 points (n= 8, SD= 1.95). A t-test revealed that this was not a significant difference in earnings during the non-coalition phase (p= 0.36, t= 0.93). Importantly, prosocial and proself sessions experienced similar rates of power development; thus, one group should not have been potentially more

motivated than the other to form coalitions based on differing conditions in the first phase of the experiment.

In this phase of the study and the one to follow, participants viewed their own and all other's offers and agreements. After completion of the 6 practice rounds, participants remained in their positions and began a new set of rounds in the Br32 structure.

Exchange Structure with Coalition Option

Participants next completed 12 rounds of exchange with the option of joining a coalition. Instructions and an explanation of coalition formation were provided on each computer screen through ExNet. Participants read the details of this portion individually, and then began negotiations when all were ready (signaled by clicking a "Ready" button). For this structure, a minimum of 2 out of the 3 peripherals were required to join the coalition for successful formation.

After the introductory information, the process of these exchange rounds was as follows: before each round, participants were asked if they wished to join a coalition. If there was successful formation, the members of the coalition were prompted to vote on a group offer to send to the central. These votes were then averaged to create the displayed group offer. Coalition members were not prevented from straying from this group offer. They were notified that all points earned by coalition members would be distributed equally among the members. Participants not in the coalition interacted with the central individually and retained any individually earned points. When the coalition did not form, all participants negotiated individually with the central and each retained any earned points.

Upon conclusion of the exchange sessions, all participants were given a post-experiment questionnaire. The questionnaire assessed relative satisfaction with the participants' earned points and negotiations, as well as how often they joined coalitions and the perceived success of such actions. They were then paid by points earned and their questions about the research were answered.

Hypotheses

Experimental sessions were grouped by orientation type. Each session consisted of all prosocial participants or all proself participants. Consistent with the SVO literature, I expected significant differences between prosocial and proself groups. Because of their inclination toward collective orientation and cooperation, prosocials should be more willing than proselfs to engage in coalition formation. The prosocials' sense of social responsibility and concern for others' outcomes enhance this likelihood.

Furthermore, prosocials may be more likely to form coalitions because of the projection argument presented earlier. Prosocials will expect others to share their preferences, here meaning a desire to cooperate and act collectively. The likelihood of forming a successful coalition with other assumed prosocials may increase the motivation to join in the initial action. Proselfs, by contrast, should expect others in the group to hold more individualistic motivations. If so, they would prefer to free ride, exchanging on their own.

H1: Prosocial peripherals will form coalitions more often than will proself peripherals.

Additionally, prosocial coalitions should be more successful, here meaning earn higher average payoffs out of a 24 point resource pool, than proself coalitions. Prosocials should be oriented toward offers and exchanges which are fair to all and trend away from exploitative exchange rates. They should earn more within coalitions than their proself counterparts because they are expected to have less interest in competition for exchange.

H2: Prosocial coalitions will earn higher average payoffs (be more successful) than proself coalitions.

Results

To test Hypothesis 1, the number of rounds out of 12 in which coalitions were formed was examined. The hypothesis was not supported; prosocials did not engage in coalition formation any more frequently than did proselfs. A t-test revealed that the mean number of coalitions for the prosocial sessions (M= 7.28, n= 7, SD= 3.45) was not significantly different (p=0.64, t= 0.47) from the mean number of coalitions in the proself sessions (M= 6.38, n= 8, SD= 3.81).

Hypothesis 2 was also not supported. To test this hypothesis, the average payoff for prosocial coalition members was compared to the average payoff of proself coalition members. Rounds without successful coalition formation were not included in this analysis. The average earnings of prosocial coalition members (M= 7.19, n= 7, SD= 2.64) were not significantly different (p= 0.37, t= 0.91) from the average earnings of proself coalition members (M= 6.41, n= 8, SD= 1.78). Prosocial coalitions were no more effective in countervailing the power of the central actor than were proself coalitions.

Due to the lack of support for both hypotheses, I conducted additional comparisons using t-tests to check for other possible differences. Following Hypothesis 1, I compared how often out of a possible 12 rounds each experimental session formed a complete coalition of 3 members. While prosocials and proselfs did not statistically differ in how often they formed coalitions, perhaps they would differ in how often they formed complete coalitions of 3 members. The difference between the average number of complete coalitions formed by prosocials (M= 1.57, n= 7, SD= 1.71) and the average number of complete coalitions formed by proselfs (M= 2.87, n= 8, SD= 3.35) was not significant (p= 0.37, t= 0.92). The mean number of complete coalitions for proself sessions was almost double that of prosocial sessions. It is possible that with a larger number of sessions or smaller standard deviations, this difference would be significant. For now, this result suggests that there was not a significant difference in how often prosocials and proselfs formed complete coalitions.

A second supplemental comparison followed Hypothesis 2 in that it examined potential differences in earnings. Because I only compared the earnings of coalition members in my test of Hypothesis 2, I next compared the earnings of prosocial and proself free riders when coalitions of only 2 members were formed. I expected proself free riders to be more successful than prosocial free riders, earning more points on average. This expectation was not, however, supported by the results of the t-test. In fact, prosocial free riders earned more points on average (M= 10.91, n= 33, SD= 4.79) than did proselfs (M= 8.07, n= 27, SD= 3.79). The average earning of prosocial free riders was significantly different from (p = 0.01, t= 2.50) and larger than the average earnings of proself free riders.

One prosocial session stood out as a potential outlier with higher free rider earnings than other sessions. Because of this, I conducted another t-test with this session removed from the analysis. After removal of the outlier session, prosocial free riders earned an average of 9.48 points (n= 27, SD= 3.82). A t-test showed that the difference between prosocial and proself earnings was no longer significant (p= 0.17, t= 1.36). Without this outlier group, there were no statistical differences found between prosocials and proselfs in this study. This statement should be made somewhat cautiously, as the number of experimental sessions for prosocial and proself groups was quite small. With larger cell sizes and smaller standard deviations, these current similarities could potentially become significant differences.

It should also be noted that this coalition study did not force participants to stay in coalitions, nor did it allow negative sanctioning of those who did not. These conditions were not included in the study because they would not be an appropriate test of SVO effects. Previous research has shown that negative sanctioning will lead most actors to tend toward cooperation (Komorita 1987; Yamagishi 1988). The goal of this study was to test whether prosocials cooperated and acted collectively in the absence of such threats.

CONCLUDING REMARKS

Previous SVO research has repeatedly found strong social value effects in games and social dilemmas. Yet the research reported here utilizing a standard SVO measure and embedding orientation types in exchange networks is absent of such strong expected effects. Of the hypotheses that predicted SVO effects in exchange rates, only that for the

prosocial 4-Line structures was modestly supported. Moderate differences were found within the negotiation processes in dyads and 4-Lines; prosocials in 4-Lines required fewer actions to complete exchange, and prosocial dyads completely exchanged more quickly than other pairs over time. While the findings in Study 2 did not offer statistically significant support of the hypotheses, this experiment made comparisons between groups with small cell sizes. These results do not lead to criticism of either SVO research methods and findings or NET methods and findings, but instead suggest that perhaps the strong effects of contrasting SVOs do not extend to the social relations and social structures of the kind studied here.

The findings of Study 2 suggest that, while prosocials have demonstrated a preference for cooperation and collective action, there are structural conditions within which those preferences do not lead to activity. Yet it was expected that prosocial proclivities would resurface when participants were offered the option of acting collectively in Study 2. Coalitions provide the chance to signal trust and a desire to cooperate, both of which were absent in Study 1. The inability of prosocials to communicate such desires may have prevented them from collective organization. When given the chance to do so, why did prosocials not take this opportunity at a greater rate? When they did act collectively, why were they no better than proselfs at countervailing power?

While prosocials and proselfs certainly differ in many circumstances, such as social dilemmas, I now have evidence from two experimental studies that their behaviors are more similar than previously anticipated in social relationships and social structures like those studied here. Furthermore, these experimental results provide supporting

evidence for the argument that SVO is flexible and can be dampened by structural conditions.

Why do prosocials and proselfs act more similarly when placed in exchange structures, even those that provide opportunities for cooperation? Chapter 4 will address two tentative explanations for why the behaviors of participants with different SVOs were so similar. An argument put forth by Bogaert, Boone, and Declerck (2008) to explain differences in SVO research will be extended to the discussion of behavior in exchange settings. A major theme of this next chapter is the power of social structure to override individual proclivities.

CHAPTER 4

THE POWER OF THE RATIONAL ACTOR

While the two previous chapters presented my research findings, this chapter follows by exploring *why* they occurred. A goal in this chapter is, therefore, to offer two potential explanations for why the behaviors of different SVO actors can converge, rather than differ, in situations such as negotiated exchange. Why is prosociality dampened or eliminated in social relations and social structures? This is an exploratory analysis, but I will suggest that one of these arguments provides the more likely explanation. In this chapter, I will also emphasize the importance of the rational actor model in conditions such as exchange, in which it is a more parsimonious and successful predictor of behavior as compared to predictions using multiple SVO types.

Multiple explanations have been put forward for why we repeatedly see strong differences between orientation types in other studies which typically utilize social dilemma scenarios (Liebrand 1986; De Cremer and Van Lange 2001; Simpson 2004; Bogaert et al. 2008). These explanations were reviewed in Chapter 1. The issue at hand in this chapter is to explain the *absence* of such differences in situations such as negotiated economic exchange. Why did the behaviors of SVO actors converge, more often than contrast, in both Study 1 and Study 2? More specifically, why did participants who were classified as prosocial so frequently act proselfishly during the exchange portions of the experimental sessions?

In this chapter, I will first offer two exploratory explanations for why the actions of prosocials and proselfs will collapse in social structures such as exchange. My discussion will primarily focus on why prosocial actors can shift to proself behaviors which more closely follow the narrowly rational actor model. The explanations to be reviewed are management overload for prosocials and the power of the situation or structure. With the second explanation, I will review instances of behavioral convergence under certain situational conditions, such as one-shot versus repeated interactions. Next, I will discuss the implications of my research findings for the role of the rational actor. Additionally, I will provide potential future research directions.

CONVERGING BEHAVIORS OF ACTORS WITH DIFFERING SVOS

One contribution of this dissertation research is its use of economic exchange conditions. To my knowledge, prior experimental studies of SVO have not examined this type of negotiation. This dissertation research offers experimental findings from a new setting. Not only was the experimental design of this dissertation research different from the majority if not all of SVO studies, but its results also departed from the common knowledge that actors with contrasting SVOs will frequently exhibit contrasting behaviors. The exchange outcomes of proselfs and proselfs in Studies 1 and 2 more often converged rather than contrasted.

These unexpected results do not suggest, however, an experimental design flaw. The results do not lead to criticism of previous SVO research which should be seen as well founded. Nor should previous NET research lead to doubts about these results, for they were found in an experimental setting that has been used countless times to test

exchange theories. What factors can account for this disparity between this research and previous SVO research?

Furthermore, why was the rational choice model typically produced by NET in the lab a more parsimonious and better predictor of behavior than the new formulations incorporating SVO? All participants in both studies were given neutral instructions to act as they saw fit within exchange structures and in coalition formation. All participants were tested with the Nine Item Social Value Inventory, a common assessment in SVO research. In fact, this dissertation research used the more rigorous assessment of 7 out of 9 responses, rather than the typical classification based on 6 consistent responses out of 9. Experimental participants were prescreened appropriately and also differed in their giving behavior in Dictator Games. Only the behaviors within exchange structures overlapped, even when prosocials were offered a cooperative option in the coalition study.

In the following subsections, I will first review the explanation put forth by Bogaert and colleagues (2008) for why prosocials act proselfishly under some conditions. Then, I will present two possible explanations for why prosocials might shift to proself actions in conditions such as negotiated exchange. What I will argue is the most likely explanation of converging behaviors is that structural conditions determine rational behavior and overwhelm individual proclivities. My dissertation research findings lend further support to previous arguments that social values can be dampened under certain situational conditions.

Lack of Trust Signals

Following Bogaert et al. (2008), it appears that behavioral differences between orientation types are determined, at least partially, by situational conditions. Prosocials are not naïve negotiators who are willing to share or give away resources to any exploitative partner. The desire to avoid exploitation can dampen collectively oriented behavior when prosocials do not expect ostensible partners to share their prosociality. Prosociality can also be overridden by contextual information, such as availability or size of resources, or knowledge of partners' characteristics. While SVO literature suggests that prosocials seek equality with their partners, Bogaert et al. (2008) assert that prosocials are more willing to cooperate, or share, when there are signals of trust or trustworthiness. Signals of trustworthiness include information which implies that the ostensible partner is honest or moral (De Bruin & Van Lange 1999; Smeesters et al. 2003).

In the case of exchange structures, particularly strong power structures, it becomes obvious that trust cues are absent, or weak at best. Prosocial motives shift in strong power exchange networks and merge with those of proselfs because these are competitive structures. The opportunity to develop trust among peripherals or with a central position does not exist. Peripheral positions must outbid each other for exchange with the central, and the central's task is to manage these offers. A prosocial actor in either position does not have the opportunity to act prosocially or send meaningful signals of trust.

This argument provides a valuable starting point in that it focuses on orientation drift among prosocials and acknowledges situational impacts on behavior. It is, however, insufficient to account for behavioral convergence in exchange structures. Study 2

provided a potential test of such an explanation. Coalition formation should allow for trust and trustworthiness signals among peripheral positions, yet prosocial coalition formation was indistinguishable from proself coalition formation. Thus trust cannot explain all cases of prosocial becoming proself.

The following subsections provide two potential explanations for behavioral convergence in structures such as exchange networks. One of these explanations relies on the impact of situational factors on behaviors and choices. The other explanation is an alternative approach which assumes that SVO effects are stable. While I will argue for the power of structural effects over individual preferences, this alternative approach is testable, as I will explain below.

Power of the Situation/Structure

The first possible explanation for the convergence of behavior relies on situational effects. I argue that this is the more likely explanation for behavioral convergence between prosocials and proselfs. When prosocials and proselfs are placed in games, they have the opportunity to act on their individual preferences for how outcomes should affect self and other. Yet when they are placed in social structures, such as exchange networks, the structural and situational conditions overwhelm individual differences.

Regardless of SVO, I expect individuals to act similarly when placed in social structures, based on the situational conditions present in the structures. Structures provide a set of rational behaviors which actors, both prosocial and proself, can infer or learn and adjust accordingly. Kinship or friendship structures suggest that, in order to benefit from these relations, it is rational to be prosocial and generous with our time and

resources. An individual who normally shares with friends and family will alter his/her actions when entering a structure with conditions that suggest competition or self-serving behavior is rational. For instance, within a bureaucracy, structural conditions such as competitive mobility suggest that it is rational to be obedient in order to benefit in the organization, here meaning to compete for promotion in the hierarchy (Weber [1918] 1968).

In the case of my dissertation studies, the situational effects of economic exchange appear to override prosocial interest in fairness and equal joint outcomes. The power of the structure has the potential to overwhelm some of these previously observed SVO effects. The negotiation process of economic exchange prescribes the rationality of 'economic man,' and both prosocials and proselfs sought to maximize resources. While participants were never encouraged to gain points, they were made aware that points earned were directly tied to money received at the end of the study. The competitive and self-interested nature of gaining monetary resources might have led prosocials to behave in such a proself manner. Even within the coalition study, prosocials appeared to be willing to free ride as often as proselfs did. Awareness of competition with non-coalition participants or concern with reduction of earnings may have driven prosocials to offer more favorable payoffs even within coalitions.

Decision-Making Processes

A situational factor which can dampen SVO effects is the time element related to decision-making. Individuals, especially proselfs, may respond differently in one-shot interactions versus repeated interactions. In one-shot or single-trial interactions,

prosocials more often act cooperatively, compared to proselfs. Prosocials are more likely than proselfs to cooperate with ostensible partners rather than exploit them, and to choose to reciprocate after a partner has made a cooperative decision (Kuhlman and Marshello 1975; Van Lange and Kuhlman 1994). Prosocials exhibit a propensity to cooperate in most situations; the shadow of the future, though, can often motivate proselfs to shift from defection to more cooperative choices (Axelrod 1984; Van Lange et al. 2011). This behavioral shift among proselfs is thought to occur because the anticipation of future or repeated interactions leads them to realize cooperation will earn greater benefits (Van Dijk et al. 2004; Van Lange et al. 2011).

There are several examples of decision-making shifts (cooperate vs. defect) in repeated interaction situations within the SVO literature. Kuhlman and Marshello (1975) uncovered important similarities between prosocials and proselfs in repeated games. Participants played several rounds of a Prisoner's Dilemma game with an ostensible partner. These partners were computer generated to follow a 100% cooperation strategy, 100% defection strategy, or tit-for-tat strategy. Both individualists and prosocials (here termed 'cooperators') cooperated more often with the tit-for-tat response partner, and cooperated much less often with the 100% defection response partner. Learning and anticipating a partner's choices in a repeated game thus sometimes shifted behavior away from the participants' initially assessed values. Van Lange and Visser (Van Lange 1999; Van Lange and Visser 1999) found similar results. Cooperation levels of prosocials varied with the cooperation levels exhibited by ostensible partners in repeated interactions.

Management Overload for Prosocials

An alternative explanation for the lack of differences between orientation types is what I will term 'management overload' in the case of prosocial actors. Prosocials acting in exchange structures may not be able to manage two or more relations. Their utility function depends on the joint outcome of self and one other, and a preference for minimizing the difference between self and the other. While they can manage the decisions found in previous SVO experiments and decisions in dyads, larger structures overwhelm their ability to properly assign equal shares to multiple partners.[18]

This argument follows from the utility functions of orientation types when embedded in exchange structures. Following Bogaert et al. (2008: 456), Willer, Gladstone, and Berigan (2013) offer utilities for prosocials, individualists, and competitors in terms of payoffs to self and other. Where *i* and *j* are respectively self and other in an exchange relation, $U_{i\,\text{is}}$ the utility of *i*, P_i is *i*'s payoff and P_j is *j*'s payoff, SVO actors seek to maximize the following utility functions:

Individualist: $U_i = P_i$

Competitor $U_i = P_i - P_j$

Prosocial: $U_i = P_i + P_j - |P_i - P_j|$

When interacting in exchange structures, competitors act as if they were individualists. Experimental participants who were measured to be competitors prior to interaction have repeatedly accepted less than favorable payoffs in order to avoid confrontation such that their actions mimicked those of individualists within the

[18] In fact, SVOs in general have, to my knowledge, been conceptualized dyadically. The definition of SVO, as well as the definitions of the three major orientation types, relies on relations with maximally one partner. If SVOs are designed for dyadic relations, then they do not necessarily apply to the strong power structures in Chapter 2. As I explain in this section, it is possible to adjust proself utilities to account for multiple relations, but the prosocial utility is not so easily adjusted.

experiments. When placed in an exchange situation, the competitors acted as if their preferences were modified to be the simpler preferences of the individualist, thus simplifying the decision situation.

The prosocial, however, has the most complex utility function in that it requires calculation of the joint outcome of self and other, *and* minimizing the difference between self and other. This utility is defined for one partner only. Now consider adding one additional relation, or two additional relations, as seen in the experiments. By adding further relations we are moving into a situation where prosociality is under-defined. What is equity for a prosocial who is engaged in multiple relations? Even if that equity value were known, any attempt to calculate it would create a management overload.

For example, imagine a prosocial placed in a null branching network similar in structure to the branching structure in Figure 1.1. In this null structure, the prosocial occupies a central position and is connected to three peripherals, *with all of whom the central can exchange*. Each relation has a resource pool of 24 points to be divided. In order for points to be equally shared in each round, the prosocial central should seek 6 of the 24 points from each peripheral. At the end of each round, each actor will have earned a total of 18 points.

Thus, for a prosocial occupying a central position in any null branching structure with equal resource pools, in which P is the equality-maximizing payoff to the central in any given relation, RP is the resource pool in any relation, and x is the total number of positions in the structure,

$$P = \frac{RP}{x} \qquad (1)$$

As an additional example, for a central prosocial with five peripheral positions and resource pools of 30 points,

$$P = \frac{RP}{x} = \frac{30}{6} = 5$$

In such a structure, the prosocial central should not seek 15 points in each relation, but only 5 points, such that each position will earn 25 points at the conclusion of the round. Nevertheless, not all prosocials will see equal overall payoffs as most equitable and may prefer to divide points equally in each relation. If so, each decision is simpler, but making the decision on what is equitable is not.

Will prosocial participants in experimental settings be able to make these calculations while managing two, three, or more relations in a timed round of exchange? Moreover, would any prosocial actually settle on Equation 1 when it appears to contradict the second factor ($- |P_i - P_j|$) of its utility equation? Of course this last question reifies both the prosocial's preferences and mental processes both of which may not be known or knowable. The problematic for the prosocial in a structure of multiple relations comes to this. Seeking equity in the structure produces inequality in each relation whereas seeking equity in each relation produces inequality in the structure.

IMPLICATIONS

These current results and concluding analyses strengthen the argument that social values are best defined as flexible and situational states. While SVO is often considered a trait that is stable across time, many researchers also recognize that these traits can be moderated by situational influences (Messick and McClintock 1968; Van Lange and Semin-Goossens 1998; Sheldon 1999; Van Lange 2000; Smeesters et al. 2003; Bogaert et

al. 2008, Van Lange et al. 2011). We now have 2 more studies with experimental evidence in favor of the argument that structural conditions can dampen SVO effects.

A potential contribution of this research and the above arguments is an implication of the power of the rational actor model on the one hand, and the efficacy of social structures in determining behavior on the other. Two statements can be made regarding how this dissertation may speak to the rational choice literature (Kroneberg and Kalter 2012). First, the interest in seeking other-regarding behaviors rather than self-interest is not necessarily at odds with the basic assumptions of rational choice theory. The argument that proselfs and prosocials hold different sets of preferences is not contradictory to rational choice, so long as they are acting based on "an alternative that is optimal in terms of their preferences, given their beliefs and the constraints they face" (Kroneberg and Kalter 2012:81). It can be argued that both prosocials and proselfs act rationally when they seek to maximize their preferences, even if those preferences are not identical in all situations.

Furthermore, this research suggests that multiple models of rationality are not necessary for predicting behavior within economic exchange structures. My findings imply that behaviors, and perhaps preferences, often overlap or converge under such conditions. These findings defend the parsimony and usefulness of the rational actor model. Under economic exchange conditions, accounting for actors' social values prior to entering such a structure provides us with no greater understanding of behavior than the approximation already given by 'economic man.' The rational actor is sufficient in accounting for economic exchange behavior; the addition of SVO utilities would lessen

theoretical parsimony, thus challenging Einstein's call for "irreducible elements as simple and few in number as possible" ([1933] 1954:272).

Popper ([1957] 2002) also argues for an assumption of rationality in order to be able to generate simple models of social action. What can be gained by assuming multiple types of rationality, rather than one type, such as 'economic man?' This approach simply adds unnecessary complexity and precludes our ability to generate predictions with parsimony or precision. In fact, Popper argues that adding or accounting for complexity is misguided. He states that "the old belief that the description of a social situation should involve the mental and perhaps even physical states of everybody concerned (or perhaps that it should even be reducible to them) . . . is not justified" ([1957] 2002:129).

SVO effects are evident in many circumstances, but they also need not be applied to many other conditions in human interaction. Within social structures such as exchange, conditions overwhelm individual differences. Interaction with others, such as negotiation in exchange, prevents actors from making decisions based solely on their individual preferences. In order to benefit, it is rational to conform to the conditions set forth by the structure. Actors must negotiate and reevaluate preferences in order to reach agreements, and the conditions set forth by connection type impact behavior, regardless of SVO. For example, the conditions of strong power networks imply that it is rational for peripherals to compete with others in order to avoid exclusion from exchange.

CONCLUSION AND FUTURE DIRECTIONS

In this dissertation, I have reviewed the theory integration of Network Exchange Theory and Social Value Orientations. The expectations prior to experimental research were drastically different from the results of two sets of experiments. Predictions derived from embedding social values into exchange structures suggested that prosocials and proselfs should differ; proselfs should earn more than prosocials, and they should routinely exercise power over prosocials across structures. What was found, instead, was a consistent pattern in which prosocials' payoffs frequently could not be distinguished from those of proselfs. Even when negotiation processes indicated differences between prosocials and proselfs, the end points of negotiations, completed exchanges, were more often similar than different.

Future directions should seek out other conditions under which we could see converging, rather than contrasting behaviors among SVO actors. Simpson and R. Willer (2008) provide one such example: public knowledge of generosity. Prosocials were generous in both a private setting and a public setting, but proself in a public setting were more generous than proselfs in a private setting. The reputational incentives connected with public knowledge of their action led to prosocial behavior.

A possible experiment could investigate other conditions in which the actions of prosocials and proselfs could converge, in this case converging in proselfish behavior. Because we have numerous examples of proselfs shifting to cooperative behavior, my interest here is in the prosocial shift. I find this of particular interest because we perhaps think of proselfs as being able to manipulate and maneuver more easily through social situations. Yet we have evidence that prosocials are not naïve navigators in their social worlds, of whose generosity can be exploited by others. More importantly, we now have

experimental tests of SVO within social structures, where SVO effects are diminished. What is the next step in this line of research?

A potential direction for future research follows from the ample amount of research showing that SVO effects are susceptible to situational influences. Experimental participants could be run through a series of social structures and strategic games to examine how their behaviors potentially shift based on the situational conditions. If individuals act prosocially in structures which suggest cooperation is rational, but compete in economic exchange conditions or in a hierarchy/mobility structure, this would lend further support to the above argument. If individuals are measured as having prosocial orientation and maintain such an orientation throughout the series of tests, then this would support the argument that SVOs are stable across time and conditions.

More specifically, future research could explore embedding social values in exchange networks under new conditions. One possible project could investigate SVO effects in reciprocal exchange, rather than economic exchange. How might interaction in reciprocal exchange relations be different from those in economic exchange?

Reciprocal exchange (Molm 1994; Molm and Cook 1995; Molm et al. 1999) differs from economic exchange in that it is nonnegotiated and noncooperative. Economic exchange is a negotiated process that is cooperative, in that actors "jointly bargain over the terms of a transaction that provides benefits for both; those terms are known and agreed upon in advance" (Molm et al. 1999:876). The agreed upon terms are binding. Reciprocal exchange, however, involves separate actions with no binding agreements. The individual who acts first has no guarantee of his or her action being reciprocated in the future.

Regarding SVO actors, how might they differ or converge under such exchange conditions? Returning to the issue of time, we should perhaps expect outcomes to differ based on single-trial or repeated interactions. In a one-shot round of reciprocal exchange, I would expect prosocials to be more willing to initiate exchange with a partner, as well as reciprocate cooperative behavior. In repeated rounds of reciprocal exchange, prosocials should remain likely to cooperate, and the shadow of the future should increase participation levels among proselfs.

Additionally, prior SVO research utilizing priming conditions provides a possibility for further investigation (Hertel and Fiedler 1994, 1998; Chen et al. 2001; Smeesters et al. 2003). Much of this research on priming has examined its influence on cooperative behavior. Work by Hertel and Fiedler (1994, 1998) and Smeesters and colleagues (2003) has found that the effects of priming can be mitigated by the consistency of an individual's SVO (low or high). Chen and colleagues found that communally oriented individuals associate power with social responsibility goals, while exchange oriented individuals associate it with self-interested goals (2001:176). When primed with power, communally oriented individuals acted more "responsibly" and attended to their ostensible partners' needs, while exchange oriented individuals attended to their own needs when primed with power.

Following from these previous studies, I argue that we should consider how priming can have an impact on negotiations in economic exchange. Will priming lead to behavioral differences between prosocials and proselfs? Specifically, building from the work of Chen and colleagues (2001), will power-related primes lead to contrasting behaviors in exchange by activating different sets of goals for prosocials and proselfs? It

could be argued that prosocials are similar to "communally oriented individuals" who "are primarily focused on responding to the needs and interests of others;" proselfs, by contrast, may correspond to "[e]xchange-oriented individuals," who "tend not to attend to others' needs and interests, but rather are focused primarily on keeping a 'tally' of the giving and receiving of benefits" (Chen et al. 2001:175).

If power-related primes were to activate social responsibility among prosocials in exchange networks, we could perhaps see greater attention to joint outcomes in exchange. For example, prosocial centrals in strong power structures might engage in equality-maximizing behaviors rather than exploitation. I would anticipate proselfs' behaviors to remain unchanged or tend toward a greater degree of exploitation due to priming with power cues. An alternative argument is that the norms associated with economic exchange, such as self-interest and competition, may still outweigh the influence of power and the notion of social responsibility for prosocials.

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