

## Sympathy and Social Order

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*Social order is possible only if individuals forgo the narrow pursuit of self-interest for the greater good. For over a century, social scientists have argued that sympathy mitigates self-interest and recent empirical work supports this claim. Much less is known about why actors experience sympathy in the first place, particularly in fleeting interactions with strangers, where cooperation is especially uncertain. We argue that perceived interdependence increases sympathy towards strangers. Results from our first study, a vignette experiment, support this claim and suggests a situational solution to social dilemmas. Meanwhile, previous work points to two strong individual-level predictors of cooperation: generalized trust and social values. In Study Two we address the intersection of situational and individual-level explanations to ask: does situational sympathy mediate these individual-level predictors of cooperation? Results from the second study, a laboratory experiment, support our hypotheses that sympathy mediates the generalized trust–cooperation link and the relationship between social values and cooperation. The paper concludes with a discussion of limitations of the present work and directions for future research.*

Social order is problematic because people frequently face situations that present a disjuncture between what is best for self, and what is best for all. Opportunities abound where people can cheat without detection, unfairly distribute resources without repercussions, and renege on agreements without penalty. The material rewards associated with selfish behavior make it a tempting alternative for many (e.g., fraud can lead to huge personal profits), however, the social consequences for widespread selfishness can be dire (e.g., many people lost their life savings when Enron collapsed, in part, due to executives engaging in fraudulent behavior).

Fortunately, empirical studies reveal that the social consequences of selfishness are often avoided because people are regularly

able to solve problems of social order (see Kollock 1998 for a detailed review); the question becomes, how do they do so? One explanation suggests that the emotion *sympathy* plays a particularly strong role in mitigating self-interest, and empirical research supports this claim (Batson and Ahmad 2001; Batson and Moran 1999). However, while it is well established that sympathy produces cooperation, less is known about the factors fostering sympathy. Previous research suggests that increases in sympathy result from established relations over repeated interactions. While this approach to sympathy is important, it does not address how sympathy (and resulting cooperation) may arise in interactions between strangers—exactly those situations where cooperation is so problematic (Macy and Skvoretz 1998).

In this paper, we develop and test a structural argument for what leads to increases in sympathy. Specifically, we argue that individuals will be more likely to experience sympathy for another (even a stranger) when they are in interdependent, as opposed to independent, situations. We present a new vignette experiment designed to test our argument linking

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sympathy to social structure (i.e., interdependence vs. independence of outcomes). Results from our first study confirm our claim that compared to independent situations, interdependent situations foster greater sympathy for strangers.

Our first study shows that increases in sympathy among interactants can be generated by the situation itself (i.e., interdependence of outcomes). For many individuals interdependence may increase sympathy, providing the impetus for cooperation. Yet, previous work suggests that two individual-level characteristics strongly predict cooperation: *generalized trust* (i.e., belief in another's benign intentions), and *social value orientations* (i.e., preferences for how outcomes are distributed between oneself and others). In Study Two we address the confluence of these two explanations for cooperation by focusing on how individual characteristics and situation-specific sympathy interact to impact cooperation in interdependent settings. Study Two addresses the question: does sympathy mediate the relationship between trust and cooperation or social values and cooperation in interdependent situations? Our second study is a new experiment designed to answer this question. Before outlining our experiments, however, we define sympathy and discuss how it helps solve problems of social order.

### DEFINING SYMPATHY

Social psychological literature contains considerable conceptual confusion between sympathy and another "prosocial" emotion, empathy. For instance, in previous work Batson used the labels sympathy and empathy interchangeably (e.g. Batson 1987). As he writes (1987:93), "The specific label for this other-oriented congruent emotional response is, of course, not crucial. In recent years it has most often been called empathy, but it has also been called sympathy."

Following Eisenberg (2000:672), we define *sympathy* as an affective response which arises from the "comprehension of another's emotional state or condition, which is *not the same* as what the other person is feeling (or is expected to feel) but consists of

feelings of sorrow or concern for the other" (emphasis added). Thus, experiencing sympathy entails first taking the others' perspective given the situation they face, and then feeling compassion or concern for the other. Importantly, we contend that sympathy can occur not only when another is in direct need, but also if one anticipates that his or her actions could potentially hurt the other. As we describe later, this anticipation is what allows individuals to refrain from harmful behavior. *Empathy*, on the other hand, is defined as an "affective response that stems from the apprehension or comprehension of another's emotional state or condition that is *similar* to what the other person is feeling or would be expected to feel" (Eisenberg 2000:671, emphasis added). Empathy arises simply from perspective taking, and does not involve feelings of compassion or concern (see Davis et al. 2004).

As others have noted (Eisenberg 2000; Davis et al. 2004), Batson's definition of empathy is conceptually identical to our view of sympathy (e.g., Batson 1987, 1991; Batson and Ahmad 2001; Batson and Moran 1999; Batson et al. 1988). Batson defines empathy as "an other-oriented emotional response congruent with the perceived welfare of another person; if the other is in need, empathic emotions include feelings of sympathy, compassion, tenderness, and the like" (Batson et al. 1995:300). Due to these similarities, we draw heavily from Batson and associates' research, but following the important distinction by Eisenberg, refer to sympathy rather than empathy. The section to follow outlines the role of sympathy in the emergence of social order.

### SOCIAL ORDER—THE PROBLEM AND A SOLUTION

#### The Problematic Nature of Social Order

Social order is possible only to the extent that individuals make collectively oriented versus individually oriented choices when these are in conflict (Hechter and Horne 2003; Macy 1998). As Hechter and Horne (2003:27) state, "The more that individual behavior is collectively oriented, the higher the level of order." Therefore, social order is fundamental-

ly about cooperation. We define *cooperation* as behavior that benefits the group or collective, often at the cost of individual benefit.<sup>1</sup> Researchers use social dilemmas to study problems of social order because they capture the essence of cooperation problems: does an individual do what is best for self, or what is best for all (Macy 1998; Gurek, Irlenbusch, and Rockenbach 2006)? Collectively oriented behavior (cooperation) generates social order, whereas self-interested behavior (“defection”) precipitates a breakdown in order.<sup>2</sup>

Previous explanations of why individuals behave cooperatively have generally taken one of two forms. The first has its roots in the philosophy of Thomas Hobbes ([1651]1968), who argued that collectively beneficial behaviors are only possible via external constraints, such as laws backed by negative sanctions. More recently, proponents of this approach have argued that order is only possible through monitoring and sanctioning mechanisms (Hechter 1988; Hechter, Friedman, and Kanazawa 1992). Consistent with this view, much social dilemma research focuses on strategic solutions to problems of social order (see Kollock 1998 for a review), which address how cooperation is possible among self-interested actors.

While Hobbesian theories attribute social order to sanctioning systems, other approaches invoke a broader range of values and interests to explain why individuals act cooperatively. Durkheim (1925), for instance, attrib-

uted collectively oriented behavior (and thus social order) to moral restraint. For Durkheim, overcoming selfish desires results from a process of “self-mastery.” More recently, sociologists like Marini (1992) have linked self-restraint to internalized values and norms. “Once social norms and values are internalized” Marini argues, “they can direct the behavior of individuals irrespective of external influences” (37). In line with these approaches, some researchers study *motivational* solutions to social dilemmas (e.g., generalized trust, and social values; see Kollock 1998 for a review). Proponents of motivational solutions thus assume that a broader range of individual preferences and values guide human behavior.

### Sympathy as a Solution

Consistent with the motivational solutions mentioned above, and its place in the classic social order literature, sympathy has played an increasingly central role in explanations of how people solve social dilemmas (Batson and Moran 1999; Batson and Ahmad 2001; Frank 2004). At least since David Hume ([1740]1972), and Adam Smith ([1759]1976), social scientists have pointed to the important social benefits of sympathy. These authors argued that sympathy was necessary for acts of benevolence and morality. More recently, Frank (1988, 1993) contends that sympathy may lead people to do what calculated self-interest will not, such as refusing to take advantage of another’s circumstances. Importantly, Frank argues that others can recognize one’s propensity to feel sympathy (via such mechanisms as emotional displays and reputations). Thus, sympathizers are commonly sought out as exchange partners due to their tendencies to cooperate. This provides a mechanism through which “cooperators” can reap important benefits from productive exchanges.

Building on the ideas discussed above, scholars have recently begun to explore empirically the link between sympathy and cooperation in social dilemmas. For instance, Batson and Moran (1999) induced experimental participants to feel sympathy and found that a

<sup>1</sup> Cooperation is distinct from both altruism and coordination. *Altruism* refers to personal sacrifice for others’ benefit. Unlike cooperation, altruistic behavior does not require that the involved parties be interdependent; rather, altruism often involves situations of (unilateral) dependence. Likewise, *coordination* problems are not characterized by conflict between individual and collective interests (Schelling 1960; Snidal 1985). Rather, these problems arise when people seek the same ends but must agree on how best to reach them, i.e., they must coordinate their actions.

<sup>2</sup> Social dilemmas are marked by the following three characteristics: given the choice to cooperate or defect, (1) defection yields the highest payoff for the individual in at least one circumstance contingent upon others’ choices; (2) defection has a negative impact on others; and (3) the collective result of universal defection is a suboptimal outcome, where all would have been better off cooperating (Liebrand 1986).

high proportion of participants cooperated (80 percent, compared to 40 percent who were not led to experience sympathy). In a second study, Batson and Ahmad (2001) found that inducing sympathy led to a cooperation rate of 45 percent among participants who knew that their partner had acted noncooperatively. In contrast, those not led to feel sympathy rarely cooperated when they had knowledge of their partner's noncooperative choice. This research reveals that increases in sympathy increase the likelihood of acting in the interests of the collective.

Summing up, both theoretical work and empirical studies point to strong effects of sympathy on cooperation and social order. Yet, because the focus of previous work has primarily been on its consequences, less is known about the conditions that foster sympathy. The current research focuses specifically on conditions that cultivate sympathy, and when cooperation and social order are likely to develop. In the following section we review existing explanations of factors that promote sympathy, and discuss some limitations of these explanations. We then offer a new theoretical account that views sympathy as rooted in social structure.

### THE ORIGINS OF SYMPATHY

Batson and Shaw (1991) offer a relational account for the extent to which individuals will feel sympathy for one another. They suggest that feelings of sympathy are positively correlated with individuals' level of "attachment." Attachment derives primarily from personal contact, and provides an emotional bond upon which a relationship is built. As the authors state, "Other names for the phenomenon we are calling attachment might be *love, caring, feeling close, we-feeling, or bonding*" (Batson and Shaw 1991:113). Consequently, the more positively an individual feels about another and their relationship, the more likely that individual is to feel sympathy if a need is perceived.

More recently, Frank (2004) argues that feelings of sympathy stem from interpersonal evaluations. Positive evaluations are more likely if the other is deemed to be similar to

you, if they have a good reputation, or are physically attractive, among other reasons. Initial evaluations then serve as a "cognitive filter" that fosters or impedes the likelihood of sympathy. If initial evaluations are positive, the individual is more likely to invest in the relationship, and is more likely to feel sympathy if the other is in need. Negative evaluations can lead to avoidance, where the relationship has no chance of progressing, and thus sympathy is improbable.

While very important for understanding continued helping and cooperation, the arguments just reviewed have limited explanatory power for critical aspects of social order. According to these arguments, strangers should rarely (if ever) feel sympathy for one another since they are not relationally attached. But interactions between strangers are of vital importance to the study of social order, since many situations that pose tension between individual and collective interests involve people with little or no prior social connections. As Macy and Skvoretz (1998: 639) put it, not all exchanges "involve familiar faces or third-party regulation. In the dark alleys of social life . . . strangers meet outside the watchful eye of a Leviathan capable of enforcing compliance with a negotiated agreement."

If sympathy depends on repeated positive interaction, as in the accounts given by Batson and Shaw (1991) and Frank (2004), how is cooperation possible in interdependent situations between strangers? The approach we offer below provides an explanation.

### A Structural Account of Sympathy

The thrust of our argument is that sympathy is likely to be greater in situations of interdependence compared to situations where individuals' outcomes are independent because interdependence produces higher levels of perspective taking among interactants. While interdependence refers to all situations where the outcomes of situational participants are affected by the behavior of everyone involved (Blumstein and Kollock 1988), the theory we outline applies to interdependent situations where there is tension between indi-

vidual and collective interests or social dilemmas.

A long line of research suggests that beliefs about others' intentions are a primary determinant of behavior in interdependent situations (e.g., Hanley, Orbell, and Morikawa 2003; Parks and Hulbert 1995).<sup>3</sup> The reason that actors attempt to predict others' behavior before making a choice among alternatives (as opposed to choosing randomly, or always selecting the same strategy), is that obtaining a valued outcome (whether egoistic or prosocial) generally depends on the intersection of one's own and others' choices. At first blush, it may seem that there is little reason to take another's perspective in social dilemmas (such as the Prisoner's Dilemma) that contain a "dominating strategy," i.e., a strategy that yields the best outcome for an individual regardless of what anyone else does (see Kollock 1998:185). But it is unreasonable to assume that individuals approach social interactions as if they are clearly labeled with unconditional behavioral prescriptions (i.e., "this is a Prisoner's Dilemma and I should defect regardless of what the other does"). While some interdependent interactions have dominating strategies, others do not.<sup>4</sup>

We suggest that individuals only realize the strategy they should pursue (and whether this strategy should be conditional on the other's behavior) after taking into account the various possible outcomes that result from their own and the other's choices. To do so requires that the person attempt to anticipate the other's behavior. Importantly, we argue that this anticipation requires perspective taking. As classical theorists suggest, perspective taking serves as the means through which we

feel what others feel (Smith [1790]1976), evaluate others' behaviors (Hume [1740] 1972), and anticipate others' actions (Mead 1934). Thus, people cannot accurately assess interdependent situations without taking the other's perspective.

Meanwhile, according to sympathy researchers, taking another's perspective is a key precursor to feeling sympathy (Batson 1991; Eisenberg 2000). Perspective taking in this sense is akin to the symbolic interactionist notion of role taking. Rather than simply focusing attention on another, perspective taking "involves imagining how that person is affected by his or her situation" (Batson 1991:83). And, as Batson and Shaw (1991:112) state, "it is proposed that this unique emotional response to perceived need is a result of the perceiver adopting the perspective of the person in need."

Because social dilemmas, by definition, pose tensions between individual and collective interests, we assert that they are especially germane for generating feelings of sympathy between interactants. That is, at least some interactants in such situations may recognize that self-interested behavior is harmful to the greater good, and the prospect of potentially harming others may lead them to feel compassion (i.e., sympathy) for others. This suggests that, for some, feelings of sympathy may be one natural by-product of social dilemmas. Specifically, as mentioned above, perspective taking occurs because individuals attempt to anticipate how others will behave. Once individuals have taken the perspective of others, the structure of social dilemmas may then produce feelings of sympathy. Accordingly, we argue that interdependent situations (specifically social dilemmas), in contrast to independent situations, produce higher levels of sympathy among interactants.

Of course, there are other types of interdependent situations besides social dilemmas, such as zero-sum situations. Although we leave empirical investigation of such settings for future research, we suggest that it is unlikely that zero-sum situations will lead to sympathy. In contrast to social dilemmas (which contain both cooperative and conflictual elements), zero-sum situations are purely

<sup>3</sup> There is the possibility that individuals take others into consideration as a guide for their own actions in situations where their outcomes are independent of others (for instance, if they don't know the norms guiding behavior in a given situation). However, as Mead (1934) noted, imitation is not synonymous with perspective taking, which is necessary for feelings of sympathy to emerge.

<sup>4</sup> For instance, in a "Chicken Dilemma" a self-interested person will prefer to do the opposite of what the other does (if I believe the other will defect, I should cooperate). In the "Assurance Dilemma," a self-interested person will prefer to mimic the other's behavior (if I think the other will cooperate, I should cooperate).

conflictual. As a result, collective interests are irrelevant and the individual interests of two opposing parties are explicitly pitted against one another. Thus, we suspect that, while zero-sum type situations often lead to perspective taking, the purely conflictual nature of such situations is unlikely to allow for the emergence of sympathy between competitors.<sup>5</sup>

Our arguments lead to the following hypothesis:

*Hypothesis 1:* Individuals will experience higher levels of sympathy when they perceive that their outcomes are interdependent compared to when they perceive their outcomes are independent.

The section to follow outlines a vignette study designed to test this hypothesis.

## STUDY ONE

### Participants

Participants were recruited from introductory classrooms at a large university. Upon entering the classrooms, research assistants gave oral invitations to students to participate in the study. Students were ensured that participation was completely voluntary and anonymous. Those who agreed then completed the vignette and corresponding questionnaire during the class period. In total, 61 (40 female) students participated.

### Vignettes

Those who participated first read one of two versions of a vignette. One version of the vignette corresponded to the interdependent condition, and a second version corresponded to the independent condition. The instructions informed participants that we were interested

in how people form first impressions based on minimal information. Both conditions contained a photograph of an individual ("Ben"), with whom the participant was to imagine interacting. After reading the scenario, participants completed a questionnaire designed to measure, among other things, the level of sympathy felt for Ben.

To make vignettes relevant to student participants, they were asked to imagine that they worked as a fundraiser for new university initiatives. In both conditions, participants were told that they worked for the same fundraising organization as Ben (the pictured individual), and had the same overall goal as Ben, to raise money for the university. Both conditions of the vignette started as follows:

Imagine that both you and Ben are students at the [University]. You each have part-time positions with the [University] Foundation—a fundraising organization. Together, your primary task is to raise money for new facilities and initiatives on campus (such as the athletics department and the alternative fuels initiative). To do this, you and Ben call prospective donors to the university, mainly university alumni.

In the interdependent condition, the vignette stated that the participant's pay was contingent upon how much money both he/she and Ben raised. The same was true of Ben, whose pay would be determined by the amount of money both he and the participant raised. Thus, the vignette for the interdependent condition continued:

Because raising money for the University is your primary task, the pay you and Ben receive is determined by the amount of money *both* of you raise. Thus, the more you put into your work, the more money both you and Ben earn. Similarly, the more Ben puts into his work, the more money both you and Ben earn. Assume that the harder each of you works, the more money you will both raise, and the more money you both will earn.

To create independence of outcomes (for the independent condition), the vignette stated that the participant's pay would be determined by how much support he or she raised, regardless of Ben's performance. Participants were also told that Ben's pay would be determined by his performance, regardless of the participant's actions. The independent condition replaced the latter

<sup>5</sup> We are planning follow-up research that focuses on whether situations of unilateral dependence generate feelings of sympathy. Unlike interdependent situations, *unilateral dependence* exists when one individual is completely dependent on another for resources. Our theory suggests that individuals take others' perspectives as a result of motivation to anticipate others' behaviors. Perspective taking then leads to sympathy. Because there is only one decision maker in situations of unilateral dependence (the one with the resources), perspective taking, in the sense described above, is unnecessary. For this reason, we expect less sympathy in situations of unilateral dependence compared to interdependent situations.

half of the interdependent condition text with the following:

Because raising money for the University is your primary task, the pay you receive is determined by the amount of money *you* raise. Similarly, the pay Ben receives is determined by the amount of money he raises. Thus, Ben's performance at raising money for the University does not affect your earnings, nor does your performance affect Ben's earnings. Assume that the harder you work, the more money you will raise. The harder Ben works, the more money Ben will raise.

### Sympathy Measure

After reading the vignette, participants answered a number of items about their perceptions of Ben. Following previous research, our sympathy measure consisted of emotion adjectives (Batson and Moran 1999; Batson and Ahmad 2001; Harmon-Jones, Peterson, and Vaughn 2003; Oswald 1996). Specifically, using seven-point scales (1 = not at all; 7 = extremely) participants were asked the extent to which they felt "compassionate," and "supportive" of Ben, given the situation described in the vignette. We averaged these two items to form a single index ( $\alpha = 0.74$ ). The items "compassion" and "support" are consistent with the definition of sympathy we use, and are designed to capture whether the participant is going beyond taking Ben's perspective to feel sympathy for him.<sup>6</sup>

## RESULTS

### Manipulation Check

To determine if our manipulation of interdependence was effective, we asked participants to rate their agreement with the following statement: "The harder you work at the task, the more money Ben will earn." Possible responses ranged from 1 (completely dis-

agree) to 7 (completely agree). We reasoned that if participants in the interdependent condition truly viewed the situation as one of interdependence, they would agree more strongly with the statement than those in the independent condition. As we report below, this is precisely what we find.

Using ANOVA we find a significant difference between conditions for our manipulation check ( $F_{1,59} = 65.34; p < .001$ ). Those in the interdependent condition ( $M = 4.84, SD = 1.63, n = 31$ ) compared to participants in the independent condition ( $M = 1.90, SD = 1.16, n = 30$ ) believed that Ben would earn more the harder they worked.<sup>7</sup>

### Interdependence vs. Independence

The mean level of sympathy in the interdependent condition ( $M = 4.65; SD = .89$ ) is greater than the mean level of sympathy in the independent condition ( $M = 3.88; SD = 1.13$ ). Figure 1 shows the distribution of responses for each condition. Because the data in the independent condition is non-normally distributed, we use a Mann-Whitney test to examine the difference between the two conditions. The Mann-Whitney test reveals a significant difference between the medians of the interdependent and independent conditions ( $Z = -2.82; p = .005$ ). Further, the test shows that for two randomly selected data points from the two conditions, the probability that the point from the interdependent condition is larger than the one from the independent condition is .77. Because the sympathy values are significantly different across conditions, and higher in the interdependent versus the independent condition, Hypothesis 1 is supported.

## DISCUSSION

While previous work has focused on established relationships to explain how strongly individuals feel sympathy for another, results from Study One support the argu-

<sup>6</sup> Previous research also typically includes the emotion adjectives *softhearted*, *warm*, *tender*, and *moved* (e.g., Batson and Moran 1999; Batson and Ahmad 2001; Batson et al. 1995). Given our design, we believe that the above adjectives would appear unusual to participants in light of the vignettes they read. We believe the items "compassion" and "support" fit better in the context of our design.

<sup>7</sup> Our manipulation could have been more directly assessed through a binary agree/disagree question as opposed to the continuous measure we used. For ease of interpretation, future research using this paradigm might limit responses to binary choices.

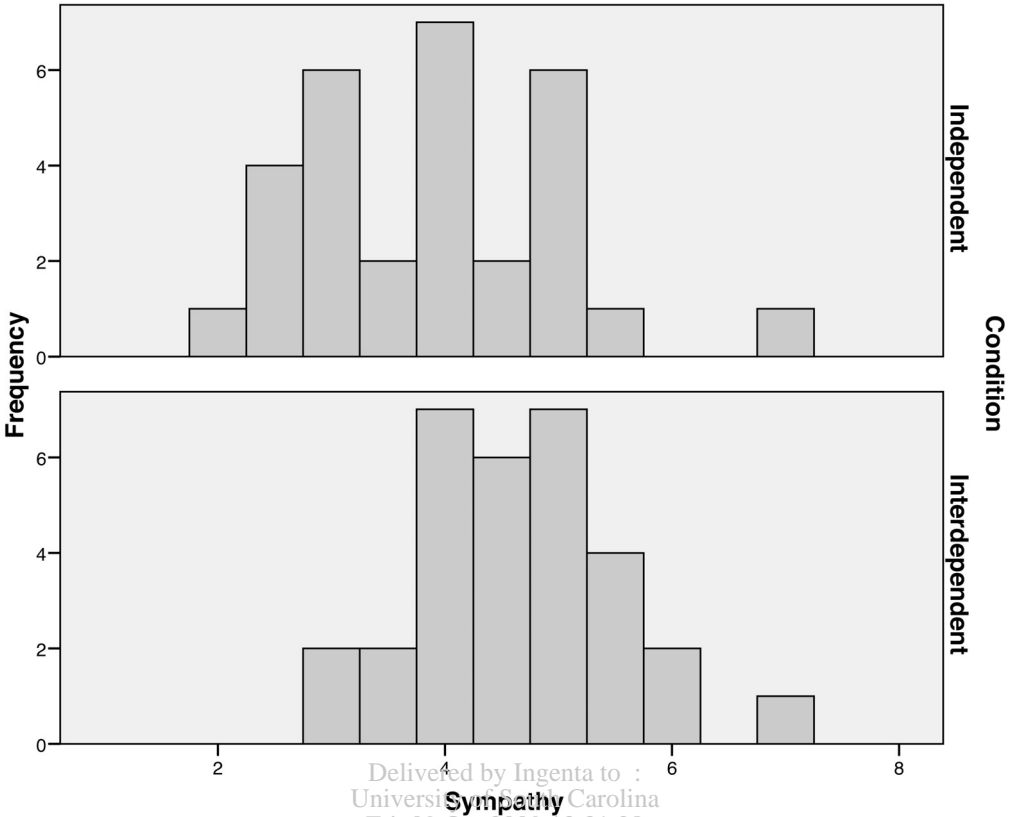


Figure 1. Response Distributions for Independent and Interdependent Conditions

ment that perceived interdependence generates a boost in sympathy. Given that our vignette design eliminated the possibility for attachment and established relationships, previous research would lead us to expect no difference in sympathy between the two conditions (Batson and Shaw 1991; Frank 2004). Yet, consistent with our structural argument, one's interdependence with—versus independence from—Ben affected the amount of sympathy participants reported.

This finding complements recent research suggesting that emotions are important components of exchange relationships (Lawler and Thye 1999, 2006). While we do not focus specifically on exchange relationships, our findings can inform Lawler and associates' work. These researchers argue that emotions are consequences of repeated interactions. But results from the study reported above suggest that sympathy may be instrumental in building relationships. That is, interdependence increases feelings of sympathy among strangers,

and this may result in cooperation (Batson and Ahmad 2001; Batson and Moran 1999). Cooperation can then lead strangers to seek repeated interaction, and ultimately, the formation of committed relationships.

While our results support our hypothesis, we should point out two important qualifications. First, given our design we cannot rule out that perceived interdependence affects emotions other than sympathy. Future research should seek to tease apart the specific effects interdependence has on various emotions. We chose to focus exclusively on sympathy as opposed to other emotions because a long research tradition points to the link between sympathy and social order—our main focus.

A second limitation stems from the following questions raised by Study One: is the level of sympathy reported in the interdependent condition enough to generate cooperative behavior? Stated differently, are the differences in sympathy between conditions sub-

stantively meaningful? The mean level of sympathy reported by respondents in the interdependent condition (4.65) of our study hovers around the midpoint of the seven-point scale. Also, although statistically significant, the differences between sympathy levels in the interdependent and independent conditions were relatively small. We return to these issues more fully in the pages to come. To foreshadow, we show that even small increases in sympathy have significant effects on cooperative behavior. For now, we focus on the relationship between situational sympathy, individual characteristics, and cooperative behavior.

#### SITUATIONAL AND INDIVIDUAL EXPLANATIONS OF COOPERATION

The results from Study One suggest a situational solution to social dilemmas: increases in sympathy can stem from the structure of the situation itself (i.e., interdependence of outcomes). According to sympathy researchers, the result of increased sympathy is increased cooperative behavior (Batson and Ahmad 2001; Batson and Moran 1999). Thus, sympathy arising from interdependent situations can provide the impetus to cooperate for some individuals.

While the results of Study One suggest a situational solution to social dilemmas, much previous social psychological research points to two individual-level solutions to social dilemmas: generalized trust (Parks and Hulbert 1995; Yamagishi, Kikuchi, and Kosugi 1999) and social value orientations (Liebrand 1986; Van Lange 1999). As explained in greater detail below, *generalized trust* is a belief in another's benign intentions, whereas *social value orientations* are preferences for how outcomes are distributed between oneself and others.

In Study Two we address the confluence of these two explanations for cooperation by focusing on how individual characteristics and situation-specific sympathy interact to impact cooperation in interdependent settings. Study Two addresses the question: does sympathy mediate the relationship between trust and cooperation or social values and cooperation in interdependent situations? Our second

study is a new experiment designed to answer this question. Before outlining our experiment, however, we first discuss the relationship between trust/social values and sympathy.

#### THE MEDIATING ROLE OF SYMPATHY

##### Generalized Trust

Following Rousseau et al. (1998:395), we define generalized trust as "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another." According to the trust literature, high trusters are more likely to cooperate in social dilemmas than low trusters. Trust researchers often point to variants of goal expectation theory in their explanations of this pattern (e.g., De Cremer and Stouten 2003; Yamagishi 1986). The theory argues that individuals generally prefer mutual cooperation, but are uncertain about others' motivations or intentions. Trust solves this problem: since high trusters believe that others will likely cooperate, their fear of being exploited is mitigated and uncertainty about one's outcome is minimized, thus making cooperation a more attractive choice (Parks and Hulbert 1995; Yamagishi 1986).

Sympathy cannot mediate the relationship between trust and cooperation unless high trusters feel sympathy more than low trusters; insights from the trust literature suggest this may be the case. Recent studies have shown that high trusters are more skilled at detecting others' trustworthiness because, compared to low trusters, they more closely attend to subtle cues about others' behaviors and intentions (Yamagishi 2001; Yamagishi et al. 1999). This information is then used to predict others' actions (Yamagishi et al. 1999).

We argue that high trusters are able to predict others' behavior and attend to subtle informational cues because of their greater perspective taking abilities. As Yamagishi et al. (1999:155) state, high trusters are able to read "telltale signs" because they are "skilled at understanding their own and other people's internal states and use that understanding in social relations." This type of understanding is only possible if high trusters are able to see the situation from the other's point of view. As

discussed earlier, perspective taking is a fundamental precursor to feelings of sympathy (Batson and Shaw 1991). Because they more frequently put themselves in others' positions, we predict that high trusters are more likely to experience feelings of sympathy than are low trusters.

*Hypothesis 2:* Sympathy mediates the relationship between trust and cooperation in social dilemmas (see Figure 2).

### Social Values

Like trust, social value orientations have been used to predict behavior in social dilemmas. Social value orientations refer to stable preferences for how outcomes are distributed between oneself and others in social situations (Liebrand 1986; McClintock and Liebrand 1988). Researchers focus primarily on three types of value orientations: prosocials prefer to maximize joint outcomes to themselves and others; individualists prefer to maximize their own outcomes regardless of others' outcomes (this is the typical type of person assumed in rational egoist accounts of behavior); and competitors prefer to maximize their relative outcome over others. Studies have shown that these preferences are stable (Van Lange 1999), and predict a wide range of prosocial and cooperative behaviors (Liebrand et al. 1986). Most relevant for our purposes, numerous studies have shown that prosocials have a much greater tendency to

cooperate in social dilemmas than proselves (i.e., individualists and competitors) (Kramer, McClintock, and Messick 1986; Liebrand 1986; Liebrand et al. 1986; McClintock and Liebrand 1988).

In order for sympathy to mediate the relationship between social values and cooperation, prosocials must feel sympathy more strongly than proselves. We build on the social values and sympathy literatures to argue this is the case. Prosocials are, by definition, most concerned with maximizing joint outcomes (Simpson 2004; Van Lange 1999); they merge the other's interests with their own. For instance, previous work shows that prosocials take longer to make decisions in social dilemmas because they aggregate their own and other's payoffs (i.e., they subjectively transform the objective outcomes) (Liebrand and McClintock 1988). We suggest that this act of transforming outcomes and merging interests leads prosocials to take the other's perspective. The act of taking the other's perspective, as explained earlier, increases the likelihood that the perspective taker will experience sympathy for the other. On the other hand, proselves are concerned only with their own outcomes (i.e., they do not transform the objective payoff matrix), so they will be less likely to take the other's perspective, and less likely to feel sympathy for the other.

*Hypothesis 3:* Sympathy mediates the relationship between social values and cooperation in social dilemmas (see Figure 2).

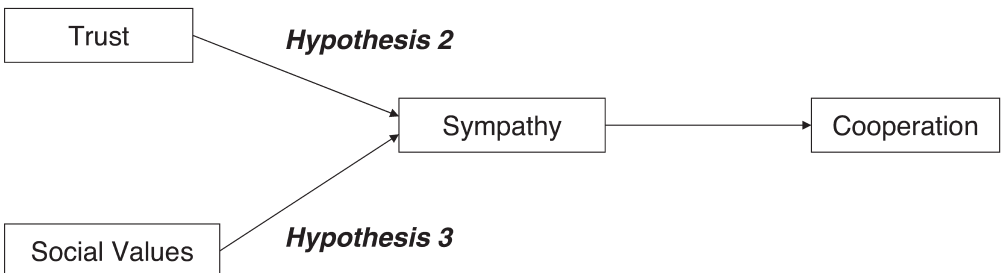


Figure 2. Theoretical Model

## STUDY TWO

## Participants and Design

Participants were recruited from introductory classrooms at a large university using the opportunity to earn money as an incentive. A total of 88 participants (47 females) completed the experiment. Participants were scheduled in groups of eight to ten. Upon entering the laboratory, each participant was escorted to a private room. After reading and signing a consent form, participants completed measures of social value orientations and trust. Thereafter, participants were given instructions for the prisoner's dilemma. After the Prisoner's Dilemma was explained, but prior to making decisions about how much to contribute, we asked participants to indicate their feelings about their partner in that particular situation. Participants then made their decision in the Prisoner's Dilemma. Subsequently, participants made a number of decisions unrelated to the current study (these findings are not reported). Afterward, they were thoroughly debriefed and paid.

## Measuring Trust

We measured trust using the standard measures from the General Social Survey. These items ask whether one thinks that others can be trusted, whether people try to be helpful, and if people try to take advantage of others if they have the chance ( $\alpha = 0.55$ ).<sup>8</sup> We used the sum of the three measures to generate a single trust variable. The mean of the aggregate measure is 1.58 (see Table 1). A series of filler questions were included with the trust measures to reduce the likelihood that participants would link the trust items with the behavioral measures.

## Measuring Social Value Orientation

Consistent with previous research, we used the triple dominance measure to assess social value orientations (McClintock and

Liebrand 1988). The measure is designed to capture an individual's preference for how valuable outcomes are divided or distributed between oneself and others. This measure includes nine decision scenarios, each with three options about how to divide resources between the participant and a hypothetical other. The "other" was described as "someone you do not know and that you will not knowingly meet in the future." For all of the scenarios, each decision corresponded to one of the three social values. Prosocial choices maximized joint gain for the participant and the other; individualist choices maximized outcomes to self without regard to other; and competitive choices maximized the difference between the payoffs to the participant and other. Previous research has shown that the measure is internally consistent (Liebrand and Van Run 1985) and reliable over time (Van Lange 1999). In addition to behavior in social dilemmas (e.g., Eek and Garling 2006; Kramer et al. 1986; Liebrand 1986; Simpson 2004), the measure has been used to predict various forms of helping behavior (McClintock and Allison 1989), perceptions of intelligence (Van Lange and Liebrand 1991), and conformity to partner's choice (Liebrand et al. 1986).

Following previous work, we classify participants as a particular social value type if they make at least six out of nine choices consistent with that value type (Van Lange 1999). Out of the 88 participants, 74 could be classified; of those 23 (31 percent) were prosocials, 35 (47 percent) were individualists, and 16 (21 percent) were competitors. As in previous research (De Cremer and Van Vugt 1999), we combined individualists and competitors to form one group of "prosocials" ( $n = 51$ ) (see Table 1).

## Prisoner's Dilemma

After completing the social values and trust measures, participants were given instructions for the Prisoner's Dilemma.<sup>9</sup>

<sup>8</sup> Reliability for these same three items is .67 in the 1972–2000 GSS cumulative dataset.

<sup>9</sup> Our design does not allow us to rule out the possibility that the social values measure had some impact on participant's choices in the Prisoner's Dilemma. However,

Table 1. Means and Standard Deviations for Variables in Study Two

Variable	Mean	Standard Deviation
Trust (3-point scale)	1.58	1.09
Social Values (1 = prosocial)	.31	.47
Sympathy (7-point scale)	4.41	1.27
Cooperation (1 = cooperate)	.64	.48

The instructions informed participants that they had a personal fund consisting of 10 points worth \$0.30 each.<sup>10</sup> They were informed that the person with whom they were paired (really a simulated other) had a personal fund worth the same amount. Participants then decided whether to keep their entire personal fund for themselves (i.e., to defect) or to contribute the entire amount to a group fund (i.e., to cooperate), which the participant and the person with whom he or she was paired would share equally. Participants were informed that the experimenter would multiply all contributions to the group fund by 1.5. They were also told that they and the person with whom they were ostensibly paired would make their decision anonymously and simultaneously.

This situation poses a standard Prisoner's Dilemma, with four possible outcomes. If both cooperate (the "reward" payoff), each receives 15 points (20 points in the group fund multiplied by 1.5 by the experimenter and then split between the participants). This increases each participant's earnings from \$3.00 to \$4.50. If both defect (the "punishment" payoff), each earns \$3.00. If one cooperates and the other defects, the cooperator earns 7.5 points (\$2.25) (the "sucker's" payoff), and the defector earns 17.5 points (\$5.25) (the "temptation" payoff).

To ensure that participants understood the instructions, we provided an outcome matrix showing each of the four possible outcomes. They were also asked to take a short quiz regarding possible outcomes. At that point the research assistant clarified any confusion, making sure that the participant understood

the instructions before proceeding. In total, 56 participants (64 percent) cooperated in the Prisoner's Dilemma (see Table 1). This level of cooperation is consistent with meta-analyses of prisoner's dilemma experiments (see Sally 1995).

### Measuring Sympathy

After reading the instructions for the experimental session, but before making a decision about whether or not to contribute to the group fund, participants were asked to report their feelings toward their partner given the decision they were about to make.

We measured sympathy using the same measure as Study One. Using seven-point scales (1 = strongly disagree; 7 = strongly agree),<sup>11</sup> participants were asked to report how "compassionate," and "supportive" they felt toward their partner given the interdependent situation they faced. We averaged these two items to create a single measure ( $\alpha = 0.80$ ). The average level of sympathy was 4.41 (on a seven-point scale).

## RESULTS

We use mediational analysis to test our hypotheses. According to Baron and Kenny (1986:1176), a variable serves as a mediator when (1) variation in the independent variable (trust/social values) significantly predicts variation in the presumed mediator (sympathy); (2) variation in the mediator (sympathy) significantly predicts variation in the dependent variable (cooperative choice); and (3) when the independent variable (trust/social values) and the mediator (sympathy) are both

research has found that social values are quite stable over time (e.g., Van Lange 1999). The relationship between the measure and cooperative choices should remain temporal consistent.

<sup>10</sup> This study was paired with another. Participants earned a total of \$18.00 on average.

<sup>11</sup> We use a more standard scale for Study Two, which includes the anchor "neutral" (the sympathy measure in Study One did not contain this anchor), given our concerns with reported levels of sympathy in Study One being close to the midpoint of the scale.

Table 2. Trust, Sympathy, and Cooperation

	Model 1 <sup>a</sup> <i>b</i>	Model 2 <sup>b</sup> Odds Ratio (95% <i>CI</i> )	Model 3 <sup>b</sup> Odds Ratio (95% <i>CI</i> )	Model 4 <sup>b</sup> Odds Ratio (95% <i>CI</i> )
Sympathy	—	2.40*** (1.54–3.74)	—	2.32*** (1.48–3.63)
Trust	0.22*	—	1.65** (1.08–2.51)	1.52* (.95–2.45)

<sup>a</sup> Dependent variable = sympathy; <sup>b</sup> Dependent variable = cooperation

\*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$  (one-tailed)

included in the model, the effect of the independent variable on the dependent variable shrinks. Full mediation exists when the relationship between the independent and dependent variables is insignificant when controlling for the mediator. Partial mediation exists when the relationship is reduced when controlling for the mediator. We begin with the link between trust, sympathy, and cooperation.

### Trust, Sympathy, and Cooperation

Consistent with the first criteria for mediation given above, we found that trust significantly predicts variation in sympathy. We report these findings in Table 2, Model 1. For every unit increase in generalized trust, we find an increase of about .22 points on the sympathy index ( $p < 0.05$ ). Consistent with previous research (Batson and Ahmad 2001; Batson and Moran 1999), and the requirements for mediation, we also find that sympathy predicts cooperative behavior (Model 2). The odds ratio shows that with each one-point increase in reported sympathy, the odds of the subject cooperating is about 140 percent greater ( $p < 0.001$ ). Next, we regress choice on trust, and find that for every unit increase in trust, the odds of cooperation increase about 65 percent ( $p = 0.008$ ). We report these results in Model 3.

For the final step, we again regress choice on trust while controlling for sympathy. Results appear in Model 4. When controlling for sympathy, the strength of the relationship between trust and cooperation is reduced ( $p = 0.04$ ). This provides evidence for partial mediation. When controlling for trust, the relationship between sym-

pathy and cooperation remains highly significant. Results show that for every unit increase in sympathy, the odds of cooperating in the prisoner's dilemma increases by 132 percent ( $p < 0.001$ ).

The mediational role of sympathy in the trust-cooperation relationship reported above is subtle. In order to increase our confidence that sympathy indeed partially mediates the trust-cooperation link, we performed a Sobel test (see Sobel 1982). We include this test because it has been "found to have greater statistical power than that of other formal methods for assessing mediation, including the Baron and Kenny approach" (Preacher and Hayes 2004:719). Using the coefficients and standard errors of the independent and mediating variables, the Sobel test produces a  $z$ -value against which we test the null hypothesis of no mediation. Specifically, a significant  $z$ -value reveals that the association between the independent and dependent variable has been significantly reduced by the inclusion of the mediating variable.

Results yielded a significant  $z$ -value ( $z = 1.61$ ;  $p = 0.05$ ; one-tailed). Thus, we reject the null hypothesis of no mediation, and conclude that sympathy partially mediates the relationship between trust and cooperation.<sup>12</sup>

<sup>12</sup> Due to the relatively low reliability of our trust measure (.55), we also conducted the Sobel test for each of the three items comprising the measure. Both "trust" ( $z = 1.41$ ) and "helpful" ( $z = 1.31$ ) are marginally mediated by sympathy ( $p < .10$ ; one-tailed). Sympathy does not mediate the relationship between "fair" and "cooperation" ( $z = .87$ ;  $p = .19$ , one-tailed). Thus, all three components of our measure point to the same general trend but do not appear sufficiently powerful to track generalized trust independently.

Table 3. Social Values, Sympathy, and Cooperation

	Model 1 <sup>a</sup> <i>b</i>	Model 2 <sup>b</sup> Odds Ratio (95% <i>CI</i> )	Model 3 <sup>b</sup> Odds Ratio (95% <i>CI</i> )	Model 4 <sup>b</sup> Odds Ratio (95% <i>CI</i> )
Sympathy	—	2.40*** (1.54–3.74)	—	2.75*** (1.59–4.78)
Social Values	.48†	—	5.06** (1.33–19.20)	4.74* (1.10–20.50)

<sup>a</sup> Dependent variable = sympathy; <sup>b</sup> Dependent variable = cooperation  
 \*\*\*  $p < 0.001$ ; \*\*  $p < .01$ ; \*  $p < 0.05$ ; †  $p = .07$  (one-tailed)

### Social Values, Sympathy, and Cooperation

We report our second mediational analysis in Table 3. Our analysis reveals a marginally significant relationship between social values and sympathy ( $b = .48, p = .07$ ). Also, consistent with previous research, we find a significant relationship between social values and cooperation ( $p = 0.008$ ), where the odds for prosocials cooperating are roughly four times that of proselves.

For the final step, we again regress choice on social values, controlling for sympathy (see Model 4). We find that, when controlling for sympathy, the relationship between social values and cooperation is reduced—the odds of prosocials cooperating are about 3.7 times greater than proselves ( $p = .02$ ). This suggests that sympathy partially mediates the social values-cooperation link. The relationship between sympathy and cooperation, when controlling for social values, is still highly significant ( $p < .0001$ ).

To more formally test Hypothesis 3, we conducted a Sobel test. The Sobel test gives a marginally significant  $z$ -value of 1.40 ( $p = .08$ ; one-tailed). Based on these results, we conclude that sympathy marginally mediates the relationship between social values and cooperation.

### DISCUSSION

As noted earlier, the results of Study One suggest that increases in sympathy stem from the structural condition of interdependence. According to sympathy researchers, increases in sympathy lead to increases in cooperation (Batson and Moran 1999; Batson and Ahmad 2001). Because previous research has shown that generalized trust and social value orienta-

tions are key individual-level predictors of cooperation in interdependent situations, we designed Study Two to address whether either of these operates through situational sympathy. Specifically, we predicted that sympathy mediates the relationship between trust and cooperation (Hypothesis 2), and social values and cooperation (Hypothesis 3).

Our results are largely supportive of these hypotheses but must be interpreted cautiously. While sympathy significantly (partially) mediates the relationship between trust/social values and cooperation, the substantive effect is subtle. That is, when controlling for sympathy, the effect of trust and social values on cooperation was only slightly reduced (and both trust and social values still significantly predict cooperation). Further, analyses isolating the two emotion adjectives making up the sympathy measure reveal that “compassion” strongly mediates the relationship between trust and cooperation, but only weakly mediates social values and cooperation. On the other hand, “support” strongly mediates social values and cooperation, but is a less effective mediator of trust and cooperation. From the results reported above, we can be fairly confident that sympathy is an important factor in interdependent situations (i.e., sympathy serves as a partial mediator). However, the precise way in which trust and social values work through sympathy to generate cooperation remains an important question for future research.

The work reported here extends previous sympathy research by showing that sympathy mediates important individual-level predictors of cooperation. Although more research is needed to nail down the specifics, the current research also makes an important advance in

addressing the relationship between trust, social values, and cooperation. In the following section we address limitations of the current research and directions for future research.

### LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

#### Limitations

As with Study One, in Study Two the average level of reported sympathy was around the midpoint of the sympathy measure (4.41). This may reveal that either our measure was not adequately sensitive, or that perhaps the reported level of sympathy due to interdependence is not substantively meaningful. That is, compared to a “neutral” response (4.0), participants in Study Two reported mild feelings of sympathy (.41 above “neutral”).

Does this relatively small difference in sympathy generate substantively meaningful increases in the probability of cooperation? To answer this question we focus on the relationship between sympathy and cooperation reported in the logistic models above (Tables 2 and 3). Specifically, we computed the marginal change in the probability of cooperation at specified values of sympathy. To do so, we compared the probability of cooperation when sympathy was held at the mean value (4.41) versus when it was at neutral (4.0) (for a full description of this analysis see Long and Freese 2006:169–77). When the sympathy value is neutral (4.0), the probability of cooperation is .57, and when sympathy is at its mean level (4.41), the probability of cooperation is .66. Thus, this small increase in sympathy (.41) generates a 9 percentage point increase in the probability of cooperation. This increase is even larger when we consider the difference between the interdependent and independent conditions in Study One. The difference in reported sympathy between the two conditions is .77 (4.65 for the interdependent condition, and 3.88 for the independent condition). This produces about a 17 percentage point increase in the probability of cooperation for those in the interdependent condition.

What our analyses reveal is that the sympathy felt by those in interdependent situations

has substantial effects on their behavior. This suggests that even small boosts in sympathy generated by perceived interdependence may provide the impetus for people to overcome their initial temptation to free ride on others (i.e., to cooperate).

A second limitation is that the sympathy measure we use for Studies One and Two is admittedly crude. The measure we use is indicative of a lack of precise measures for situation specific sympathy, as well as the difficulty measuring emotions, in general (Larsen and Prizmic 2006). Due to these difficulties, researchers should focus on constructing a more precise and powerful measure of sympathy for use in future research.

Finally, our Study Two sample is relatively small and homogenous (i.e., all participants were college students). To increase confidence in our conclusions drawn from a small sample, further analysis incorporating larger representative samples is needed.

#### Future Research

While the research reported here suggests that sympathy is important for social order, several questions remain. First, how do we generate greater levels of sympathy? Lawler and colleagues argue and find support for the contention that agreement frequency in exchange dyads predicts how strongly participants feel positive emotions (pleasure/satisfaction; interest/excitement) (Lawler and Yoon 1993, 1996; Thye, Yoon, and Lawler 2002). They also find that frequency of agreement is more strongly associated with emotions in later exchange rounds than early ones.

Following Batson and Shaw (1991) and Frank (1988, 2004), we propose a parallel process for sympathy in social dilemma situations. These researchers argue that attachment and positive valence increase the likelihood of sympathy. Thus, we should expect sympathy to increase with greater frequency of interaction. To address this, future research should vary the amount of exposure participants have with one another in interdependent settings.

A second important question for future research is whether sympathy mediates other predictors of cooperation. The individual-level

predictors we focused on (trust and social values) are not the only strong predictors of cooperation in social dilemmas. Research has shown that group identity (Dawes, Van De Kragt, and Orbell 1988; Brewer and Kramer 1986) and culture (Yamagishi and Yamagishi 1994; Yamagishi, Cook, and Watabe 1998) also generate cooperation. Specifically, people are much more likely to cooperate with those they identify as ingroup members compared to those who are outgroup members (Brewer and Kramer 1986). Also, cross-cultural research has revealed that those from individualistic cultures are more likely to cooperate in social dilemmas with strangers than those from collectivist cultures (Yamagishi and Yamagishi 1994). Future research should address whether sympathy mediates the relationship between group identity/culture and cooperation. Such knowledge would shed further light on the role of sympathy in interdependent settings.

## CONCLUSION

Many have suggested that for social order to emerge and persist, individuals must act in the interests of others. Recent research has revealed that the emotion sympathy mitigates self-interest, thus enabling people to act toward the benefit of the greater good. The first question addressed in this paper was, what leads people to sympathize with one another? We argued that in social interactions between strangers, sympathy is stronger in situations where participants' outcomes are interdependent versus when they are relatively independent. Results from Study One supported this prediction.

Previous social dilemmas research finds that certain individual-level differences strongly predict cooperation in interdependent situations. In Study Two we examined whether individual-level predictors of cooperation work through situational sympathy. Specifically, we argued that sympathy mediates the relationship between generalized trust and cooperation, and social values and cooperation. Study Two supported our predictions, although these mediation effects were subtle.

The research presented here is embedded in an extensive tradition. Sociologists have long been concerned with understanding social order, and for over a century social scientists have pointed to the importance of sympathy in explaining how order is possible. These classic scholars emphasized the importance of sympathy for acts of benevolence and generosity. Recent research has empirically substantiated the arguments of the classic writers and found a positive relationship between sympathy and social order. While by no means definitive, our research advances the sympathy literature by emphasizing that sympathy may be at least partly rooted in social structure (Study One), and that sympathy may be useful for social order because it mediates individual characteristics and cooperation (Study Two).

At least two important implications for the study of social order fall out of the work we present. First, this paper extends previous research to shed new light on the cooperation puzzle. Cooperation, and thus social order, is problematic because self-interested behaviors often produce greater material rewards than unselfishness. The theory we present suggests an interesting paradox: the very situations that are problematic for social order (social dilemmas) may also hold a solution. That is, the conflict between individual and collective interests inherent in social dilemmas may serve as a catalyst for sympathy. While some individuals will undoubtedly choose greater material rewards by acting selfishly, others will feel sympathy based on the potential harm of selfish behavior and choose cooperation. As others have argued, cooperative choices by relatively few are enough to generate and sustain more widespread cooperation and social order (e.g., Axelrod 1984; Frank 1988).

A second implication is that our work adds to the literature suggesting that emotions may help some people overcome temptations to act selfishly, which is necessary for producing social order. This literature argues that emotions serve as an important moral check on unbridled selfishness, and certain emotions steer some individuals away from the potential harm of purely self-interested behavior (Frank 1988, 2004; Hirschleifer 1993). Results from

our mediation analysis are consistent with this line of reasoning. Specifically, we found that within an interdependent situation, some individuals were more likely to feel sympathy (high trusters and prosocials), and this then led them to cooperate.

Taken as a whole, the research presented here is an important first step toward a more complete understanding of the role of sympathy in interdependent settings. Further work is needed to understand more fully the effects of differing social structures on sympathy, as well as to flesh out the specific reasons why sympathy mediates individual preferences and cooperation. Such work will likely yield insights into the importance of sympathy for benevolent acts and the promotion of the collective good.

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