

# Intragroup Social Influence and Intergroup Competition

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Three experiments examined the role of intragroup social influence in intergroup competition. In the context of a mutual fate control situation, participants in Experiment 1 demonstrated more intergroup competition in the presence than in the absence of social support for shared self-interest. Experiment 2 revealed that, in the context of a Prisoner's Dilemma Game, this social support effect was stronger when noncorrespondence of outcomes between the interacting groups was low than when it was high. Results from Experiment 3 were consistent with the possibility that the effect of social support is attenuated when noncorrespondence of outcomes is high because under these circumstances intergroup competition is prescribed by a norm of group interest. The implications of these findings for understanding the antecedents of interindividual–intergroup discontinuity are discussed.

The 20th century, perhaps more so than any other, will be remembered for the atrocious armed conflicts that have marked its course. It is estimated that, just in its final decade, armed conflicts have claimed the lives of 30 million people and moved 45 million people from their homes (McGuire, 1998). Research on interindividual–intergroup discontinuity (e.g., Insko et al., 1987; Insko et al., 1988; Insko et al., 1993; Insko et al., 1994; Insko et al., 2001; Insko, Schopler, Hoyle, Dardis, & Graetz, 1990; Schopler, Insko, Graetz, Drigotas, & Smith, 1991; Schopler et al., 1993; Schopler et al., 1995; Schopler et al., 2001; Wildschut, Lodewijx, & Insko, 2001) has attempted to identify antecedents of intergroup conflict by examining why intergroup relations are often more antagonistic and competitive than are interindividual relations. Three hypotheses have been suggested. The *schema-based dis-*

*trust, or fear, hypothesis* proposes that intergroup interactions tend to be less trusting than interindividual interactions because the anticipation of interacting with another group activates an out-group schema consisting of learned beliefs and expectations that intergroup interactions are competitive, unfriendly, deceitful, and aggressive (Insko & Schopler, 1998; Pemberton, Insko, & Schopler, 1996). The *identifiability hypothesis* proposes that in interindividual interactions, people tend to assume that they are identifiable and can be held accountable if they act competitively. In intergroup interactions, on the other hand, it is less clear who bears responsibility for competitive behavior and who should be held accountable for it. Thus, group membership provides a shield of anonymity (Rabbie & Lodewijx, 1991; Schopler et al., 1995). The *social support for shared self-interest, or greed, hypothesis* proposes that group members can provide each other with social support to pursue their immediate self-interest in a competitive way, whereas such social support is unavailable to individuals (Insko et al., 1990; Schopler et al., 1993).

Empirical support for the fear hypothesis comes from experiments demonstrating that in the context of the Prisoner's Dilemma Game (PDG), the tendency for intergroup interactions to be more competitive than interindividual interactions is reduced when a third choice that eliminates the risk of being exploited by a competitive opponent is added to the two-choice matrix (Insko et al., 1990; Schopler et al., 1993). Support for the identifiability hypothesis comes from an experiment demonstrating that group members who anticipate that their PDG choices will be identified by members of the other group are less competitive than are group members who do not anticipate being so identified (Schopler et al., 1995). Compared with the evidence for the fear and identifiability hypotheses, evidence for the social support for shared self-interest hypothesis is limited. This is cause for concern, in particular given the strong emphasis placed on social support as an antecedent of

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the interindividual–intergroup discontinuity effect (Schopler & Insko, 1992, 1999).

We report three experiments that investigate the relation between intragroup social influence and intergroup competition. Experiments 1 and 2 address the scarcity of evidence for the role of social support in intergroup competition. Note that, because individuals by definition cannot obtain social support, these experiments do not include individuals and thus do not examine directly the interindividual–intergroup discontinuity effect. However, because group members but not individuals can provide and receive social support, evidence for the role of social support in intergroup competition would contribute to our understanding of the interindividual–intergroup discontinuity effect. The design of Experiments 1 and 2 was guided by the assumption that social support, in the form of competitive suggestions or acts by members of one's group, is related more strongly to intergroup competition when conflict of interest between the interacting groups is absent or mild than when conflict of interest is severe. As we explain in detail later, this assumption was derived from a proposed *norm of group interest*, which dictates that one should take into account the interests of one's own group before taking into account the interests of other groups (Horwitz & Rabbie, 1982; Rabbie & Lodewijkx, 1994; Tajfel, 1970). Experiment 1 therefore examines the effect of social support on intergroup competition in the absence of conflict of interest between the interacting groups—a context in which the effect should be relatively strong. Experiment 2 examines the validity of our assumption that the effect of social support on intergroup competition is stronger when conflict of interest is mild than when conflict of interest is severe. Finally, Experiment 3 examines directly the existence of a norm of group interest and its role in intergroup competition.

### Social Support for Shared Self-Interest

In terms of interdependence theory (Kelley & Thibaut, 1978), self-interest, or greed, refers to a concern for maximizing one's own absolute outcomes (max own), a concern for maximizing one's own outcomes relative to the outcomes of the other side (max rel), or both. The inclusion of max rel under the rubric of self-interest may be confusing to readers who associate self-interest mainly or exclusively with max own. These readers may find it useful to think of max rel as a purely competitive strategy that enhances the standing of an individual or group relative to other individuals or groups. In interindividual contexts, self-enhancement has been linked with such beneficial outcomes as high self-esteem and positive mood (Sedikides & Strube, 1997; Taylor & Brown, 1988; Tesser, 1988; Wills, 1981). With regard to intergroup contexts, Tajfel (1982) proposed that establishing superiority of one's own group relative to other groups is of central importance in achieving, maintaining, or enhancing a positive social identity and, hence, high self-esteem.<sup>1</sup>

The domain of the social support for shared self-interest hypothesis can be delineated by a contrast of the social support hypothesis with the schema-based distrust, or fear, hypothesis. The fear hypothesis proposes that intergroup competition derives from the expectation that the other group will compete. Research has demonstrated, however, that when the risk of being exploited by a competitive opponent is eliminated, intergroup interactions remain more competitive than interindividual interactions (Insko et al.,

1990; Schopler et al., 1993). The social support for shared self-interest hypothesis proposes that when the other side is expected to cooperate, intergroup interactions continue to be more competitive than interindividual interactions because group members provide mutual social support for the competitive pursuit of immediate self-interest.

Why does competition with a cooperative other depend on social support, whereas fear-based competition does not? Schopler et al. (1993) pointed out that, in the context of a PDG, competition with a cooperative other maximizes own outcomes (max own) as well as the difference between own and other's outcomes (max rel). Matching cooperation with competition thus violates norms of fairness and reciprocity, and expression of such counternormative behavior depends on social support. Competition with a competitive other, on the other hand, maximizes own outcomes and guarantees equal outcomes for both sides. Matching competition with competition is therefore consistent with both fairness and reciprocity principles. As Schopler et al. (1993) noted, "Because the salient considerations all triangulate on selecting the competitive choice, the existence of social support is less important" (p. 424). Thus, the domain of the social support hypothesis is defined by situations in which the other side is expected to cooperate.

In summary, social support increases intergroup competition under circumstances in which group members are reluctant to pursue their shared self-interest by means of intergroup competition because such a course of action is considered to be inconsistent with a set of important social norms. This set of norms likely includes but may not be limited to norms of fairness and reciprocity. Social support in the form of a competitive suggestion or act by one group member can reduce these normative constraints on the behavior of other members of his or her group, thus increasing the likelihood that they will follow suit and act competitively. This line of reasoning is consistent with the well-documented finding that social support from even a single ally can reduce normative and other conformity pressures (Allen & Levine, 1969, 1971; Asch, 1955; Kiesler, Zanna, & De Salvo, 1966).

### Norm of Group Interest

As stated previously, self-interest can reflect a concern for max own, a concern for max rel, or both. Although conceptually distinct, in the context of the PDG max own and max rel are confounded (i.e., the competitive choice may reflect either or both). We propose that behavior aimed at maximizing the relative outcomes of one's group depends on social support to a greater extent than does behavior aimed at maximizing the absolute outcomes of one's group. This view is based on a postulated norm of

<sup>1</sup> Although group members may be motivated to maximize relative outcomes in an attempt to achieve, maintain, or enhance a positive social identity, group members' need for a positive social identity does not readily explain the interindividual–intergroup discontinuity effect. As Insko and Schopler (1987) have pointed out, "because individuals also obtain a self-esteem benefit from winning a competition, Tajfel's theorizing does not really explain why groups should be more competitive than individuals" (p. 242). In fact, research suggests that people attach greater weight to their individual standing in comparison to other individuals than to their group's standing in comparison to other groups (L. Gaertner, Sedikides, & Graetz, 1999).

group interest, a norm that dictates that one should take into account the interests of one's own group before taking into account the interests of other groups. Because maximization of absolute outcomes is permitted, even prescribed, by this norm, the existence of explicit social support is less important. Maximization of relative outcomes at the expense of a cooperative opponent, on the other hand, more likely requires social support because it inherently violates fairness and reciprocity principles without increasing absolute group outcomes.

Please note that we do not mean to suggest that social support is unrelated to maximization of absolute outcomes under all circumstances. We merely propose that, because maximization of absolute outcomes is permitted and prescribed by a norm of group interest, evidence for the role of social support is most likely to be seen when competition maximizes only relative outcomes. This does not rule out the possibility that, under certain circumstances, social support is related to maximization of absolute outcomes.

Note, finally, that in postulating a norm of group interest we are hardly asserting a new idea. A historical illustration of a similar idea can be found in Plato's *Republic*, where Polemarchus defends a traditional maxim of Greek morality that "justice consists of helping one's friends and harming one's enemies" (Plato, 1941). More recently, Tajfel (1970) interpreted the in-group favoritism demonstrated in early minimal group paradigm experiments as flowing from a learned "'generic norm' of behavior towards outgroups," a norm dictating that people "act in a manner that discriminates against the outgroup and favors the ingroup" (pp. 98–99). In turn, Rabbie and Lodewijkx (1994) proposed that in-group favoritism in the minimal group paradigm derives in part from a normative in-group schema consisting of learned beliefs that "more weight should be given to desires of ingroup members than of outgroup members" (p. 146; see also Horwitz & Rabbie, 1982). The proposed norm of group interest bears greater resemblance to Rabbie and Lodewijkx's notion of a normative in-group schema, which centers on maximization of absolute outcomes, than to Tajfel's notion of a generic group norm, which centers on maximization of relative outcomes.

### Existing Research on the Role of Social Support in Intergroup Competition

Two categories of evidence are consistent with the social support explanation of the discontinuity effect. The first category consists of experiments comparing interindividual and intergroup interactions in the context of a PDG-Alt matrix (Insko et al., 1990; Schopler et al., 1993). In the traditional two-choice PDG, the competitive choice confounds fear and greed. That is, the competitive choice maximizes self-interest both when the opponent is expected to compete (fear) and when the opponent is expected to cooperate (greed). In the PDG-Alt matrix, the confounding of fear and greed is eliminated by the inclusion of a third choice that provides intermediate outcomes regardless of the opponent's choice. Given the expectation that the opponent is competitive, this *withdrawal* choice maximizes self-interest. Given the expectation that the opponent is cooperative, the competitive choice maximizes self-interest. Thus, if a player makes a competitive choice on the PDG-Alt matrix and avoids the safe withdrawal choice, this almost certainly reflects greed, or an attempt to maximize self-interest at

the expense of a cooperative opponent. Experiments with the PDG-Alt matrix have revealed that groups, as compared with individuals, more frequently selected the competitive choice. Although this finding is consistent with the idea that group members can provide each other with social support to pursue their self-interest in a competitive way, there is a plausible alternative explanation. Perhaps groups were more competitive than individuals because the anonymity provided by the group context allowed group members to avoid responsibility for competitive behavior.

The second category of evidence for the role of social support consists of two experiments conducted by Schopler et al. (1993). For our present purposes, we only describe the first experiment. This experiment involved a manipulation of the suggestion made by a confederate who was playing the role of group member. During the within-group discussion period that preceded the final group decision, the role player either suggested that the group select the cooperative alternative or suggested that the group select the competitive alternative. In keeping with the idea that the domain of the social support hypothesis is defined by those situations in which the other side is expected to cooperate, this experiment also involved a manipulation of feedback regarding the other group's decision. This feedback was either consistently cooperative, mixed, or consistently competitive. Results indicated that participants who were exposed to the competitive suggestion of another group member were more competitive than were participants who were exposed to a cooperative suggestion, especially when the feedback regarding the other group's decisions was consistently cooperative. It is interesting to note that there was no effect for the suggestion manipulation across the final 5 trials of the 10-trial interaction when the feedback was competitive. This is consistent with the idea that the domain of the social support hypothesis is defined by situations in which the other side is expected to cooperate. When the expectation that the other group will compete is established firmly, the existence of social support is less important.

Although the findings of Schopler et al. (1993) were generally consistent with the social support explanation, they, too, have a plausible alternative explanation. Rather than reflecting the operation of social support, the findings may reflect the operation of conformity processes. That is, the suggestion provided by the confederate may have served as a guideline for action to which the participants conformed. Participants may have been especially uncertain and therefore susceptible to this form of social influence in the cooperative feedback condition, in which short-term self-interest dictates a competitive choice but norms of fairness and reciprocity dictate a cooperative choice. In this scenario, participants were not attempting to maximize their self-interest but merely using the confederate's suggestion to determine the appropriate course of action in an ambiguous situation. Our first two experiments aim to address the limitations of previous research by manipulating the existence of social support without creating a within-group majority in favor of either the cooperative or the competitive choice that could produce conformity.

### Experiment 1

To reiterate briefly, when people interact with a cooperative opponent, self-interest is maximized by competition. Because

competition with a cooperative opponent violates norms of fairness and reciprocity, a competitive response likely requires social support. The present research is based on the assumption that a within-group majority in favor of competition is not required for social support to exist. In keeping with research on the relation between social support and conformity (Allen & Levine, 1969, 1971; Asch, 1955, Kiesler et al., 1966), we assumed that even a single group member's competitive suggestion or act can provide sufficient social support for other group members to follow suit. This assumption provides the basis for our social support manipulation: In the *social support condition*, participants were informed prior to making their decision that one group member had endorsed cooperation with the other group and that one had endorsed competition with the other group. In the *no-social-support condition*, participants were not provided with information regarding the decisions of other group members.

Because there is no within-group majority in favor of competition in the social support condition, a potential difference between the social support and no-social-support conditions cannot be explained readily in terms of conformity. However, it is possible that, because participants in the social support condition were informed that one other group member selected the competitive alternative, they were more likely than participants in the no-social-support condition to expect a majority of group members to be competitive. If so, greater competitiveness in the social support condition could be mediated by conformity to an anticipated majority. We addressed this issue with an assessment of participants' expectations regarding the decisions of the other group members. Still another possibility is that, because participants in the social support condition were informed that one other group member selected the competitive alternative, they were more likely to perceive the interaction as involving two separate groups rather than one group or separate individuals. S. L. Gaertner, Mann, Murrell, and Dovidio (1989) demonstrated that a two-group representation is associated with greater evaluative intergroup bias than is either a one-group or a separate-individuals representation. This suggests that greater competitiveness in the social support condition could be mediated by participants' perception that the interaction involved two groups rather than one group or separate individuals. We addressed this issue by administering S. L. Gaertner et al.'s measure of perceived categorization.

The assumption that the domain of the social support hypothesis is defined by situations in which the other side is expected to cooperate created a dilemma regarding the appropriate experimental procedure: Arranging a setting in which there was no doubt regarding the other group's cooperation would require a significant deviation from the procedures used in previous experiments on interindividual-intergroup discontinuity, to which we wanted to generalize our findings. Specifically, such a setting possibly would require a sequential interaction between the groups, in which the other group initiates the sequence with a unilateral cooperative choice. Most experiments on interindividual-intergroup discontinuity, however, have involved communication between both sides regarding possible action, followed by the simultaneous exchange of decisions. These 1-min communication sessions usually involve a representative from each group. Insko et al. (1994) found that both sides almost invariably made a nonbinding cooperative proposal during these communication periods. In light of these facts, we decided to include a manipulation of feedback regarding the other group's decision. In the *cooperative choice condition*, there

was a sequential exchange of choices. Prior to making their decision, participants received feedback indicating that the other group had made a cooperative final choice. In the *cooperative proposal condition*, there was a simultaneous exchange of choices. Prior to making their decision, participants received feedback indicating that the other group had made a nonbinding cooperative proposal. In the former condition, there was no uncertainty regarding the other group's cooperation, whereas the latter condition was more similar to past experiments on interindividual-intergroup discontinuity.

We proposed that behavior aimed at maximizing relative outcomes depends on social support to a greater extent than does behavior aimed at maximizing absolute outcomes. We based our view on a norm of group interest, a norm that permits and prescribes the maximization of absolute group outcomes, thus making the existence of explicit social support redundant or less important. This suggests that the effect of social support is most pronounced when competition with a cooperative other produces an increase in relative outcomes but not in absolute outcomes. We therefore first examined the role of social support in the context of a mutual fate control (MFC) matrix (see Figure 1). Unlike the PDG, which models a situation in which competition with a cooperative other maximizes both relative and absolute outcomes, the MFC matrix models a situation in which competition with a cooperative other maximizes only relative outcomes. The MFC matrix thus provides a context in which the effect of social support should be relatively strong.

In terms of interdependence theory, the MFC matrix affords no reflexive control (i.e., control over own outcomes) but only fate control (i.e., control over other's outcomes). In Figure 1 this is illustrated by the fact that the outcomes each group achieves are completely determined by the decision of the other group. For example, if Group B selects the cooperative X alternative, Group A is guaranteed an outcome of 500 cents regardless of whether it selects X or Y. Group A can maximize its outcomes relative to Group B, however, by selecting Y. In this scenario, Group B only earns 200 cents instead of the 500 cents it would have earned if Group A had selected X. Because competition with a cooperative opponent in the context of an MFC clearly violates norms of fairness and reciprocity without increasing absolute outcomes, we predict that group members will be more likely to adopt this course of action in the presence than in the absence of social support.

		Group A	
		X	Y
Group B	X	500	500
	Y	200	200

Figure 1. The mutual fate control matrix used in Experiment 1.

## Method

### Participants and Design

One hundred fourteen students (38 men and 76 women) enrolled in an introductory psychology course participated in the experiment for partial course credit. Each experimental session involved either all male or all female participants. Hypotheses were tested in a 2 (social support for shared self-interest: present vs. absent)  $\times$  2 (feedback: cooperative choice vs. cooperative proposal)  $\times$  2 (sex) between-subjects design. Respective cell sample sizes for the social support present/cooperative choice, social support present/cooperative proposal, social support absent/cooperative choice, and social support absent/cooperative proposal were 15, 17, 19, and 25 for women, respectively, and 10, 10, 9, and 9 for men.<sup>2</sup>

### Procedure

Experimental sessions were run in a suite containing several smaller rooms. On arrival at the waiting room, participants were asked to draw an index card to determine their room assignment. After being escorted to the experimental suite and seated in separate rooms, participants were told that they were the 5 members of Group A and that they would interact with the 5 members of Group B, who were located in an adjoining laboratory. In reality, no other group was present, and feedback regarding the other group's behavior was controlled by the experimenter.<sup>3</sup> Next, participants received detailed instruction on the MFC matrix and completed a check of their understanding of the matrix. Participants were told that they would interact with the other group for one trial and that they would make their decision following a majority rule, such that the decision made by the majority of group members would be the final group choice. Participants' decisions were to be made in a fixed order, and participants were asked to open an envelope placed on their desk to learn when they would respond. In fact, all envelopes contained a slip of paper indicating that the participant would be the 3rd member of his or her 5-person group to respond. Participants were instructed that when they began the decision-making process, the experimenter would slide a decision form under the door of the first group member to respond and that this group member should think about his or her decision, circle the decision in the proper place on the decision form, and then slide the decision form back to the experimenter. This process would be repeated until all 5 group members had indicated their decision. The experimenter would then tally the decisions of both groups and distribute the appropriate amount of money among the members of both groups. Participants were told that after the money was distributed, they would come together in the center room and discuss within their group the choices that each of them had made.

In the social support condition, participants were informed that a decision form would be passed from 1 group member to the other. In reality, each participant received a separate form on which two decisions were prerecorded by the experimenter. Participants were given the impression that 1 group member had selected the cooperative (*X*) alternative and that the other had selected the competitive (*Y*) alternative. The order of these two prior decisions (i.e. *X* first vs. *Y* first) was counterbalanced. In the no-social-support condition, participants were informed that a separate decision form would be given to each participant, albeit in a fixed order. The decision forms that were passed to the participants contained no information regarding the decisions of the 2 group members who had allegedly already made their decision. Note that because we used 5-person groups, participants did not have complete personal control over the group's decision in either condition. That is, participants were never in a position to cast the deciding vote within their group. This procedural detail is relevant because it has been proposed that group members are less likely to compete when they have personal control over the group's decision (Insko, Schopler, & Sedikides, 1998).

In the cooperative choice condition, participants were informed that it had been determined randomly that Group B would make its decision first and that this decision would be passed on to the members of Group A

before they made their decision. Before starting the decision process, the experimenter briefly left the laboratory, allegedly to get Group B's decision. On his or her return, participants were always informed that Group B had selected *X*. In the cooperative proposal condition, participants were informed that it had been determined randomly that Group B would make a proposal first and that this proposal would be passed on to the members of Group A before they made their decision. Participants were informed that this proposal was important because it could provide information regarding the decision that the other group would make but that the proposal was not binding. As in the cooperative choice condition, the experimenter briefly left the room, allegedly to get Group B's proposal. On his or her return, the experimenter always informed the participants that Group B had proposed to select *X*, at which point the decision process was started. After all group members had made their decision, they were asked to open their door and complete a postexperimental questionnaire containing manipulation checks and supplementary dependent measures. On completion of the questionnaire, participants were debriefed and dismissed from the laboratory.

### Dependent Variables

*Competition and reasons for choosing X or Y.* The most important dependent variable was MFC choice behavior (i.e., cooperation vs. competition). Because each of the two MFC choices can be selected for a number of different reasons (e.g., the cooperative choice may reflect a concern for joint outcomes or a concern for equal outcomes), we assessed participants' reasons for choosing *X* or *Y* using both open-ended and closed-ended methods. As in previous research (Insko et al., 2001; Schopler et al., 2001; Wildschut et al., 2001), these assessments were collected to gain preliminary insight into the processes that mediate the potential effects of the independent variables on competition.

*Open-ended reasons assessment.* Participants were asked to provide a written explanation for why they selected *X* or *Y*. Two independent judges coded these responses for statements indicating concern for maximizing own outcomes, or max own (e.g., "I chose *X* because it would give my group more money"); concern for maximizing relative outcomes, max rel (e.g., "I chose *Y* to get more money than the other group"); concern for fair or equal outcomes, or min dif (e.g., "I chose *X* so both groups would earn an equal amount"); concern for maximizing joint outcomes, or max joint (e.g., "I chose *X* because it was most beneficial to both groups"); and fear (e.g., "I chose *Y* because I thought the other group would choose *Y*").<sup>4</sup> The

<sup>2</sup> When only 4 instead of 5 participants arrived for the experiment, a confederate played the role of the 5th group member to maintain the impression that the interaction involved two 5-person groups. For this reason, cell sample sizes are not all divisible by 5.

<sup>3</sup> Several measures were taken to create the illusion that another group was present in the adjoining laboratory. On their way from the waiting room to the experimental suite, participants passed another experimenter who was standing in front of a door marked with a sign reading "Group B." At this point, their own experimenter informed the participants, "You will be in Group A today and you will be interacting with Group B. This is [name of experimenter], and he [she] will be working with Group B." Examination of a postexperimental suspicion question indicates that, across experiments, very few participants (approximately 2%) expressed suspicion regarding the actual presence of the other group.

<sup>4</sup> Because an MFC matrix affords no control over own absolute outcomes (i.e., reflexive control), it may seem unnecessary to code for max own. However, some participants' statements reflected an explicit concern with maximizing own outcomes. For example, 1 participant wrote, "Since the other group chose *X*, I was also going to choose *X* because they wanted the most money, and frankly so did I." This participant, and others like her, appears to have selected the cooperative alternative in part because it allowed both groups to maximize simultaneously joint and own outcomes—that is, the outcome associated with mutual cooperation also equals the highest absolute outcome in the matrix.

Spearman–Brown corrected intraclass correlations for these categories were .78 for max own, .97 for max rel, .86 for min dif, .87 for max joint, and 1.00 for fear. Given the high level of agreement between the two judges, their ratings were averaged.

*Closed-ended reasons assessment.* Following the open-ended reasons assessment, participants rated 10 closed-ended items, each designed to measure one of the following reasons: max own (“to earn as much as possible” and “to maximize my group’s earnings”), max rel (“to earn more than the other group” and “to maximize the difference between the two groups in my group’s favor”), min dif (“to minimize the difference between the groups” and “to earn an equal amount”), max joint (“to earn as much as possible together” and “to maximize the joint outcomes of both groups”), and fear or distrust (“did not trust the other group” and “to defend my group against the other group”). Participants were asked to indicate the extent to which each of these concerns influenced their choice on a 7-point scale ranging from 1 (*not at all*) to 7 (*very much*). The Spearman–Brown corrected reliabilities for these five item pairs were .85 for max own, .83 for max rel, .82 for min dif, .94 for max joint, and .61 for fear. Given the high level of agreement between the items, they were averaged to create closed-ended measures of max own, max rel, min dif, max joint, and fear, respectively.

*Composite measures.* We decided to use both open- and closed-ended methods because it enables us to evaluate the validity of the reasons assessments and reduces the chance that our results will be unduly influenced by the idiosyncrasies of the individual methods (Campbell & Fiske, 1959). Which assessments should be used in tests of mediation? In light of the above, we believe that the optimal solution is to use a composite of the open- and closed-ended assessments, provided, of course, that there is substantial and significant agreement between the two independent methods for measuring the same reason (i.e., there is evidence of convergent validity).

There was substantial and significant agreement between the open- and closed-ended assessments of max rel ( $r = .42, p < .001$ ), max joint ( $r = .54, p < .001$ ), and min dif ( $r = .47, p < .001$ ). For max own and fear, the correlations between the open- and closed-ended assessments were .09 and .05, respectively. The lack of agreement between the fear assessments can be attributed to the absence of meaningful variability on the open-ended fear assessment. Only one statement was coded as reflecting fear. With regard to the max own assessments, it is possible that agreement with closed-ended items assessing max own (e.g., “I wanted to maximize my group’s outcomes”) reflects participants’ general concern with their own group’s outcomes but that the relatively low frequency of open-ended max own statements reflects the fact that participants have no control over their own group’s outcomes in the context of an MFC matrix. Open- and closed-ended assessments of max rel, max joint, and min dif were first standardized ( $z$  scores) to create a common metric and then averaged to create composite measures.<sup>5</sup>

*Expectations regarding the choices of other group members.* Participants were asked to estimate how many members of their group, excluding themselves, would select  $X$  and  $Y$ , respectively.

*Perceived categorization.* Participants were asked to indicate whether they thought of the introductory psychology students participating in the session as one group, two groups, or separate individuals (S. L. Gaertner et al., 1989).<sup>6</sup>

*Social support manipulation checks.* Participants were asked to rate two items designed to assess perceived social support for competition as well as two items designed to assess perceived social support for cooperation (i.e., “How certain or uncertain were you that at least one other member of your group would support you for selecting  $Y$  [ $X$ ]” and “How certain or uncertain were you that at least one other member of your group would back you up for selecting  $Y$  [ $X$ ]”). The items were rated on a 7-point scale ranging from 1 (*very uncertain*) to 7 (*very certain*). The Spearman–Brown corrected reliabilities for these item pairs were .95 for support for competition and .98 for support for cooperation. Given the high level of

agreement between the items, they were averaged to create measures of perceived social support for competition and perceived social support for cooperation, respectively.

## Results

### *Analytic Strategy for Dichotomous Dependent Variables*

Analysis of variance (ANOVA) is not the most suitable strategy for the analysis of dichotomous dependent variables, such as choice behavior in a matrix game. A more appropriate strategy is logistic regression, a form of statistical modeling that describes the associations between a categorical (usually dichotomous) dependent variable and a set of independent variables that can be categorical or continuous (Wickens, 1989). In the present experiment we were confronted with an additional complexity: When we analyzed the multiple contingency tables that represented the associations between the categorical independent and dependent variables, we found that some of these tables included cells with zero frequencies. These zero frequencies prevented the estimation of main effects and interactions by logistic regression. We therefore used Sutcliffe’s (1957) analysis strategy for partitioning a multiple contingency table’s total chi-square and associated degrees of freedom into additive components. Following this strategy, model parameters that are controlled by the experimenter are set to zero, and parameters that are free to vary are estimated. Thus, the associations among the independent variables (i.e., social support, feedback, and sex) were set to zero because the distribution of participants across the Social Support  $\times$  Feedback  $\times$  Sex multiple contingency table was controlled by the experimenter. The associations of the independent variables with the dependent variable (e.g., choice behavior) were estimated because these were free to vary. Sutcliffe’s procedure is analogous to logistic regression analysis in that both strategies partition a contingency table’s total chi-square into components due to main effects and interactions.

### *Manipulation Checks*

The measures of perceived social support for competition and perceived social support for cooperation were entered in a 2 (social

<sup>5</sup> Note, in general, that the correlations between two closed-ended items measuring the same construct as well as the two judges’ ratings of the same construct were higher than the correlations between open- and closed-ended assessments of the same construct. Campbell and Fiske (1959) proposed that reliability and validity can be conceptualized as regions on a continuum: “Reliability is the agreement between two maximally similar methods. Validity is represented in the agreement between two attempts to measure the same trait through maximally different methods” (p. 284). The correlations between two closed-ended items or between the ratings of the two judges are reliability measures. Compared with these correlations, the correlations between the open- and closed-ended assessments are more like validity measures.

<sup>6</sup> Participants were also asked to indicate the extent to which they perceived the introductory psychology students participating in the session as one group, two groups, and separate individuals. Ratings were made on a 7-point scale ranging from 1 (*not at all*) to 7 (*very much*). For our present purposes, we report only the results from the categorical measure of perceived categorization. In all experiments reported, results from the continuous measures were consistent with conclusions drawn on the basis of results from the categorical measure.

support)  $\times$  2 (feedback)  $\times$  2 (sex) ANOVA. The analysis of perceived support for competition resulted in a main effect for social support,  $F(1, 102) = 19.83, p < .001$ , indicating that participants in the social support condition perceived more support for the selection of the competitive alternative ( $M = 4.58$ ) than did participants in the no-social-support condition ( $M = 2.94$ ). No other effects were significant. The analysis of perceived support for cooperation revealed no significant main or interaction effects,  $F_s(1, 105) < 2.66, p_s > .10$ . Most important, the effect for the social support manipulation was not significant and was descriptively small,  $F(1, 105) = 0.78$ . These results suggest that, as intended, the manipulation of social support affected perceived social support for competition, leaving unaffected perceived social support for cooperation.

### Competitive Choices

Sutcliffe's (1957) chi-square analysis strategy was used to examine the 2 (social support)  $\times$  2 (feedback)  $\times$  2 (sex)  $\times$  2 (choice: cooperation vs. competition) multiple contingency table. The analysis indicated a significant main effect for social support only,  $\chi^2(1, N = 114) = 6.48, p < .015$ . Relevant mean proportions of competition are presented in Table 1. Consistent with the social support for shared self-interest hypothesis, participants were more competitive when social support was present ( $M = 0.23$ ) than when it was absent ( $M = 0.06$ ). No other main or interaction effects were significant,  $\chi^2(1, N = 114) < 2.26, p_s > .13$ . To corroborate the results of the Sutcliffe analysis, we collapsed the multiple contingency table across levels of the feedback variable. This created a 2 (social support)  $\times$  2 (sex)  $\times$  2 (choice: cooperation vs. competition) multiple contingency table that contained no cells with zero frequencies and was thus amenable to a logistic regression analysis. Consistent with the Sutcliffe analysis, the logistic regression analysis indicated a significant effect for social support only,  $\chi^2(1, N = 114) = 6.65, p < .01$ .

### Reasons for Choosing X or Y

The composite measures of max rel, max joint, and min dif were entered in a 2 (social support)  $\times$  2 (feedback)  $\times$  2 (sex) ANOVA. The main effect of social support on competition was tracked by a main effect of social support on max rel,  $F(1, 99) = 4.09, p < .05$ . Participants in the social support condition expressed greater concern for maximizing the relative outcomes of their own group ( $M = 0.19$ ) than did participants in the no-social-support condition ( $M = -0.12$ ; note that the means are in  $z$  metric).<sup>7</sup>

### Mediation Analyses

Before conducting the mediation analyses, we should point out that reasons for making the competitive or cooperative choice were

assessed after the choice. Any association between the potential mediators and choice behavior may therefore reflect the effects of choice behavior on those mediators instead of the reverse. However, conducting the relevant tests for mediation does place an investigator's hypotheses at risk. The results are therefore most informative when a potential mediator fails to meet the required criteria for mediation (Insko et al., 2001).

The parallel effects of social support on competition and max rel satisfy two of the four tests for mediation outlined by Baron and Kenny (1986). The third test is for a significant association between max rel and competition when the effects of the other independent variables (and their interactions) are controlled. We collapsed the data across the feedback variable to avoid the problem of zero cell frequencies and conducted a logistic regression that included max rel as a covariate along with the categorical independent variables social support and sex. This analysis revealed a significant association between max rel and competition,  $\chi^2(1, N = 107) = 42.55, p < .01$ . The fourth test requires that the indirect effect of social support through max rel is significant (Kenny, Kashy, & Bolger, 1998). This requirement was also met,  $z = 1.99, p < .05$ .<sup>8</sup> With max rel in the model, the social support effect was no longer significant,  $\chi^2(1, N = 107) = 1.86, p = .17$ . This pattern of results is consistent with the possibility that, in the context of an MFC matrix, the effect of social support on competition is mediated by a concern for maximizing the outcomes of one's own group relative to the outcomes of the other group.

### Expectations Regarding the Choices of Other Group Members

Perhaps participants in the social support condition were more likely than were participants in the no-social-support condition to expect a majority of group members to compete. If so, the effect of social support on intergroup competition could have been mediated by conformity to an anticipated majority. We dichotomized the expectation assessment as a function of whether participants expected a majority of group members (3 or more) to compete. Inconsistent with this possibility, Sutcliffe's (1957) chi-square analysis of the 2 (support)  $\times$  2 (feedback)  $\times$  2 (sex)  $\times$  2 (majority

<sup>7</sup> Analysis of open-ended reasons assessments resulted in a marginal main effect for social support on max rel,  $F(1, 99) = 3.23, p = .076$ . Participants in the social support condition tended to make more max rel statements ( $M = 0.13$ ) than did participants in the no-social-support condition ( $M = 0.04$ ). Analysis of the closed-ended reasons assessments also resulted in a marginal main effect for social support on max rel,  $F(1, 105) = 2.88, p = .092$ . Participants in the social support condition expressed greater concern for maximizing the relative outcomes of their own group ( $M = 2.91$ ) than did participants in the no-social-support condition ( $M = 2.44$ ). Degrees of freedom for the analysis of open- and closed-ended reasons vary because of missing values.

<sup>8</sup> In all experiments reported here, tests of indirect effects were based on ordinary least squares (OLS) regression analyses and calculated following a procedure developed by Sobel (1982). Standard errors of indirect effects were calculated following Goodman's (1960) method. Because OLS regression is not the most suitable strategy for the analysis of dichotomous dependent variables such as choice behavior, these analyses should be interpreted with some caution. MacKinnon, Warsi, and Hoffman (1998) are in the process of developing methods for testing mediated effects using logistic regression, but their work has not yet been published.

Table 1

*Proportion of Competition as a Function of Social Support and Sex in Experiment 1*

Sex	No social support	Social support
Women	.07	.19
Men	.06	.30

expected to compete: yes vs. no) multiple contingency table revealed no significant effects. To corroborate the Sutcliffe analysis, we collapsed the multiple contingency table across sex. Logistic regression of the resulting 2 (support)  $\times$  2 (feedback)  $\times$  2 (majority expected to compete: yes vs. no) multiple contingency table revealed no significant effects. Overall, 7% of participants expected a majority of group members to compete.

### Perceived Categorization

Another possibility is that participants in the social support condition were more likely than were participants in the no-social-support condition to perceive the interaction as involving two groups rather than one group or separate individuals. If so, the effect of social support on intergroup competition could have been mediated by participants' conceptual representation of the interaction (S. L. Gaertner et al., 1989). Inconsistent with this possibility, Sutcliffe's (1957) chi-square analysis of the 2 (support)  $\times$  2 (feedback)  $\times$  2 (sex)  $\times$  3 (perceived categorization: two groups vs. one group vs. separate individuals) multiple contingency table revealed no significant effect for social support on perceived categorization,  $\chi^2(2, N = 112) = 1.14, p < .57$ . The analysis revealed significant overall differences between the three representations,  $\chi^2(2, N = 112) = 26.21, p < .001$ . Participants were more likely to perceive the interaction as involving two groups (52%) than as involving separate individuals (36%) or one group (12%). These results were corroborated by a log-linear analysis (Wickens, 1989).

### Discussion

Experiment 1 provides compelling evidence for the effect of social support on intergroup competition in the context of an MFC matrix. Participants more frequently selected the competitive alternative when social support was present than when it was absent. Results of the mediation analysis are consistent with the possibility that this social support effect was mediated by a concern with maximizing one's own group outcomes relative to the outcomes of the other group. These findings support the notion that in situations where competition with a cooperative other maximizes relative outcomes but not absolute outcomes, group members are more likely to adopt this course of action when social support is present.

Contrary to previous findings by Schopler et al. (1993), the current findings cannot be accounted for readily in terms of conformity processes. Our manipulation of social support was based on the notion that a within-group majority is not required for social support for shared self-interest to be present. As indicated by the manipulation checks, this enabled us to vary social support for the competitive *Y* choice, leaving unaffected social support for the cooperative *X* choice. Furthermore, examination of participants' expectations regarding the choices of other group members revealed that participants in the social support condition were not significantly more likely than participants in the no-social-support condition to expect a majority of group members to compete.

We intentionally limited our initial investigation of the social support hypothesis to the MFC matrix. The rationale for restricting the domain of our research in this way was that the existence of social support is less important when intergroup competition serves to maximize the absolute outcomes of one's group than

when it serves only to maximize the relative outcomes of one's group. Unlike the PDG, the MFC models a situation in which competition with a cooperative other maximizes only relative outcomes, and thus it provides a context in which the effect of social support should be relatively strong. In Experiment 2, we expand the domain of our investigation and examine the effect of social support in the PDG. We do so for two related reasons. First, past research on interindividual–intergroup discontinuity has been concerned primarily with contrasting interindividual and intergroup interactions in the context of the PDG. Expanding the domain of our investigation thus serves to connect past and present research. Second, relative to the MFC, the PDG models a wide range of social settings. The PDG is a binary representation of the well known Commons Dilemma (Hardin, 1968) and, as such, models any situation in which individual selfishness leads to collective detriment. These include, for example, escape and acquisitive panic situations, entrapment situations (Brown, 1965), rules governing production payoffs (Erev, Bornstein, & Galili, 1993), and situations where there is an opportunity for reciprocity, as illustrated in the trench warfare of World War I (Axelrod, 1984). Expanding the domain of our investigation thus also serves to bolster the external validity of our findings.

### Experiment 2

In terms of interdependence theory (Kelley & Thibaut, 1978), the manner in which each player's outcomes are related to changes in the other player's outcomes is referred to as the *correspondence* of outcomes in a relationship. In symmetrical outcome matrices, the degree of correspondence is indexed by the correlation between the row and column players' outcomes. Consider the two PDG matrices presented in Figure 2. The negative correlations between the outcomes for Group A and Group B indicate that in both matrices the groups' outcomes are noncorrespondent. In other words, both matrices represent a situation in which there is a conflict of interest between the groups. The matrices differ, however, in *degree of noncorrespondence*. In the top matrix the correlation between the groups' outcomes is  $-.05$ , indicating low noncorrespondence. The noncorrespondence in this matrix is only slightly higher than in the MFC matrix ( $r = .00$ ). In the bottom matrix the groups' outcomes are correlated  $-.60$ , indicating a relatively high level of noncorrespondence.

In Experiment 1, we speculated that the effect of social support on intergroup competition is stronger in the context of an MFC matrix than in the context of a PDG matrix. In the MFC there is no conflict of interest, meaning that both groups can simultaneously maximize their absolute outcomes through cooperation, and competition only maximizes relative outcomes. In the PDG, on the other hand, there is conflict of interest, meaning that each group can only maximize its absolute outcomes at the expense of the other group. We postulated a norm of group interest, a norm that prescribes competition to the extent that it maximizes the absolute outcomes of one's own group and that may lead participants to disregard or attach less weight to norms of fairness, equality, and reciprocity. Hence, the presence of explicit social support may be of less importance with a PDG in which competition produces a large increase in absolute outcomes than with a PDG in which competition produces a small increase in absolute outcomes.



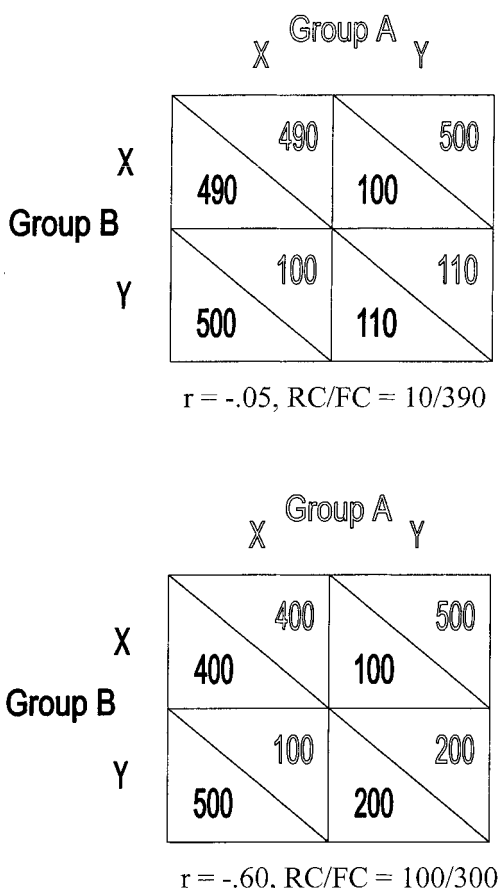


Figure 2. The Prisoner's Dilemma Game matrices used in Experiment 2. Top panel: low noncorrespondence ( $r = -.05$ ). Bottom panel: high noncorrespondence ( $r = -.60$ ). RC = reflexive control; FC = fate control.

Experiment 2 is designed to examine explicitly whether the effect of social support interacts with the degree to which the outcomes of the interacting groups are noncorrespondent. With low noncorrespondence (e.g., the  $-.05$  matrix), competition with a cooperative other produces a relatively small increase in absolute outcomes. With high noncorrespondence (e.g., the  $-.60$  matrix), however, competition with a cooperative other produces a relatively large increase in absolute outcomes. We therefore predicted that the social support effect would be stronger with low noncorrespondence than with high noncorrespondence.

### Method

#### Participants and Design

One hundred fifty students (66 men and 84 women) enrolled in an introductory psychology course participated in the experiment for partial course credit. Each experimental session involved either all male or all female participants. Hypotheses were tested in a 2 (social support for shared self-interest: present vs. absent)  $\times$  2 (noncorrespondence: low vs. high)  $\times$  2 (sex) between-subjects design. Because Experiment 1 revealed that the effect of social support was not qualified by feedback regarding the other group's behavior (i.e., cooperative choice vs. cooperative proposal), the present experiment did not involve a manipulation of feedback. Prior to a simultaneous exchange of decisions, participants always received feed-

back indicating that the other group had made a cooperative proposal. This procedure resembles most closely the traditional setting of previous experiments on interindividual-intergroup discontinuity. Respective cell sample sizes for the social support present/low noncorrespondence, social support present/high noncorrespondence, social support absent/low noncorrespondence, and social support absent/high noncorrespondence conditions were 20, 14, 25, and 25 for women, respectively, and 15, 14, 19, and 18 for men.

#### Procedure

The general procedure, assessments, and manipulation of social support were the same as in Experiment 1. We manipulated noncorrespondence by varying the array of outcomes in the PDG matrix. In the high noncorrespondence matrix, the index of noncorrespondence was  $-.60$ , whereas in the low noncorrespondence matrix, this index was  $-.05$  (see Figure 2). Note that we manipulated noncorrespondence by varying the values in the top left and bottom right cells. The values in the top right and bottom left cells remained unchanged. As a consequence, the increase in relative outcomes associated with competition is identical (400) in both matrices. For both matrices the grand mean is 300.<sup>9</sup> As in Experiment 1, participants were told that after the money was distributed, they would come together in the center room and discuss within their group the choices that each of them had made.

#### Results

##### Manipulation Checks

Participants were asked to rate two items assessing perceived social support for competition and two items assessing perceived social support for cooperation. The Spearman-Brown corrected reliabilities for these item pairs were .90 for support for competition and .97 for support for cooperation. The composite measures of perceived social support for competition and perceived social support for cooperation were entered in a 2 (social support)  $\times$  2 (noncorrespondence)  $\times$  2 (participant sex) ANOVA. The analysis of perceived support for competition resulted in a main effect for social support,  $F(1, 140) = 7.26, p < .01$ . As intended, participants in the social support condition perceived more support for selection of the competitive alternative ( $M = 5.21$ ) than did participants in the no-social-support condition ( $M = 4.37$ ). The analysis further yielded a significant main effect for noncorrespondence,  $F(1,$

<sup>9</sup> Kelley and Thibaut (1978) described  $2 \times 2$  outcome matrices in terms of three components. These are (a) reflexive control (RC), or the extent to which the player's choice affects his or her own outcomes, (b) fate control (FC), or the extent to which the player's outcomes are influenced by the other's choice, and (c) behavior control (BC), or the extent to which the joint actions of both players influence the player's outcome. These components correspond to the main effects and interaction from an ANOVA of one player's outcomes. For the row player, for example, RC corresponds to the row main effect, FC corresponds to the column main effect, and BC corresponds to the Row  $\times$  Column interaction. Consider, for example, the top matrix in Figure 2. By selecting Y, each group can increase its outcomes by 10 cents, regardless of the other group's choice. RC therefore equals 10. Similarly, by selecting X, each group can increase the outcomes of the other group by 390, regardless of the other group's choice. Thus, FC equals 390. The RC and FC components are not affected by the other group's decision. Consequently, the BC component is 0. In Experiment 2, we manipulated noncorrespondence by simultaneously varying the RC and FC components by 90 cents.

140) = 8.55,  $p < .01$ , indicating that participants in the high noncorrespondence condition perceived more social support for competition ( $M = 5.14$ ) than did participants in the low noncorrespondence condition ( $M = 4.33$ ). For perceived support for cooperation, there was a significant main effect for noncorrespondence,  $F(1, 140) = 9.29, p < .01$ , indicating that participants in the low noncorrespondence condition perceived more social support for cooperation ( $M = 5.26$ ) than did participants in the high noncorrespondence condition ( $M = 4.24$ ). The analysis further revealed a significant main effect for participant sex,  $F(1, 140) = 7.71, p < .01$ , indicating that men perceived more social support for cooperation ( $M = 5.24$ ) than did women ( $M = 4.40$ ). No other effects were significant.

Although unanticipated, the above-described main effects of noncorrespondence are consistent with the existence of a norm of group interests that permits and prescribes competition with a cooperative opponent to the extent that this increases the absolute outcomes of one's own group. In terms of the validity of the social support manipulation, note that the main effect for the social support manipulation on perceived social support for competition held across both levels of the noncorrespondence variable.

*Competitive Choices*

Mean proportions of competition are presented in Table 2. A logistic regression analysis of the 2 (social support)  $\times$  2 (noncorrespondence)  $\times$  2 (participant sex)  $\times$  2 (choice behavior: cooperation vs. competition) multiple contingency table indicated a significant main effect for noncorrespondence,  $\chi^2(1, N = 150) = 12.69, p < .01$ . Consistent with a recent experiment by Schopler et al. (2001), participants in the high noncorrespondence condition were more competitive ( $M = 0.58$ ) than were participants in the low noncorrespondence condition ( $M = 0.30$ ). More important, the noncorrespondence main effect was qualified by the predicted Social Support  $\times$  Noncorrespondence interaction,  $\chi^2(1, N = 150) = 4.80, p < .05$ . Follow-up tests of simple effects revealed that participants in the low noncorrespondence condition were more competitive when social support was present ( $M = 0.43$ ) than when it was absent ( $M = 0.20$ ),  $\chi^2(1, N = 79) = 6.23, p < .05$ . With high noncorrespondence, there was no significant difference between the social support ( $M = 0.54$ ) and no-social-support ( $M = 0.60$ ) conditions ( $\chi^2 < 1$ ). We can also decompose the interaction by examining the simple effect of noncorrespondence within each level of the social support variable. The simple effect for noncorrespondence was significant in the no-social-support condition,  $\chi^2(1, N = 87) = 17.60, p < .01$ ,

but not in the social support condition,  $\chi^2(1, N = 63) < 1$ . Finally, there was a significant main effect for sex,  $\chi^2(1, N = 150) = 6.86, p < .01$ , indicating that female participants were more competitive ( $M = 0.51$ ) than were male participants ( $M = 0.33$ ).

*Reasons for Choosing X or Y*

There was substantial and significant agreement between the open- and closed-ended assessments of max rel, max joint, min dif, and max own. The respective correlations were .34, .63, .61, and .48 (all  $ps < .001$ ). The lack of agreement between assessments of fear ( $r = .00$ ) can again be attributed to the absence of meaningful variability on the open-ended fear assessment. Only three statements were coded as reflecting fear. Open- and closed-ended assessments of max rel, max joint, min dif, and max own were first standardized ( $z$  scores) to create a common metric and then averaged to create composite measures.

The main effect of noncorrespondence on competition was tracked by main effects of noncorrespondence on max joint,  $F(1, 142) = 18.87, p < .01$ , min dif,  $F(1, 142) = 5.07, p < .05$ , and max own,  $F(1, 142) = 9.15, p < .01$ . Relative to participants in the high noncorrespondence condition, participants in the low noncorrespondence condition expressed more concern for maximizing the joint outcomes of both groups ( $Ms = 0.29$  vs.  $-0.33$ ), more concern for minimizing the differences between both groups ( $Ms = 0.16$  vs.  $-0.18$ ), and less concern for maximizing the absolute outcomes of their own group ( $Ms = -0.20$  vs.  $0.22$ ).

The critical Social Support  $\times$  Noncorrespondence interaction on choice behavior was tracked by Social Support  $\times$  Noncorrespondence interactions on max joint,  $F(1, 142) = 8.78, p < .01$ , and max rel,  $F(1, 142) = 4.33, p < .05$ . For max joint, the interaction indicates that in the low noncorrespondence condition participants expressed more concern for maximizing the joint outcomes of both groups when social support was absent ( $M = 0.54$ ) than when it was present ( $M = -0.02$ ),  $F(1, 142) = 9.58, p < .01$ . With high noncorrespondence, there was no significant difference between the social support ( $M = -0.19$ ) and no-social-support ( $M = -0.42$ ) conditions,  $F(1, 142) = 1.34$ . Alternatively, the interaction indicates that the effect of noncorrespondence was significant in the absence,  $F(1, 142) = 31.73, p < .01$ , but not in the presence of social support ( $F < 1$ ). For max rel, the interaction indicates that in the low noncorrespondence condition participants expressed more concern for maximizing the relative outcomes of their own group when social support was present ( $M = 0.12$ ) than when it was absent ( $M = -0.29$ ),  $F(1, 142) = 4.66, p < .05$ . With high noncorrespondence, there was no significant difference between the social support ( $M = 0.03$ ) and no-social-support ( $M = 0.17$ ) conditions ( $F < 1$ ). Alternatively, the interaction indicates that the effect of noncorrespondence was significant in the absence,  $F(1, 142) = 6.31, p < .05$ , but not in the presence of social support ( $F < 1$ ).

The main effect of sex on choice behavior was tracked by main effects of sex on max rel,  $F(1, 142) = 10.38, p < .01$ , and max joint,  $F(1, 142) = 4.08, p < .05$ . Relative to male participants, female participants expressed more concern for maximizing the relative outcomes of their own group ( $Ms = 0.19$  vs.  $-0.24$ ) and

Table 2  
*Proportion of Competition as a Function of Social Support, Degree of Noncorrespondence, and Sex in Experiment 2*

Sex	Low noncorrespondence (-.05)		High noncorrespondence (-.60)	
	No social support	Social support	No social support	Social support
Women	.32	.50	.64	.64
Men	.05	.33	.56	.43

less concern for maximizing the joint outcomes of both groups ( $M_s = -0.12$  vs.  $0.15$ ).<sup>10</sup>

### *Mediation Analyses: The Social Support $\times$ Noncorrespondence Interaction*

The parallel interaction effects on competition, max joint, and max rel satisfy two of four tests for mediation. Satisfying the third test, a logistic regression analysis indicated a significant regression of competition on both max joint,  $\chi^2(1, N = 150) = 84.04, p < .01$ , and max rel,  $\chi^2(1, N = 150) = 4.78, p < .05$ . Satisfying the fourth test for mediation, when max joint and max rel were in the model simultaneously, the indirect Social Support  $\times$  Noncorrespondence effect through each of the mediators was significant: for max joint,  $z = 2.90, p < .01$ ; and for max rel,  $z = 1.67, p < .05$  (one-tailed).<sup>11</sup> After we controlled for max joint and max rel, the Social Support  $\times$  Noncorrespondence interaction was no longer significant ( $\chi^2 < 1$ ). This pattern of results is consistent with the possibility that the Social Support  $\times$  Noncorrespondence interaction is mediated by a tendency, in the context of low noncorrespondence, for social support to reduce concern with maximizing the joint outcomes of both groups and to increase concern with maximizing the relative outcomes of one's own group.<sup>12</sup>

### *Expectations Regarding the Choices of Other Group Members*

Participants were asked to estimate how many members of their group, excluding themselves, would select  $X$  and  $Y$ , respectively. We dichotomized this expectation assessment as a function of whether participants expected a majority of group members (3 or more) to compete. A logistic regression analysis of the 2 (support)  $\times$  2 (noncorrespondence)  $\times$  2 (sex)  $\times$  2 (majority for  $Y$ : yes vs. no) multiple contingency table revealed no significant effects. The Social Support  $\times$  Noncorrespondence interaction was not mediated by conformity to an anticipated majority. Overall, 30% of participants expected a majority to compete.<sup>13</sup>

### *Perceived Categorization*

Participants were asked to indicate whether they thought of the introductory psychology students participating in the session as one group, two groups, or separate individuals (S. L. Gaertner et al., 1989). Sutcliffe's (1957) chi-square analysis of the 2 (support)  $\times$  2 (noncorrespondence)  $\times$  2 (sex)  $\times$  3 (perceived categorization: two groups vs. one group vs. separate individuals) multiple contingency table revealed no significant effects involving the independent variables. The Social Support  $\times$  Noncorrespondence interaction was not mediated by participants' conceptual representation of the interaction. The analysis revealed significant overall differences between the three representations,  $\chi^2(2, N = 149) = 35.53, p < .001$ . Participants were more likely to perceive the interaction as involving two groups (56%) than as involving separate individuals (27%) or one group (17%). These results were corroborated by a log-linear analysis.

### *Discussion*

Schopler et al. (2001) recently explored the effect of noncorrespondence on interindividual–intergroup discontinuity. They

<sup>10</sup> The Spearman–Brown corrected intraclass correlations for the open-ended reasons assessments were .95 for max own, .93 for max rel, .94 for min dif, .93 for max joint, and .73 for fear. Analysis of the open-ended reasons assessments revealed significant main effects for noncorrespondence on max joint,  $F(1, 142) = 20.53, p < .01$ , and max own,  $F(1, 142) = 16.39, p < .01$ . Relative to participants in the high noncorrespondence condition, participants in the low noncorrespondence condition made more max joint ( $M_s = 0.53$  vs.  $0.20$ ) and fewer max own ( $M_s = 0.49$  vs.  $0.20$ ) statements. The analyses further revealed a significant Social Support  $\times$  Noncorrespondence interaction on max joint,  $F(1, 142) = 11.67, p < .01$ , and a marginal Social Support  $\times$  Noncorrespondence interaction on max rel,  $F(1, 142) = 2.94, p = .088$ . The interactions indicate that the social support effect on max joint and max rel statements was stronger with low noncorrespondence than with high noncorrespondence. Main effects of sex on max joint,  $F(1, 142) = 9.77, p < .01$ , and max rel,  $F(1, 142) = 9.81, p < .01$ , indicate that men made more max joint statements ( $M = 0.49$ ) and fewer max rel statements ( $M = 0.01$ ) than did women ( $M_s = 0.20$  and  $0.14$ , respectively). The Spearman–Brown corrected reliabilities for the closed-ended reasons assessments were .87 for max own, .88 for max rel, .84 for min dif, .93 for max joint, and .62 for fear. Analysis of the closed-ended reasons assessments indicated significant main effects for noncorrespondence on max joint,  $F(1, 142) = 10.67, p < .01$ , and min dif,  $F(1, 142) = 5.61, p < .05$ . Relative to participants in the high noncorrespondence condition, participants in the low noncorrespondence condition showed higher ratings on max joint ( $M_s = 5.30$  vs.  $4.09$ ) and min dif ( $M_s = 4.32$  vs.  $3.49$ ). The analyses further revealed marginal Social Support  $\times$  Noncorrespondence interactions on max joint,  $F(1, 142) = 3.72, p = .056$ , and max rel,  $F(1, 142) = 2.68, p = .10$ . The interactions indicate a descriptive tendency for the effect of social support on ratings of max joint and max rel to be stronger with low noncorrespondence than with high noncorrespondence. A significant main effect for sex on max rel,  $F(1, 142) = 4.25, p < .05$ , indicates that women showed higher ratings on max rel ( $M = 3.82$ ) than men did ( $M = 3.11$ ).

<sup>11</sup> The significance test for the indirect Social Support  $\times$  Noncorrespondence effect through max rel is equivalent to a significance test for the change in magnitude of the direct Social Support  $\times$  Noncorrespondence effect when max rel is included in the model (Kenny et al., 1998). We believe that our use of a one-tailed test was appropriate because we expected a priori that inclusion of max rel in the model would result in a reduction, not an increase, in the magnitude of the direct Social Support  $\times$  Noncorrespondence effect. An increase in the magnitude of the direct effect will occur when there are parallel Social Support  $\times$  Noncorrespondence effects on max rel and competition but max rel and competition are negatively correlated. In this case, max rel would act as a suppresser variable. Because past theorizing (Festinger, 1954; Kelley & Thibaut, 1978; Tajfel, 1982) and research (e.g., Schopler et al., 2001; Wildschut et al., 2001) has clearly linked max rel with social comparison processes and, hence, increased levels of competition, we viewed a negative correlation between max rel and competition as being highly unlikely.

<sup>12</sup> We also conducted tests of mediation for the noncorrespondence and sex main effects on competition. Results were consistent with the possibility that the main effect for noncorrespondence was mediated by max joint, max own, and min dif. All tests for mediation were satisfied. Results were further consistent with the possibility that the main effect for sex was mediated by max rel and max joint. Again, all tests for mediation were satisfied.

<sup>13</sup> As in Experiment 1, we dichotomized participants' expectations regarding the decisions of other group members because we wanted to determine whether participants in the social support condition were more likely than participants in the no-social-support condition to expect a majority of group members to compete. But what happens when we do not dichotomize the scale but simply analyze the absolute number of group

found that intergroup interactions were more competitive with high noncorrespondence than with low noncorrespondence. Inter-individual interactions, on the other hand, were not affected by noncorrespondence. Consistent with these findings, we observed a main effect for noncorrespondence, indicating more intergroup competition in the high noncorrespondence condition than in the low noncorrespondence condition. The more novel and important result of Experiment 2, however, is the significant Social Support  $\times$  Noncorrespondence interaction. As predicted, the effect of social support was stronger with low noncorrespondence than with high noncorrespondence of outcomes. This is consistent with the idea that, with high noncorrespondence, competition is permitted and prescribed by a norm of group interest, making the existence of explicit social support redundant or less important. Alternatively, the interaction indicates that the effect of noncorrespondence is stronger in the absence than in the presence of social support. This is consistent with the idea that in the absence of high noncorrespondence, social support alone can provide a basis for competition.

The choice data were tracked by a Social Support  $\times$  Noncorrespondence interaction for max joint, or participants' concern for maximizing the joint outcomes of both groups. On the basis of their findings regarding the effect of noncorrespondence on interindividual–intergroup discontinuity, Schopler et al. (2001) concluded that “as conflict of interest decreases, competitiveness towards the other group is decreased by an increasing concern with joint welfare” (p. 26). Although Schopler et al.'s conclusion was tentative at the time, the present findings are largely consistent with it. A qualification is in order, however, such that social support for shared self-interest may interfere with the increase in concern for joint welfare that flows from decreasing conflict of interest. The choice data were further tracked by a Social Support  $\times$  Noncorrespondence interaction for max rel, or a concern with maximizing the relative outcomes of one's own group. The results of Experiment 1 are replicated in the finding that, with low noncorrespondence, participants in the social support condition expressed a greater concern with max rel than did participants in the no-social-support condition. The interaction indicates, however, that the effect of social support on max rel is stronger when competition results in a relatively small increase in absolute outcomes than when competition results in a relatively large increase in absolute outcomes.

Results for max own are consistent with the possibility that the choice behavior of participants in the high noncorrespondence

condition was guided by a norm of group interest. First, participants in the high noncorrespondence condition were more concerned with maximizing absolute outcomes than were participants in the low noncorrespondence condition. Second, consistent with the possibility that behavior that serves to maximize absolute outcomes does not require social support to the same extent as behavior that serves to maximize relative outcomes, social support did not significantly affect participants' concern for maximizing absolute outcomes.

Confirmation of the predicted Social Support  $\times$  Noncorrespondence interaction allows us to delineate more precisely the domain of the social support for self-interest explanation of the interindividual–intergroup discontinuity effect. Because the norm of group interest permits and prescribes competition to the extent that this increases absolute outcomes, the existence of social support is less important when noncorrespondence is high than when noncorrespondence is low.<sup>14</sup> The interpretation of Experiment 2 findings in terms of a norm of group interest generates a testable prediction: With high noncorrespondence, participants should be more competitive when they expect their behavior to be public (i.e., identifiable by the other members of their own group) than

<sup>14</sup> We proposed that the norm of group interest is more strongly activated in the context of high noncorrespondence than in the context of low noncorrespondence. Because, in the context of low noncorrespondence, the competitive choice is not clearly prescribed by a norm of group interest, the existence of social support is more important. This implies that social support for the competitive choice is likely more discrepant from participants' initial inclination in the low noncorrespondence condition than in the high noncorrespondence condition. Likewise, social support for the competitive choice may also be more salient in the low noncorrespondence condition than in the high noncorrespondence condition. Such confounded processes may be an ecological correlate of many observed counternormative behaviors but, nonetheless, do raise a legitimate question concerning the exact mechanism that is responsible for the greater impact of the social support manipulation in the low noncorrespondence condition. Other than being able to rule out a possible role for an assumed majority, we do not have sufficient data to specify the exact process or processes that mediate the effect of social support in the context of low noncorrespondence. We proposed above that group members may be motivated to maximize relative outcomes (i.e., max rel) in an attempt to achieve, maintain, or enhance a positive social identity (Tajfel, 1982), and the results are consistent with the possibility that the Social Support  $\times$  Noncorrespondence interaction for choice was, indeed, mediated by max rel. Because the maximization of relative outcomes at the expense of a cooperative opponent violates norms of fairness, equality, and reciprocity, this course of action may require social support. Another possibility is that, relative to participants in the high noncorrespondence condition, participants in the low noncorrespondence condition were more surprised by the fact that one of the other group members made a competitive choice and felt compelled to examine the reasons why someone would adopt such an unusual course of action. Because there are reasonable arguments for competing even in the context of low noncorrespondence (e.g., maximizing relative outcomes), such a validation process (Moscovici, 1980, 1985) could have led some participants to abandon their initial cooperative intentions. Note, however, that participants' choice behavior was public (i.e., could be identified by the other members of their group) and that a meta-analysis by Wood, Lundgren, Ouellette, Busceme, and Blackstone (1994) found that minorities are incapable of exerting strong influence on public measures. This finding casts doubt on the explanation of social support effects in terms of a validation process.

members who were expected to compete? For Experiment 1 we found a main effect for social support only,  $F(1, 102) = 26.19, p < .001$ . Participants in the social support condition expected a greater number of other group members to compete ( $M = 1.73$ ) than did participants in the no-social-support condition ( $M = 0.98$ ). In the present experiment we found a main effect for noncorrespondence only,  $F(1, 137) = 8.63, p < .01$ . Participants in the high noncorrespondence condition expected a greater number of other group members to compete ( $M = 2.36$ ) than did participants in the low noncorrespondence condition ( $M = 1.86$ ). Neither the social support main effect nor the Social Support  $\times$  Noncorrespondence interaction was significant. When we take both experiments into consideration, it is evident that expectations regarding the absolute number of group members that were expected to compete did not mediate consistently effects involving the social support manipulation.

when they expect their behavior to be private (i.e., not identifiable by the other members of their own group). Normative social influence should be stronger in the public responding condition than in the private responding condition because only in the public responding condition can the participants' behavior influence the way they are evaluated by the other group members (Deutsch & Gerard, 1955; Insko, Drenan, Solomon, Smith, & Wade, 1983; Insko, Smith, Alicke, Wade, & Taylor, 1985). We test this prediction in Experiment 3.

### Experiment 3

#### Method

##### Participants and Design

Sixty-four students (10 men and 54 women) enrolled in an introductory psychology course participated in the experiment for partial course credit. Each experimental session involved either all male or all female participants. Hypotheses were tested in a 2 (identifiability to own group members: public vs. private)  $\times$  2 (sex) between-subjects design. Respective cell sample sizes for the public and private conditions were 30 and 24 for women, respectively, and 5 and 5 for men.

##### Procedure

We followed the same procedure as in Experiment 2, with the exception that the present experiment did not involve a manipulation of social support or noncorrespondence. Similar to the no-social-support condition of Experiment 2, participants did not receive information regarding the decisions of 2 other group members. Similar to the high noncorrespondence condition of Experiment 2, participants were presented with the high noncorrespondence matrix ( $-.60$ ). We manipulated identifiability to own group members by varying whether participants anticipated discussing their individual decision with the other members of their group after the group decisions had been exchanged. In the *public condition*, participants were told that after the experimenter had tallied the decisions of both groups and distributed the appropriate amount of money, the participants would meet with the other members of their group in the center room and discuss the choices that each of them had made. Thus, the public condition was identical to the no-social-support/high noncorrespondence condition of Experiment 2. In the *private condition*, participants were told that after the experimenter tallied the decisions of both groups and distributed the appropriate amount of money, the participants would be dismissed separately. Participants were further told that information about their PDG selection would not be made public.

##### Identifiability to Own Group Manipulation Check

To assess perceived identifiability to own group members, we asked participants to indicate with "yes" or "no" whether they expected that their decision would be identified by the other members of their group and whether they expected that their decision would remain anonymous. Approximately halfway through the experiment, it became apparent that participants' answers to the first item did not track closely the manipulation of identifiability. Perhaps the phrasing of this item was too academic. We therefore decided to add two more items. These asked participants to indicate with "yes" or "no" whether they expected that they would meet with the other members of their group to talk about their decisions and whether they expected that the other members of their group would find out which choice they had made. Thirty-four participants responded to all four items. Note that because the manipulation checks were the final items on our questionnaire, adding the two items could not have affected participants' responses on other dependent measures. "Yes" responses were

coded as 1, and "no" responses were coded as 0. Cronbach's alpha for the four items was .81. The items were averaged to create a measure of perceived identifiability to own group members.

## Results

### Manipulation Check

The composite measure of perceived identifiability to own group members was entered into a 2 (identifiability to own group)  $\times$  2 (participant sex) ANOVA. The analysis indicated a significant main effect only for identifiability to own group,  $F(1, 30) = 11.46, p < .01$ . As intended, participants in the public condition perceived more identifiability to their own group members ( $M = 0.75$ ) than did participants in the private condition ( $M = 0.27$ ).

### Competitive Choices

Mean proportions of competition are presented in Table 3. A logistic regression analysis of the 2 (identifiability to own group)  $\times$  2 (participant sex)  $\times$  2 (choice behavior: cooperation vs. competition) multiple contingency table indicated a significant effect for identifiability to own group only,  $\chi^2(1, N = 64) = 4.73, p < .05$ . Consistent with the proposed norm of group interest, participants in the public condition were more competitive ( $M = 0.66$ ) than were participants in the private condition ( $M = 0.31$ ). No other effects were significant ( $\chi^2 < 1$ ).

### Reasons for Choosing X or Y

There was considerable and significant agreement between the open- and closed-ended assessments of max own, max joint, and min dif. The respective correlations were .67, .57, and .76 (all  $ps < .001$ ). For max rel and fear, the correlations between the open- and closed-ended assessments were .12 and  $-.17$  respectively. The lack of agreement between open- and closed-ended assessments of max rel and fear can be attributed to the absence of meaningful variability on the open-ended assessments. Only two statements were coded as reflecting fear, and only three statements were coded as reflecting max rel.<sup>15</sup> Open- and closed-ended assessments of max own, max joint, and min dif were standardized ( $z$  scores) to

<sup>15</sup> As in Experiments 1 and 2, few participants expressed distrust of the other group. On the one hand, the consistently low level of distrust is encouraging because we aimed to create a situation in which participants expected the other group to cooperate. On the other hand, the low level of distrust is surprising given that previous experiments have demonstrated that, relative to interindividual interactions, intergroup interactions are characterized by high levels of distrust. The procedure followed in the present experiments differs from the procedure of these previous experiments in two important respects. First, there was no unrestricted communication between groups (or group representatives). Second, the group choice was not preceded by a within-group discussion. Perhaps intergroup communication followed by within-group discussion gives rise to perceived entitativity (Campbell, 1958) of the opposing group, which may be an important antecedent to out-group fear (Dasgupta, Banaji, & Abelson, 1999). This is an empirical question that, unfortunately, we cannot answer on the basis of the available data.

Table 3  
*Proportion of Competition as a Function of Identifiability to Own Group and Sex in Experiment 3*

Sex	Private responding	Public responding
Women	.33	.67
Men	.20	.60

create a common metric and averaged to create composite measures. These composite measures were entered in a 2 (identifiability)  $\times$  2 (sex) ANOVA. The main effect of identifiability on competition was tracked by a main effect of identifiability on max own. Participants in the public condition expressed greater concern for maximizing the absolute outcomes of their own group ( $M = 0.28$ ) than did participants in the private condition ( $M = -0.34$ ),  $F(1, 60) = 7.95$ ,  $p < .001$ .<sup>16</sup>

### Mediation Analyses

The parallel main effects of identifiability on competition and max own satisfy two of four tests for mediation. The third test is for a significant regression of competition on max own. Max own was entered as an independent variable in a logistic regression that also included identifiability and sex. The analysis indicated a significant association between max own and competition,  $\chi^2(1, N = 64) = 80.48$ ,  $p < .01$ . Satisfying the fourth test of mediation, the indirect effect of identifiability through max own was significant ( $z = 2.76$ ,  $p < .01$ ). After we controlled for max own, the main effect of identifiability was no longer significant ( $\chi^2 < 1$ ). This pattern of results is consistent with the possibility that the greater competitiveness of participants in the public condition was mediated by an increased concern for maximizing the absolute outcomes of their own group. These findings support the idea that maximization of absolute outcomes but not maximization of relative outcomes is dictated by the norm of group interest.

### Expectations Regarding the Choices of Other Group Members

We dichotomized participants' expectations regarding the decision of other group members as a function of whether they expected a majority of group members to compete. A logistic regression analysis of the 2 (identifiability)  $\times$  2 (sex)  $\times$  2 (majority expected to compete: yes vs. no) multiple contingency table revealed a marginal effect for identifiability,  $\chi^2(1, N = 63) = 3.54$ ,  $p = .059$ . Participants in the public condition were descriptively more likely to expect a majority of group members to compete ( $M = 0.57$ ) than were participants in the private condition ( $M = 0.31$ ).

### Perceived Categorization

Participants were asked to indicate whether they thought of the introductory psychology students participating in the session as one group, two groups, or separate individuals (S. L. Gaertner et al., 1989). Sutcliffe's (1957) chi-square analysis of the 2 (identifiability)  $\times$  2 (sex)  $\times$  3 (perceived categorization: two groups vs. one group vs. separate individuals) multiple contingency table

revealed no significant effects involving the independent variables. The effect of identifiability was not mediated by participants' conceptual representation of the interaction. The analysis revealed significant overall differences between the three representations,  $\chi^2(2, N = 63) = 21.24$ ,  $p < .001$ . Participants were more likely to perceive the interaction as involving two groups (60%) than as involving separate individuals (24%) or one group (16%). These results were corroborated by a log-linear analysis.

### Discussion

Although Experiment 3 provides good evidence for the postulated norm of group interest, one could argue that, by selecting the competitive alternative, participants in the public responding condition were not following a norm but simply acting rationally. That is, when a person's behavior influences the welfare of other group members and is public, it is rational to take the interests of these other group members into account to gain their approval and avoid their disapproval.

Relevant to this issue, Thibaut and Kelley (1959) proposed that norms arise from rationality—or, in the language of interdependence theory, from an attempt by both parties in a dyad to maximize outcomes over time. To support their argument, they presented the example of a husband and wife who prefer to spend time together. Unfortunately, the wife prefers to go dancing, whereas the husband prefers to go to the movies. Thibaut and Kelley argued that the husband and wife may resolve their conflict of interest and maximize their joint outcomes over time by alternating between jointly going to the movies on one weekend and jointly going dancing on the following weekend. Thibaut and Kelley proposed that what is rational at first may become normative over time. Although they did not mention this, their general argument is compatible with Bentham (1879) and Mill's (1863) concept of utilitarianism—that norms flow from what is the greatest good for the greatest number (cf. Russell, 1945, pp. 773–782).

The implication of Thibaut and Kelley's (1959) argument is that rationality and normative processes become confounded—at least at some point in time. Results from Experiment 3 are consistent with the existence of a norm of group interest, but rationality is still involved. Note, however, that the increased conformity in the public condition is arguably associated with a desire not to be censured or disliked, and such rationality is different from the rationality associated with maximizing the absolute outcomes of one's own group, which should be equally present under private and public conditions.

<sup>16</sup> The Spearman–Brown corrected intraclass correlations for the open-ended reasons assessments were .96 for max own, 1.00 for max rel, .98 for min dif, .95 for max joint, and .82 for fear. Analysis of the coded statements revealed a significant effect for identifiability to own group on max own only,  $F(1, 60) = 6.21$ ,  $p < .05$ . Participants in the public condition made more max own statements ( $M = 0.64$ ) than did participants in the private condition ( $M = 0.36$ ). The Spearman–Brown corrected reliabilities for the closed-ended reasons assessments were .81 for max own, .82 for max rel, .86 for min dif, .93 for max joint, and .64 for fear. Analysis of the closed-ended reasons assessments revealed a significant effect for identifiability to own group on max own only,  $F(1, 60) = 7.09$ ,  $p < .01$ . Participants in the public condition expressed greater concern for maximizing the absolute outcomes of their own group ( $M = 6.34$ ) than did participants in the private condition ( $M = 5.45$ ).

## General Discussion

Three experiments examined the relation between intragroup social influence and intergroup competition. Experiments 1 and 2 addressed directly the relative scarcity of evidence for the social support explanation of the interindividual–intergroup discontinuity effect. Experiment 1 demonstrates that social support increases intergroup competition in the context of an MFC matrix. Mediation analyses revealed a pattern of results that is consistent with the possibility that the role of social support was mediated by max rel, or participants' concern for maximizing the relative outcomes of their group. These findings are in agreement with the idea that social support can reduce the normative constraints on behavior that is aimed exclusively at maximizing relative outcomes at the expense of a cooperative other.

Experiment 2 was designed to expand the domain of our investigation and examine the role of social support in the context of a PDG. We proposed that competition with a cooperative other is permitted and prescribed by the norm of group interest to the extent that it increases absolute outcomes. We therefore predicted that the existence of social support would be more important in the context of low noncorrespondence, in which competition produces a relatively small increase in absolute outcomes, than in the context of high noncorrespondence, in which competition produces a relatively large increase in absolute outcomes. Results confirm the predicted Social Support  $\times$  Noncorrespondence interaction. The significant social support effect in the low noncorrespondence condition replicates the results of Experiment 1 and indicates that social support increases competition with a cooperative opponent when there is little (Experiment 2) or no (Experiment 1) noncorrespondence of outcomes. The absence of a significant social support effect in the high noncorrespondence condition is consistent with the existence of a norm of group interest. Social support may have been less important in the high noncorrespondence condition because competition with a cooperative opponent produced a relatively large increase in the absolute outcomes and was therefore permitted and prescribed by the norm of group interest. Findings for max own are consistent with this interpretation. Participants in the high noncorrespondence condition expressed greater concern for maximizing the absolute outcomes of their own group than did participants in the low noncorrespondence condition. Furthermore, social support did not significantly affect participants' concern for maximizing absolute outcomes, suggesting that behavior that serves to maximize absolute outcomes does not require social support to the same extent as behavior that serves to maximize relative outcomes.

Mediation analyses indicated a pattern of results that is consistent with the possibility that the Social Support  $\times$  Noncorrespondence interaction was mediated by max joint, or participants' concern for maximizing the joint outcomes of both groups. This finding is perhaps best interpreted in terms of the main effect of noncorrespondence. Schopler et al. (2001) proposed that, as noncorrespondence decreases, participants become increasingly concerned with the joint welfare of both groups. Although generally consistent with this conclusion, the findings of Experiment 2 suggest that social support for shared self-interest may interfere with the increased concern for joint welfare that generally flows from decreasing noncorrespondence. Results of the mediation analyses are further consistent with the possibility that the Social

Support  $\times$  Noncorrespondence interaction was mediated by max rel, or participants' concern for maximizing the relative outcomes of their group. The significant social support effect on max rel in the low noncorrespondence condition replicates results of Experiment 1, in which the social support effect was also tracked by max rel. The absence of a significant social support effect on max rel in the high noncorrespondence condition may seem surprising, as other findings indicate that social support increases a concern for maximizing relative outcomes. It is important to keep in mind, however, that the competitive choice in the PDG confounds max own and max rel (i.e., competition may reflect either or both). Thus, it is possible that some participants in the no-social-support condition attempted to maximize relative outcomes under the guise of acting in the best (absolute) interest of their group.

Whether or not the interpretation of the Social Support  $\times$  Noncorrespondence interaction in terms of a norm of group interest is correct, Experiment 2 provides compelling evidence for the idea that the existence of social support is more important when noncorrespondence is low than when noncorrespondence is high. Additionally, the interpretation of results from Experiment 2 in terms of a norm of group interest generates a testable prediction: With high noncorrespondence, participants will be more competitive when they expect that their behavior is public (i.e., identifiable by the other members of their own group) than when they expect that their behavior is private (i.e., not identifiable by the other members of their own group). Experiment 3 confirms this prediction: Participants in the public responding condition were more competitive than were participants in the private responding condition. Results are consistent with the possibility that the effect of public versus private responding on competition was mediated by max own. These findings are in agreement with the idea that the norm of group interest permits and prescribes the maximization of absolute group outcomes.

Could our manipulation of social support have strengthened or activated the norm of group interest? If so, could the observed effects of social support be due to the norm of group interest? For two reasons, we believe that this is unlikely. First, note that participants in the social support condition received both competitive and cooperative feedback from other group members. Thus, from the perspective of sustaining the norm of group interest, the information participants received was balanced. Second, whereas Experiment 3 reveals a pattern of results that is consistent with the idea that the norm of group interest dictates a concern for maximizing absolute outcomes, neither Experiment 1 nor Experiment 2 found a significant effect of social support on participants' concern for maximizing absolute outcomes. This suggests that our manipulation of social support did not result in differential activation of the norm of group interest. Although it is plausible that in most intergroup settings social support, normative considerations, and conformity are intimately related, our results indicate that by capitalizing on a balanced manipulation of social support and the high degree of situational control afforded by a laboratory setting, we were able to unconfound these variables.

### *Implications for Interindividual–Intergroup Discontinuity*

Given the large magnitude of the interindividual–intergroup discontinuity effect (Wildschut, Pinter, Vevea, Insko, & Schopler, 2002), we believe that it is multiply determined (e.g., Insko,

Schopler, Pemberton, et al., 1998; Insko et al., 2001; Schopler et al. 2001). Indeed, past research has provided evidence for the role of fear (Insko et al., 1990; Schopler et al., 1993) and identifiability (Schopler et al., 1995) in interindividual–intergroup discontinuity. Adding to this list of explanations, Experiments 1 and 2 provide evidence for the role of social support: Intergroup interactions are more competitive than interindividual interactions in part because group members can provide each other with social support for pursuing shared self-interest, in contrast to the lack of such social support available to individuals.

Experiment 2 further indicates that the role of social support is more important with low noncorrespondence than with high noncorrespondence. This raises the question of whether the social support explanation is viable when noncorrespondence is high. Perhaps it is not, but in our view it would be premature to use the present findings to discount the social support explanation for interindividual–intergroup discontinuity in the context of high noncorrespondence. We suspect that if participants had received exclusively competitive feedback from other group members, there would have been some impact of social support even with high noncorrespondence. Of course, the reason for providing participants with mixed feedback and thus weakening the manipulation of social support was our desire to unconfound conformity and social support. From our perspective, the important finding is not that with high noncorrespondence social support was not significantly related to intergroup competition but rather that in this context we obtained evidence for the norm of group interest (Experiments 2 and 3). This raises the prospect of a possible fourth, novel explanation of the discontinuity effect: Intergroup interactions may be more competitive than interindividual interactions in part because the maximization of absolute group outcomes is permitted and prescribed by a norm of group interest.

It is important to note that the norm of group interest explanation and the social support explanation share the premise that self-interested behavior in mixed-motive situations is constrained by a set of social norms that includes but may not be limited to norms of fairness and reciprocity. The social support explanation proposes that an explicit competitive act or suggestion by one or more members of a group can reduce these normative constraints and increase the likelihood that other group members will pursue their shared self-interest. As mentioned previously, this line of reasoning is consistent with research on the relation between social support and conformity (e.g., Allen & Levine, 1969, 1971). In a similar vein, the norm of group interest explanation proposes that normative constraints on self-interested behavior are reduced by a norm that permits and prescribes the maximization of absolute group outcomes. In addition to providing justification for the competitive pursuit of shared self-interest, the norm of group interest also creates an obligation to maximize shared self-interest. Group members who do not act according to the norm of group interest run the risk of being evaluated negatively by the other members of their group—of being singled out as deviants. This suggests that group members may act competitively on behalf of their group even when they personally receive no direct benefit.

From a related yet different viewpoint, Ratner and Miller (2000) proposed that interindividual–intergroup discontinuity is rooted in a “descriptive norm of self-interest” (p. 15; i.e., the expectation that other people are generally self-interested). Their idea that “one cause of the greater self-interest in group relative to individual

decisions is group members’ expectation that other members of their group will be happier with the self-interested outcome” (p. 2) bears some similarity to the present postulated norm of group interest. There are, however, two salient differences between the norm of group interest and the descriptive norm that people are generally self-interested. First, the norm of group interest explicitly relates to groups and not to everyone. Second, the norm of group interest is prescriptive and not just descriptive. For three reasons, we believe that neither the present findings nor interindividual–intergroup discontinuity in general can be readily explained by a purely descriptive norm of self-interest. First, if people expect that others are more self-interested in the PDG than they themselves are, one would expect high levels of distrust in interindividual PDG interactions. Past experiments have repeatedly demonstrated, however, that when communication between sides is allowed, interindividual interactions tend to be characterized by high levels of trust (Insko & Schopler, 1998). Second, the idea of a purely descriptive expectation that people will be self-interested cannot, by itself, account for the observed difference between the public and private responding conditions in Experiment 3. The difference between the public and private responding conditions suggests that the norm is prescriptive and not just descriptive. Certainly that was the reasoning of Deutsch and Gerard (1955) relating to their evidence for normative social influence. Third, it is not clear why people’s expectations that others are more self-interested than they themselves are can, by itself, dictate a greater concern for the welfare of one’s own group than for the welfare of the other group. The descriptive norm of self-interest is too nonspecific and incomplete to account for interindividual–intergroup discontinuity. This is not to say that under no circumstances is there an expectation of others’ self-interest. In many situations we find the idea quite plausible.

### Conclusion

Throughout the history of social science, scholars have been concerned with the question of whether decent individuals are prone to behave indecently when they are banded together in a group. In his *Psychologie des Foules*, LeBon (1895/1960) proposed that shared membership in a group puts people “in possession of a sort of collective mind” (p. 27). This collective crowd mind was thought to be primitive, irrational, and destructive. F. Allport (1924) is well known for his influential critique of LeBon’s crowd-mind concept. Nevertheless, in his later writings F. Allport (1962) proposed that “even if we got rid of the *crowd mind*, the problem of describing the differential of crowd-like behavior . . . would remain” (p. 6). In an attempt to identify antecedents of intergroup conflict, research on interindividual–intergroup discontinuity has studied “the differential of crowd-like behavior” in the context of mixed-motive matrix games. This research was guided by the assumption that the greater competitiveness of groups is due to a confluence of mechanisms. The experiments reported here provide evidence for two of these mechanisms—social support and a norm of group interest.

If we think about intergroup interactions in everyday life, the finding that social support from even a single group member can promote self-interested behavior by other group members points to the danger that nationalistic and ethnocentric ideologies may pose to intergroup harmony, even when these ideologies have only a



small following. In this respect, we find it intriguing that, just 5 years before Hitler was named Chancellor of Germany, his Nazi party had gained only 3% of the popular vote in the first election it entered (the Reichstag election of May 1928). We grant that this is speculative, but perhaps the 1928 election results signaled the existence of social support to those who identified with Hitler's ideas but had up to that point been reluctant to act on their convictions. If so, this could partially explain the Nazis' spectacular rise to power over the years following the 1928 elections.

The finding that group members expressed greater concern for the absolute outcomes of their own group when their behavior was public than when their behavior was private is reminiscent of Roger Brown's (1954) statement that "the quality of mob behavior has always required explanation because of its apparent discontinuity with the private characters of the individuals involved" (p. 843). We suggest that the difference between group members' public behavior and their private character can be understood partially in terms of a norm of group interest. Privately, group members may be inclined to cooperate with members of another group, but publicly they may act like good soldiers to avoid the scorn of their own group. This fear of being branded as a deviant or, even worse, as a traitor may contribute to the protraction of intergroup conflict. Nevertheless, we are hopeful that group members can, under certain conditions, come to realize that their group interest is best served by long-term cooperation instead of short-term competition. From this perspective, Axelrod's (1984) description of trench warfare during World War I is particularly encouraging. In several sections on the western front, Allied and German troops ceased hostilities, despite orders to the contrary by their commanding officers. For example, the troops would intentionally fire at safe targets at certain times of the day. According to Axelrod, "what made this mutual restraint possible was the static nature of trench warfare, where the small units faced each other for extended periods of time" (p. 21). Thinking of the fate that befell Yitzhak Rabin, we suspect that such a shift from short-term to long-term outcomes requires not only trust of the other group and the capacity to project one's outcomes into the future (Insko et al., 2001) but a great deal of personal courage as well.

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