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## Their pain gives us pleasure: How intergroup dynamics shape empathic failures and counter-empathic responses

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### Abstract

Despite its early origins and adaptive functions, empathy is not inevitable; people routinely fail to empathize with others, especially members of different social or cultural groups. In five experiments, we systematically explore how social identity, functional relations between groups, competitive threat, and perceived entitativity contribute to *intergroup empathy bias*: the tendency not only to empathize less with out-group relative to in-group members, but also feel pleasure in response to their pain (and pain in response to their pleasure). When teams are set in direct competition, affective responses to competition-irrelevant events are characterized not only by less empathy toward out-group relative to in-group members, but also by increased counter-empathic responses: Schadenfreude and Glückschmerz (Experiment 1). Comparing responses to in-group and out-group targets against responses to unaffiliated targets in this competitive context suggests that intergroup empathy bias may be better characterized by out-group antipathy rather than extraordinary in-group empathy (Experiment 2). We find also that intergroup empathy bias is robust to changes in relative group standing—feedback indicating that the out-group has fallen behind (Experiment 3a) or is no longer a competitive threat (Experiment 3b) does not reduce the bias. However, reducing perceived in-group and out-group entitativity can significantly attenuate intergroup empathy bias (Experiment 4). This research establishes the boundary conditions of intergroup empathy bias and provides initial support for a more integrative framework of group-based empathy.

### Keywords

Empathy; Schadenfreude; Intergroup; Competition; Conflict; Social Identity

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Empathy is generally recognized as a central component of the human condition: empathy facilitates social functioning by promoting pro-social behavior, even among strangers. Starting in infancy, humans are affected by others' suffering. We recognize sadness, fear and pain in others, experience congruent emotions ourselves, and are motivated to alleviate... others' distress (Batson, 2009). Despite its early origins and adaptive functions, empathy is not a universal response. People often feel less empathy for strangers who belong to a different racial, political, or social group, compared to strangers who are described as belonging to the same group (Batson & Ahmad, 2009; Davis, 1994; Hornstein, 1978): we term this difference the *intergroup empathy bias* (Cikara, Bruneau, & Saxe, 2012).<sup>1</sup> In certain contexts, people may even experience pleasure in response to out-group members' adversities (*Schadenfreude*) and displeasure in response to their triumphs (*Glückschmerz*; Smith, Powell, Combs, & Schurtz, 2009). These empathic and counter-empathic responses matter because they are associated with discrimination and a willingness to harm out-group members (e.g., Cikara, Botvinick, & Fiske, 2011; Hein et al., 2010; Johnson et al., 2002).

Almost all of the previous research in this area has focused on documenting intergroup empathy bias among real social groups (Cikara, Bruneau, & Saxe, 2012), such as racial groups (e.g. Dovidio et al., 2010), and academic, athletic or political rivals (e.g., Leach, Spears, Branscombe, & Doosje, 2003; Combs, Powell, Schurtz, & Smith, 2009; Tarrant, Dazeley, & Cottom, 2009; cf. Montalan, Lelard, Godefroy, & Mouras, 2012). Among stable social groups, patterns of empathic responding might be relatively consistent across time and context; however, not all out-groups elicit the intergroup empathy bias to the same extent and the bias is demonstrably subject to context effects (e.g., Gutsell & Inzlicht 2010; 2013).

Despite the clear real world implications of intergroup empathy and the growing number of empirical studies on the topic, few investigations have examined intergroup empathy bias through the lens of psychological theories of intergroup relations. Here we integrate work on social identity and intergroup relations (Tajfel & Turner, 1979; Turner et al., 1987) with the empathy literature. The goal of the current investigation is to move beyond describing empathic and counter-empathic response profiles among specific social groups by examining the underlying psychological processes at play between groups more generally (see Cikara & Van Bavel, 2014, for discussion). In a series of five experiments we assign participants to novel groups (Tajfel, 1982; Tajfel, Billig, Bundy, & Flament, 1971) and investigate intergroup empathy bias as a function of the relational structures between groups (cooperation, competition, or independence) and dynamic features of the groups and group-members: self-categorization, relative group standing, and perceived group entitativity.

## Dampened empathy and heightened counter-empathic responses for out-groups

We define empathy as an affective reaction caused by, and congruent with, another person's inferred or forecasted emotions (Eisenberg, Shea, Carlo, & Knight, 1991): that is, feeling

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<sup>1</sup>“Bias” in this context does not mean error; rather, we use bias in the sense that the intergroup literature uses it: a response tendency or preference.

good in response to someone experiencing a positive event (e.g., when Emile wins an award), and feeling bad in response to someone experiencing a negative event (e.g., when Rebecca's paper is rejected).<sup>2</sup> As dozens of recent papers from social and developmental psychology and cognitive neuroscience demonstrate, dampened or absent empathic responses (and associated physiological indicators) are particularly likely for social or cultural out-groups (e.g., Avenanti, Sirigu, & Aglioti, 2010; Chiao & Mathur, 2010; Cuddy, Rock, & Norton, 2007; Decety, Echols, & Correll, 2009; Hein et al., 2010; Masten, Gillen-O'Neel, & Brown, 2010; Tarrant, Dazeley, & Cottom, 2009; Xu, Zuo, Wang, & Han, 2009).

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Group membership may modulate empathy by enhancing in-group empathy (i.e. 'extraordinary in-group empathy'; see Mathur, Harada, Lipke & Chiao, 2010) or by reducing out-group empathy (i.e., 'out-group apathy'; see Avenanti, Sirigu, & Aglioti, 2010; Gutsell & Inzlicht, 2012). Although extraordinary in-group empathy and out-group apathy are conceptually distinct (Allport, 1954; Brewer, 1999), they are often confounded in the literature. One way to disentangle these phenomena is to include a set of control targets, who are unaffiliated with either group, to act as a baseline (e.g., Bruneau, Dufour, & Saxe, 2012; Shamay-Tsoory et al., 2013; Van Bavel & Cunningham, 2009; Van Bavel et al., 2008; 2011).

Another, potentially more pernicious manifestation of intergroup empathy bias is counter-empathic responses. An out-group member's pain can elicit perceivers' pleasure, a feeling referred to as Schadenfreude (Smith, et al., 2009; Van Dijk, Ouwerkerk, Wesseling, & Van Koningsbruggen, 2011; see also Weisbuch & Ambady, 2008), and conversely, an out-group member's pleasure may cause the observer pain or anguish, a feeling referred to as Glückschmerz.

Several factors facilitate the experience of Schadenfreude: when observers gain from the target's misfortune (Smith, Eyre, Powell, & Kim, 2006); when another's misfortune is deserved (Feather, 1999, 2006; Feather & Nairn, 2005; van Dijk, Ouwerkerk, Goslinga, & Nieweg, 2005); when a misfortune befalls a disliked or envied person (Hareli & Weiner, 2002; Smith et al., 1996; Takahashi et al., 2009); and when an out-group, which has made the in-group feel inferior, suffers subsequent losses at the hand of a third party (Leach et al., 2003; Leach & Spears, 2008, 2009; see also van Dijk et al., 2011). Strikingly, Schadenfreude can even override self-interest: people may feel pleasure at rival groups' misfortunes, even when those misfortunes have negative implications for themselves and society more broadly (Combs et al., 2009). This work illustrates why Schadenfreude can be much more pernicious than mere incongruent affect; Thus, even when there is not a tangible

<sup>2</sup>Note that our definition of empathy is more specific than simply experiencing concordant affect (Heider, 1958; Ortony, Clore, & Collins, 1988; Smith, 2000); for example, empathy does not extend to situations in which the perceiver's outcomes are tied to the target's; it must be other-focused without any material implications for the perceiver.

<sup>3</sup>Two studies of which we are aware—Dovidio et al. (2004) and Stürmer et al. (2006)—report failures to find evidence of intergroup empathy bias, even in the absence of interventions and additional information about targets. However, both of these papers use race- or ethnicity-based groups, which markedly increases demand effects. Even if people aren't willing to self-report less empathy for a racial out-group, a sizeable literature has documented that they exhibit dampened or absent neural and physiological responses (see Cikara, Bruneau, & Saxe, 2011 for a review) and are less likely to help an out-group relative to an in-group member (e.g., Dovidio et al., 1997; Levine, Prosser, Evans, & Reicher, 2005), suggesting the influence of social desirability as an explanation for these null effects.

benefit to the observer or some greater social justice served, targets' misfortunes are pleasurable, in part, because they make people feel better about themselves (Smith, 2013).

The complement of Schadenfreude is Glückschmerz. Though Glückschmerz is conceptually related to resentment (Feather, 2006) and envy (Smith 2000), resentment and envy are typically studied as precursors to Schadenfreude (e.g., Schadenfreude is more likely when people, who we have previously envied, experience a misfortune). In contrast to envy and resentment, which are more chronic and which target specific individuals in the absence of a particular event, Glückschmerz refers to the fleeting, negative affect associated with observing another person's good fortune.

It is critical to study these counter-empathic responses in addition to failures of empathy because of their role in the tolerance, and even perpetration, of harm against out-group members. For example, greater Schadenfreude in response to a rival's injury is correlated with disappointment in response to news that the injury is not serious (Hoogland, Schurtz, Combs, Powell, & Smith, 2012), and activity in 'reward' related brain regions (i.e., ventral striatum) in response to rival sports teams' suffering predicts willingness to harm, and unwillingness to relieve pain from, rival team fans (Cikara et al., 2011; Hein et al., 2010).

The research on intergroup Schadenfreude has revealed a great deal about the factors that predict this malicious emotion, however it has focused primarily on 1) groups with a history of rivalry, and 2) emotions in response to events that are the *basis* for that rivalry (e.g., asking soccer fans how they feel when a rival team loses a soccer championship to a 3<sup>rd</sup> party). In contrast to previous studies, we focus on individuals' responses to events that are separate from, and irrelevant to, the intergroup context at hand, to assess whether functional relations affect intergroup empathy bias beyond contexts that define the groups themselves. Furthermore, using novel groups of initially equivalent standing allows us to circumvent confounds such as pre-existing negative attitudes, or anger at the out-group's past successes (Hareli and Weiner, 2002) and perceptions that such past successes are illegitimate (Feather and Sherman, 2002). We believe these features help establish a general theoretical framework of intergroup empathy that extends beyond specific historical or social contexts.

## Benefits of studying intergroup empathy bias in novel groups

Most past research that has examined intergroup empathy bias has focused on real world social groups (e.g., delineated by race, political affiliation), making the findings ecologically valid, but rendering inferences about the underlying process difficult to generalize to other intergroup contexts. In fact, differences in the groups, context, and the experimental method produce strikingly different results. For example, functional magnetic resonance imaging (fMRI) studies found that the 'shared neural circuit for pain' was more active in White participants when viewing White versus Asian faces being pricked with a needle (Xu, Zuo, Wang, & Han, 2009), whereas in another fMRI study, White participants' responses in this same neural circuit were equivalent for White and Black targets' suffering (Mathur et al., 2010). This heterogeneity of findings likely reflects the fact that race co-varies with multiple dimensions of intergroup context, including stereotype content, perceived competitiveness, majority/minority status, social status, and mere familiarity—all of which could affect

intergroup empathy bias. These findings are reconcilable within a functional relations framework: though White Americans harbor negative attitudes toward both out-groups, they perceive Asian targets as more stereotypically competitive than Black targets (Fiske, Cuddy, & Glick, & Xu, 2002), which may make Asians more likely targets of intergroup empathy bias (Cikara, Bruneau, et al., 2011). In light of these inconsistencies, broader inferences about group processes from studies of race should be made with caution (see Dunham, 2011; Van Bavel & Cunningham, 2011).

By contrast, in the current research we assign participants to novel groups. Novel groups provide a powerful tool for our research because participants do not have any stereotypes or prejudices regarding the in-group and out-group prior to group assignment, group features (e.g., majority/minority status, power, familiarity, history of conflict) can be matched between groups, and there is a natural mechanism for creating targets who are truly and equally neutral to both groups. Using novel groups also allows us to test predicted moderators of intergroup empathy bias directly (e.g., competition, competitive threat, group entitativity), because these moderators can be effectively and ethically manipulated within each experiment.

## **Predicted Moderators of Intergroup Empathy Bias**

### **Competition**

People generally trust groups less than individuals and expect interactions with groups to be more hostile than person-to-person interactions (Insko & Schopler, 1998; Pemberton, Insko, & Schopler, 1996; Wildschut, Pinter, Vevea, Insko, & Schopler, 2003). Thus, even in the absence of intergroup hostility, minimal groups can elicit intergroup empathy bias. For instance, adults (Montalan et al., 2012) and even young children randomly assigned to groups (e.g., the ‘red team’ or the ‘blue team’; Masten et al., 2010) show greater empathy for in-group than out-group members under certain circumstances.

Competitive relations between groups up the ante and increase intergroup conflict (Deutsch, 2006; Johnson & Johnson, 1989; Sherif et al., 1954/1961). Putting two groups in explicit competition makes group membership more salient and generally strengthens intergroup bias and hostility (Hogg, 1992, 1993; Mullen, Brown, & Smith, 1992). Even when groups are not engaged in overt competition, asymmetries in power and access to valued resources among different groups predict perceptions of competitiveness (Fiske, Cuddy, Glick, & Xu, 2002). We therefore hypothesize that one key cause of intergroup empathy bias is the perception of competition (i.e., zero-sum relationship) between the groups’ goals (Fiske & Ruscher, 1993; see also Struch & Schwartz, 1989).

There is already some evidence that competition among real groups predicts intergroup empathy bias and counter-empathic responding. First, real world groups that are defined by competition—that is, sports team fans—are characterized by both dampened empathy and counter-empathic responding. For instance, fans of the Boston Red Sox and New York Yankees—arch-rival baseball teams—report pleasure and show activity in reward-related brain regions (e.g., ventral striatum) when watching rivals fail to score, even against a lower ranked team (Baltimore Orioles; Cikara et al., 2011). This pattern of intergroup empathy

bias extends to situations in which the rival *fans* are in physical pain (Hein et al., 2010). Second, some out-groups, in the absence of overt competition, may become targets of Schadenfreude simply by virtue of the competitive stereotypes associated with their group (Cikara & Fiske, 2012). In sum, we hypothesize that creating a competition between novel groups will be sufficient to elicit both dampened empathy and increased counter-empathy (Schadenfreude and Glückschmerz) towards members of the out-group.

### Competitive threat

One influential view is that competition elicits intergroup empathy bias because the out-group poses an ongoing threat to in-group welfare. The experience of in-group defeat increases negative feelings toward victorious out-groups (e.g., Ellemers et al., 1999; Smith & Kessler, 2004; Tajfel & Turner, 1979), but the mere threat of defeat is also sufficient to elicit such effects (Branscombe, Ellemers, Spears, & Doosje, 1999).

If competitive threat is necessary for intergroup empathy bias, then reducing or removing the ongoing threat by communicating that the in-group is superior in standing might be sufficient to mitigate intergroup empathy bias. On the other hand, winning the competition may generate intergroup satisfaction (a positive emotional response to obtaining the desired goal; Ortony, Clore, & Collins, 1988), facilitating further competitive tendencies, including counter-empathic responses, toward the out-group (Maitner, Mackie, & Smith 2007). We test whether removing out-group threat, by telling participants that their in-group has pulled ahead of, or triumphed over, the out-group mitigates intergroup empathy bias.

### Group entitativity

Entitativity refers to the extent to which groups are perceived to have the nature of an entity (Campbell, 1958), including unity, coherence, and organization (Hamilton & Sherman, 1996). Perceived intragroup similarity of both in-groups and out-groups can increase stereotyping (e.g., Yzerbyt, Corneille, & Estrada, 2001) and intergroup biases (e.g., Gaertner & Schopler, 1998), as well as impair intergroup interactions (e.g., Lickel, Miller, Stenstrom, Denson, & Schmader, 2006; Waytz & Young, 2011). Despite its centrality in the intergroup literature, entitativity has never been investigated as a moderator of intergroup empathy bias. Thus we test whether reducing perceptions of group entitativity (using a visual “social network” graphical metaphor) can mitigate intergroup empathy bias.

### Asymmetry in responses to negative versus positive events?

For all of these hypotheses, we further test whether the intergroup empathy bias applies symmetrically to positive and negative events. Because some models of empathy focus on reactions to target suffering, positive events are rarely included in studies of empathy (with some notable exceptions, Brown, Bradley, & Lang, 2006; Cikara & Fiske, 2011; 2012; Perry, Hendler, & Shamay-Tsoory, 2012). However, prior research with resource allocation suggests that intergroup differences arise more for allocation of rewards than of punishments (Mummendey & Otten, 1998; but see Mummendey et al., 2001). Thus, it is an open question whether competition decreases intergroup empathy—and perhaps increases counter-empathic responding—for positive as well as negative events.

## Current investigation

Intergroup empathy bias is a well-established phenomenon among real social groups and categories. Our goal is not merely to show that intergroup empathy bias manifests among novel groups as well, but rather to elucidate precisely the causal factors in intergroup contexts that drive empathy and counter-empathic responses. Understanding intergroup empathy may be particularly important because social emotions (and empathy in particular) are often better predictors of behavior than are attitudes (e.g., Dovidio et al., 1997, 2010; Sturmer, Snyder, & Omoto, 2005). Whereas attitudes are often conceptualized as positive or negative evaluations, emotions, such as empathy, Schadenfreude, and Glückschmerz, represent “complex reactions to specific situations or events that include quite differentiated cognitions, feelings, and *action tendencies*” (p. 602; Mackie, Devos, & Smith, 2000). Thus, simple evaluations alone cannot predict which out-groups will be targets of help versus neglect versus attack (Cuddy, Fiske, & Glick, 2007; Fiske, Cuddy, Glick, & Xu, 2002; Mackie et al., 2000; Neuberg & Cottrell, 2002). Our hope is that understanding the factors that predict intergroup empathy bias—particularly the conditions under which out-groups receive dampened-empathy, counter-empathy, or both—will help us better predict people's behavior across a variety of consequential contexts: including, but not limited to, charity donations, welfare policy preferences, political conflict, and war (Cohen & Insko, 2008; Dovidio et al., 2010).

## Hypotheses

We predict that creating a zero-sum competition between two groups' goals will create robust intergroup empathy bias—even among seemingly trivial groups. In Experiment 1, we predict greater empathy for in-group than out-group targets. Specifically, we predict that participants will feel both better about positive and worse about negative events when they happen to in-group as compared to out-group targets (even though the events and their outcomes have no bearing on participants and their outcomes). Our next hypothesis goes beyond dampened empathic responses to predict the presence of greater counter-empathic reactions to out-group as compared to in-group targets' experiences. Specifically, we predict that participants will feel better about negative events—Schadenfreude—and worse about positive events—Glückschmerz—when they befall out-group targets. Finally, we predict that this effect will be most pronounced in a competitive context (compared to a cooperative or neutral group relations context).

In Experiment 2, we include unaffiliated targets to examine the direction of intergroup bias. In contexts with only two groups, extraordinary in-group empathy and out-group apathy are impossible to disentangle. In minimal group contexts, for example, there is no difference in attitudes toward people who are members of an out-group compared to no group at all (Van Bavel & Cunningham, 2009). Although we hypothesize that extraordinary in-group empathy (and out-group apathy) is likely to be the norm among minimal groups, we also hypothesize that out-group antipathy is more likely to occur when groups—including novel groups—are in direct competition (Brewer, 1999).

In Experiments 3a, 3b, and 4 we aim to identify conditions that can reduce intergroup empathy bias. Specifically, we test whether intergroup empathy bias will decrease among

participants when we: (i) reduce the competitive threat of the out-group (i.e., by telling participants' their group has pulled ahead of or defeated the out-group (Experiments 3a and 3b), and (ii) provide participants with visual cues to reduced group entitativity (Experiment 4).

## Experiment 1: The effect of intergroup functional relations on intergroup empathy bias

To conduct an initial test of our proposed theoretical model, we examined the effect of intergroup competition on empathy. Self-reported empathy for others is undermined by competition at the individual level (e.g., Lanzetta & Englis, 1999; Singer et al., 2006; Struch & Schwartz, 1989; Takahashi et al., 2009) and at the group level (e.g., Cikara et al., 2011; Hein et al., 2011). In the current experiment, we assigned participants to one of two novel groups—the Eagles or the Rattlers—and randomly assigned participants to competitive, cooperative, or independent intergroup relational structure (Sherif et al., 1954/1961). We hypothesized that participants would report more empathy for in-group targets versus out-group targets, and more counter-empathy (i.e., Schadenfreude and Glückschmerz) for out-group relative to in-group targets. Finally, though participants may exhibit an intergroup empathy bias across neutral relational structures (e.g., Montalan et al., 2012), we predicted that intergroup empathy bias will be strongest in the competitive context, when resources are zero-sum.

### Method

**Participants**—We recruited 320 participants within the U.S. between the ages of 18 and 60 online via amazon.com's Mechanical Turk website. Mechanical Turk provides high quality data from a diverse sample (Berinsky, Huber, & Lenz, in press; Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler, & Ipeirotis, 2010). Participants received \$2 for their time. Manipulation check questions at the end of the experiment (“Which team are you on?” “What other team is playing today?” “What is the relationship between these teams?”) and a catch scenario (“Julie slipped, push the slider all the way to the left if you read this scenario”; Oppenheimer, Meyvis, & Davidenko, 2009) were included to eliminate participants who were not engaged in the experiment; participants who did not complete all four questions correctly were excluded, yielding 202 participants (92 female,  $M_{\text{age}} = 32.3$ ). Online informed consent and experimental procedures complied with the guidelines of the university's Institutional Review Board.

Of the 320 participants who started and completed the study, 44 got one of the following wrong: the catch scenario, “which team are you on,” or “which other team is playing today.” An additional 74 people were excluded because of their response to the question “what is the relationship between teams?” It is interesting to note the pattern of errors: only 2 of these were in the competitive condition; all of the other errors were in the independent and cooperative conditions, and in almost all of these cases the participants reported that the teams were in competition. In hindsight, this is not surprising in light of the literature demonstrating that even in the absence of explicit competition, people anticipate and



remember intergroup interactions as more competitive than interpersonal interactions (Pemberton, Insko, & Schopler, 1996).

### Experiment design

**Stimuli:** We paired 8 positive and 8 negative events with in-group and out-group targets. For example, positive events included “Jane managed to get indoors before it started pouring rain,” “Liane ate a really good sandwich,” and negative events included “Diana had a stomach ache after lunch,” “Brandon got soaked by a taxi driving through a puddle” (for a full list of stimuli, see appendix). A pilot study with a separate sample of participants ( $N = 57$ ) rated the events to confirm that they were perceived as negative and positive, respectively. On a 10-point scale ranging from 1 (extremely negative) to 10 (extremely positive), participants rated the 8 negative events ( $M = 3.13$ ,  $SD = .26$ ) significantly more negative than the 8 positive events ( $M = 7.03$ ,  $SD = .49$ ), item-analysis  $t(7) = -38.95$ ,  $p < .001$ ,  $d = 13.95$ ; both positive ( $t(7) = 8.83$ ,  $p < .001$ ,  $d = 3.12$ ) and negative ( $t(7) = -25.83$ ,  $p < .001$ ,  $d = 9.13$ ) events were significantly different from the scale's midpoint.

**Procedure:** We advertised the experiment as a problem solving challenge. We told participants we were interested in assessing problem solving in teams and whether knowing about other individuals' experiences increases participants' performance. Participants gave consent to complete two tasks online: “in the first task you will read and rate other players' experiences. In the second task you will complete a short problem solving challenge.” We promised participants \$1 for their time, but told them that they stood to double their winnings if their team won the challenge. On the following page we had participants indicate the strength of their agreement with a series of five personality items (taken from the NEO PI-R, Costa & Macrae, 1992), ostensibly for the purposes of assigning them to a team. After participants completed the items, we randomly assigned participants to a team: the Eagles or the Rattlers.

Across all conditions, participants read that each week these two teams had been participating in a series of problem solving challenges; thus far members of the participant's team had completed 82 tasks, while members of the other team had completed 84 tasks. In the *competition condition*, we told participants that whichever team successfully completed 100 tasks first would win extra cash. We stressed that this was a competition between teams: only one team would be awarded the bonus. In the *cooperation condition*, we told participants that when the two teams successfully completed 200 tasks total, all members would win extra cash. We stressed that this was NOT a competition between teams and that the teams should work together to complete 200 tasks. In the *independent condition*, we told participants that when a team successfully completes 100 tasks all members of that team would win extra cash. We stressed that this was NOT a competition between teams: Each team could win the bonus if they completed 100 tasks. Note that assigning participants to teams based on their personalities and imposing competitive and cooperative functional relations no longer makes ours a minimal groups study. This is necessary for our purposes since our goal was to examine the causal influence of competition among groups.

We provided participants with the following backstory to explain why they were rating other player's experiences: "Scientific evidence suggests that the more people know about other players' personal experiences, the better people perform in these particular problem solving challenges. We're going to give you the opportunity to get to know the other players—RATTLERS and EAGLES team members—by letting you read some of their recent experiences. Some team members choose to share intense stories whereas other team members write about less impactful experiences. Note: team members wrote the content of the stories, but we standardized the format. At the end you will have an opportunity to share some of your experiences if you would like. Future participants will read about your experiences! You will know whether it's a RATTLERS or EAGLES team member's story by the background and logo. You will see a total of 17 stories before the problem solving challenge. Some stories will be more intense than others. We would like you to tell us how each story makes you feel (using the slider bars below each story)." We paired 16 scenarios, 8 representing negative events and 8 representing positive events, with the Eagles and Rattlers teams, such that each participant was presented with 4 negative events paired with in-group targets, 4 negative/out-group, 4 positive/in-group, and 4 positive/out-group. We randomized the presentation order between participants, and the 16 scenarios were followed by the catch story (see description in *Participants*). To make intergroup identity salient, each scenario page stated the target's group membership (e.g., "Andrew is on the RATTLERS") with the target's team logo. The scenario (e.g., "Andrew sat in gum on a park bench") appeared below the logo written on a red (for Rattlers) or blue (for Eagles) background. We counterbalanced color and target team membership across participants (see appendix for example trial).

**Self-reported reactions:** Participants answered two questions after each scenario—"How bad does this make you feel?" and "How good does this make you feel?"—using a slider bar (0 = not at all, 1.00 = extremely). Participants saw the labels but not the numerical value associated with the slider bar's position. We provided participants with separate 'good' and 'bad' scales to allow them to answer ambivalently (e.g., bad, but also a little bit good in response to out-group targets' misfortunes). The dependent variable scales appeared directly beneath the scenario.

**Identification questions:** As a manipulation check, we assess collective identification with in-group and out-group teams (see Van Bavel & Cunningham, 2012). All participants answered three questions about their identification with each group on unmarked slider scales ranging from 0 (strongly disagree) to 1.00 (strongly agree): "I [value/like/feel connected to] the [Eagles/Rattlers]." All participants completed the identification items prior to the scenario ratings. We created composite in-group and out-group identification scores by averaging the three items for each team (in-group items  $\alpha = .90$ ; out-group items  $\alpha = .85$ ).

**Demographics:** On the last webpage, participants reported their gender, age, ethnicity, state of residence, and occupation.

**Analyses:** We used a multivariate repeated measures model, which allows for the direct analysis of individual trials and helps overcome violations of independence as a result of correlated trials within participants. Ignoring dependency among trials can lead to invalid statistical conclusions, namely, the underestimation of standard errors and the overestimation of the significance of predictors (Cohen, Cohen, West, & Aiken, 2003). We have used a similar approach successfully in several previous papers with extensive repeated measures (e.g., Van Bavel & Cunningham, 2009; Van Bavel et al., 2011). We therefore created models with trials nested within participants to provide more appropriate estimates of regression parameters. Specifically, our models examined the interactions among the relational structure condition (competitive/cooperative/independent), scenario event valence (positive/negative), and scenario target group membership (in-group/out-group), to predict how bad and how good participants felt when rating the scenarios (response variable is treated as a within-subjects factor). SAS estimated the models using the PROC MIXED command with REML estimation method. These models include a story-item factor, dummy-coded repeated measures factors—event valence (negative = 0, positive = 1), target group (in-group = 0, out-group = 1), and response type (how good = 0, how bad = 1)—as within-subject predictors, and intergroup-relation condition (competition = 0 as the reference group, with separate dummy variables for the cooperation and independent conditions) as between-subjects predictors, and the cross level 2-way, 3-way, and 4-way interactions. Model comparison determined best fit: we specified that the response type variable covariance matrix was unstructured, and that the story-item factor had a compound symmetry covariance structure. Effect size ( $f^2$ ) was computed for the highest-order significant interaction for each model following Selya et al. (2012). Because we employ a doubly repeated measures model (i.e., we ask “how bad,” “how good,” on each trial) we report  $f^2$  for each dependent variable, separately. We conducted simple effects analyses on least squares means computed from the omnibus model to maintain experiment-wide error.

## Results and Discussion

**In-group and out-group identification scores**—Consistent with previous research, across conditions participants were more highly identified with their in-group ( $M = .71$ ,  $SD = .19$ ) than the out-group ( $M = .43$ ,  $SD = .21$ ),  $t(201) = 15.65$ ,  $p < .001$ ,  $d = 1.10$ . The correlation between participants’ average in-group identification and average out-group identification items was relatively small,  $r(200) = .15$ ,  $p = .04$ , consistent with the well-established finding that in-group ratings are conceptually distinct from feelings of like or dislike for out-groups (Brewer, 1999). Note that identification scores did not vary by gender in this or any of the other experiments (all  $ps > .10$ ), nor did gender moderate the critical interactions. Thus we collapse across gender in all results.

**Predicting how bad/good participants felt**—Table 1 summarizes the type III fixed effects of negative and positive scenarios befalling in-group and out-group targets across competitive, cooperative, and independent functional relations (controlling for in-group and out-group identification) predicting how good and how bad participants felt. All of the main effects and lower order interactions were qualified by the predicted, relational structure  $\times$  event valence  $\times$  target group  $\times$  response type, 4-way interaction,  $F(2, 199) = 26.59$ ,  $p < .001$ ,  $f^2_{\text{howbad}} = 0.002$ ,  $f^2_{\text{howgood}} = 0.002$ .

In order to unpack the 4-way interaction, we computed the least squares means from the omnibus models and used them to conduct simple effects analyses, comparing in-group to out-group slopes across the different combinations of factors. Figure 1 summarizes the results predicting how bad and how good participants felt in response to negative events, and the complementary results in response to positive events for each of the intergroup relations conditions. The *competitive* condition elicited the strongest effects (we report t-tests on the differences of out-group minus in-group least squares means): empathy was significantly higher for in-group relative to out-group targets for both negative,  $t(199) = -11.12, p < .001, d = 0.79$ , and positive events,  $t(199) = -9.85, p < .001, d = 0.70$ , whereas counter-empathy was stronger for out-group relative to in-group targets both for Schadenfreude,  $t(199) = 8.71, p < .001, d = 0.62$ , and Glückschmerz,  $t(199) = 5.74, p < .001, d = 0.41$ . The *independent* condition elicited a similar pattern of responses, however, the differences were weaker: empathy was significantly higher for in-group relative to out-group targets for both negative,  $t(199) = -5.19, p < .001, d = 0.37$ , and positive events,  $t(199) = -5.62, p < .001, d = 0.40$ , whereas counter-empathy was significantly higher for out-group relative to in-group targets only for Schadenfreude,  $t(199) = 3.85, p < .001, d = 0.27$ ; the difference for Glückschmerz was not significant,  $t(199) = 0.81, d = 0.06$ . Finally, the *cooperative* condition elicited the weakest effects: only empathy for positive events was significantly different for in-group relative to out-group targets,  $t(199) = -2.88, p < .01, d = 0.20$  (empathy for negative events,  $t(199) = -1.67, d = 0.12$ ; Schadenfreude,  $t(199) = 1.59, d = 0.11$ ; Glückschmerz,  $t(199) = 0.48, d = 0.03$ ).

Consistent with our proposed framework, participants reported experiencing more empathy (i.e., feeling worse about negative events and better about positive events) for in-group than out-group targets, and more counter-empathy (i.e., feeling better about negative events—Schadenfreude—and worse about positive events—Glückschmerz) for out-group than in-group targets. The intergroup empathy bias was most pronounced when the two teams were set in competition.

The results of Experiment 1 raised the question: would participants, based on a desire to differentiate the groups, favor the in-group over the out-group on any measure? To address this question, we ran another version of the competitive condition in Experiment 1 ( $N = 57$ ) in which we changed the dependent variables from “how bad/good does this make *you* feel?” to “how bad/good do you think this makes [*protagonist*] feel?” Results are summarized in the Appendix. In short, participants did not exhibit an intergroup bias in their judgments of how they thought targets feel about experiencing positive and negative events. This suggests that the effect of group membership and competition on intergroup empathy are due to participants’ experience of empathic and counter-empathic affect rather than demand characteristics. Note also that the pattern of results remains identical in this and all other experiments, when we treated in-group and out-group identification as covariates in the models (with one exception<sup>4</sup>), demonstrating that these effects cannot be fully explained by individual differences in identification.

<sup>4</sup>The response variable  $\times$  before/after interaction in Experiment 3b becomes significant when we include in-group and out-group identification as covariates. Note this deviation is of no consequence, as the critical 3-way interaction remains significant.

## Experiment 2: Extraordinary in-group empathy or out-group antipathy?

The pattern of intergroup empathy bias in the competitive context in Experiment 1 may reflect two different patterns of bias: “extraordinary empathy” for the in-group (feeling more empathy for in-group relative to any other group) or antipathy for the out-group (diminished empathy and greater counter-empathy towards the out-group relative to any other group). Although several previous studies have interpreted intergroup empathy bias in terms of “extraordinary empathy” for the in-group (Brown et al., 2006; Mathur et al., 2010), very few of studies have included the necessary control groups to assess these claims (cf. Avenanti et al., 2010; Bruneau, Dufour, & Saxe, 2012). This distinction is not only theoretically important, but there is good reason to believe that extraordinary in-group empathy and antipathy for the out-group might have very different behavioral profiles (see Brewer, 1999). Using novel groups allowed us to create an experimental control “group” to help answer this question. In Experiment 2, we assigned all participants to the competitive condition from Experiment 1, but also included unaffiliated targets to localize the source of intergroup empathy bias

### Method

**Participants**—We recruited 55 participants between the ages of 18 and 60 online via amazon.com's Mechanical Turk website. Participants received \$2 for their time. Only participants who correctly completed two manipulation check questions (i.e., “Which team are you on?” “What other team is playing?”) and a catch scenario were included, yielding a total of 48 eligible participants (27 female,  $M_{\text{age}} = 34.83$ ). Online informed consent and experimental procedures complied with the guidelines of the university's Institutional Review Board.

### Experiment design

**Stimuli and procedure:** The stimuli in Experiment 2 were identical to those in Experiment 1, though we added 8 ‘unaffiliated participants’, and 8 extra scenarios from our bank of pre-tested events (see appendix for complete list), yielding 25 scenarios total (4 negative and 4 positive events paired with in-group, unaffiliated, and out-group targets, respectively, plus one catch story). On a scale ranging from 1 (extremely negative) to 10 (extremely positive), pilot subjects (the same who rated the events used in Experiment 1) rated the 12 negative events ( $M = 3.13$ ,  $SD = .21$ ) significantly lower than the 12 positive events ( $M = 7.04$ ,  $SD = .39$ ), item analysis<sub>neg-pos</sub>  $t(11) = -59.72$ ,  $p < .001$ ,  $d = 17.24$ . Both negative and positive items were rated significantly different from the scales's midpoint: item-analysis<sub>neg-midpoint</sub>  $t(11) = -39.21$ ,  $p < .001$ ,  $d = 11.32$ ; item-analysis<sub>pos-midpoint</sub>  $t(11) = 13.61$ ,  $p < .001$ ,  $d = 3.93$ .

The procedure was also identical to the competitive condition in Experiment 1 with the exception of a small change to the scenario ratings cover story. We explained the inclusion of unaffiliated individuals as follows: “You will know whether it's a RATTLEERS or EAGLES team member's story by the background logo. Some participants do not fit the profile of either a Rattler or an Eagle; nevertheless we have included their experiences in the study so they have the opportunity to earn money for participating. Their experiences will

appear on a white background. You will see a total of 25 stories before the problem solving challenge.” Participants then read and rated the 24 scenarios and catch story.

**Measures:** Self-reported response scales, identification questions, and demographics questions were identical to those in Experiment 1. In-group identification items  $\alpha = .92$ ; out-group identification items  $\alpha = .89$ .

**Analyses:** The analyses for Experiment 2 were the same as those used in Experiment 1, except that we excluded the between-subjects condition factor, and the target team variable had three levels (i.e., in-group, unaffiliated, out-group) instead of two.

## Results and Discussion

**Identification and intergroup differentiation scores**—Replicating the results of experiment 1, participants reported higher average evaluation/identification with the in-group ( $M = .72$ ,  $SD = .20$ ) than the out-group ( $M = .29$ ,  $SD = .20$ ),  $t(47) = 7.09$ ,  $p < .001$ ,  $d = 1.02$ .

**Predicting how bad/good participants felt**—Table 2 summarizes the type III fixed effects of negative and positive scenarios befalling in-group, out-group, and unaffiliated targets predicting how bad and how good participants felt. All of the main effects and lower order interactions were qualified by the predicted, event valence  $\times$  target group  $\times$  response type, 3-way interaction,  $F(2, 94) = 20.43$ ,  $p < .001$ ,  $f^2_{\text{howbad}} = 0.005$ ,  $f^2_{\text{howgood}} = 0.006$ .

As in Experiment 1, we computed the least squares means from the omnibus models and used them to conduct simple effects comparing the three target groups in each response quadrant. Figure 2 summarizes the results. Consistent with the out-group antipathy explanation, participants' responses to in-group and unaffiliated targets were roughly equivalent across all outcomes, and both of these targets were significantly different from responses to out-group targets. Specifically, participants reported less empathy in response to negative events when they befall out-group as compared to in-group,  $t(94) = -5.12$ ,  $p < .001$ ,  $d = 0.52$ , and unaffiliated targets,  $t(94) = -5.55$ ,  $p < .001$ ,  $d = 0.57$ ; however, in-group and unaffiliated were not significantly different from one another,  $t(94) = 0.43$ ,  $d = 0.04$ . The same pattern emerged for empathy for positive events: out-group  $<$  in-group,  $t(94) = -3.48$ ,  $p < .001$ ,  $d = 0.36$ , out-group  $<$  unaffiliated,  $t(94) = -3.71$ ,  $p < .01$ ,  $d = 0.38$ , but in-group = unaffiliated,  $t(94) = 0.23$ ,  $d = 0.02$ . The pattern reversed for Schadenfreude—out-group  $>$  in-group,  $t(94) = 3.28$ ,  $p < .01$ ,  $d = 0.34$ ; out-group  $>$  unaffiliated,  $t(94) = 3.06$ ,  $p < .001$ ,  $d = 0.31$ ; but in-group = unaffiliated,  $t(94) = 0.22$ ,  $d = 0.02$ . For Glückschmerz, only the difference between out-group and in-group approached statistical significance,  $t(94) = 1.94$ ,  $p = .06$ ,  $d = 0.20$  (out-group = unaffiliated,  $t(94) = 0.89$ ,  $d = 0.09$ , in-group = unaffiliated,  $t(94) = 1.06$ ,  $d = 0.11$ ).

Thus, replicating and extending Experiment 1, participants reported greater empathy, in response to positive and negative events, for in-group and unaffiliated targets relative to out-group targets (top left and bottom right panels, Figure 2). Participants also felt more Schadenfreude and Glückschmerz for out-group members versus in-group and unaffiliated targets (top right and bottom left panels, Figure 2); though the difference between out-group

and unaffiliated was not significant for Glückschmerz. Contrary to findings in several recent papers on empathy towards racial groups (Brown et al., 2006; Mathur et al., 2010), the pattern of data in the current research clearly suggests that intergroup empathy bias in the context of competitive novel groups is driven by out-group antipathy—characterized by both dampened empathy and increased Schadenfreude and Glückschmerz—not extraordinary empathy for the in-group and its members.

## Experiments 3a & 3b: The influence of competitive threat reduction on intergroup empathy bias

The preceding experiments demonstrate that intergroup empathy bias is relatively strong in competitive contexts ( $d_s = 0.31 - 0.79$ ). As such, one of our major aims is to identify potential interventions that reduce the perception of out-group members as threatening.

Intergroup competition for zero-sum resources yields a desire to minimize the competitive threat of the out-group (e.g., via derogation, avoidance, and discrimination; Campbell, 1965; Esses, Dovidio, Jackson, & Armstrong, 2001; Esses, Jackson, & Armstrong, 1998; Jackson, 1993). Indeed, the threat of in-group inferiority may motivate counter-empathic responses: cues to and feelings of relative in-group inferiority predict Schadenfreude when superior out-groups subsequently fail (Leach et al., 2003; Leach & Spears, 2008; 2009). We hypothesized that reducing or eliminating the competitive threat posed by the out-group by providing feedback about the in-group's immediate superiority would increase empathy (and decrease counter-empathy) for out-group targets' experience of competition-irrelevant events. In two extensions of the previous experiments we had participants complete a puzzle challenge, rate half of the scenarios, receive feedback that their team had either pulled ahead in points (Experiment 3a) or won the challenge entirely (Experiment 3b), and then rate the remainder of the scenarios. We expected to replicate the response variable  $\times$  event valence  $\times$  target group interaction, which we observed in the earlier experiments, for the first half of the ratings; we also examined whether outperforming or beating the other team would remove the competitive threat associated with the out-group, facilitating increased empathy and decreased Schadenfreude/Glückschmerz for out-group targets' bad and good fortunes after the feedback.

### Method

**Participants**—We recruited 55 participants between the ages of 18 and 60 online via amazon.com's Mechanical Turk website for each experiment, respectively. Participants received \$2 for their time. Only participants who correctly completed the two manipulation check questions and the catch scenario were included (see Experiment 2), yielding 45 participants (27 female,  $M_{age} = 35.97$ ) in Experiment 3a and 49 participants (33 female,  $M_{age} = 31.91$ ) in Experiment 3b. Online informed consent and experimental procedures complied with the guidelines of the university's Institutional Review Board.

### Experiment design

**Stimuli:** The scenarios in Experiments 3a and 3b were identical to those in Experiment 2, though none of the stories were paired with unaffiliated individuals as we only included in-

group and out-group targets (i.e., 24 stories: 12 paired with in-group and 12 paired with out-group targets). Participants rated 12 scenarios prior to receiving feedback about their teams (3 positive and 3 negative paired with in-group and out-group targets), and 12 scenarios plus one catch story afterwards.

**Procedure:** Participants provided consent, completed the personality items, received a team assignment, and the current scores of each team (see Experiments 1-3). Because we wanted to maintain a competitive task structure we still told participants, “This is a competition between teams: Only one team will be awarded the bonus!” Participants then advanced to the puzzle instructions page: “On the next page you will see a 4 × 4 matrix of letters. This challenge is similar to Boggle: your job is to create as many words as you can find in the tiles! As long as the letter tiles connect in any direction (up/down, left/right, diagonal) you can make a word. Only words that are spelled correctly will be counted. Keep in mind that other members of the Rattlers and Eagles are playing at the same time! If you and a teammate write the same word your team will only receive one point. In other words, your team will only receive a point for each UNIQUE word your team submits. We will show you some of your teammates’ submissions on the right side of the screen so you know which words have already been submitted. Short words that are a part of a longer word will not be counted (for example if you write “cat” and a teammate writes “catch” you will not receive a point for your entry). You will only have one minute to come up with as many words as possible. The counter will tell you how much time you have left. Simply type your words into the textbox that appears below the tiles. Please separate the words with commas.” After they advanced to the puzzle page, participants had one minute to find and record as many words as they could find in the matrix. Afterwards we told participants their time was up and it would take several minutes to update the scores.

Participants then received the cover story for rating the scenarios and rated the first 12 scenarios. *In Experiment 3a* participants received the following update: “As of the last challenge your team has pulled ahead! The updated scores are: [participant's team]: 97, [competing team]: 92. Your team has pulled ahead, but the other team still has time to win this competition. Please rate some more stories while we load the next puzzle.” *In Experiment 3b* participants received the following update: “YOUR TEAM HAS WON THE CHALLENGE! The updated scores are: [participant's team]: 100, [competing team]: 92. Please rate some more stories.” Participants then rated the remaining scenarios.

**Measures:** Self-reported response scales, identification questions, and demographics questions were identical to those in Experiment 1. For Experiment 3a: in-group identification items  $\alpha = .91$ ; out-group identification items  $\alpha = .86$ . For Experiment 3b: in-group identification items  $\alpha = .85$ ; out-group identification items  $\alpha = .83$ .

**Analyses:** The analysis strategy was identical to that described in Experiment 2, except the team factor only included two levels (in-group and out-group) and we included another dummy-coded factor coding whether the ratings were made before or after the updated score feedback.



## Results and Discussion

**Identification and intergroup differentiation scores**—Replicating all previous results, participants reported higher average evaluation/identification with the in-group (Experiment 3a:  $M = .70$ ,  $SD = .22$ ; Experiment 3b:  $M = .71$ ,  $SD = .21$ ) than the out-group (Experiment 3a:  $M = .42$ ,  $SD = .21$ ; Experiment 3b:  $M = .41$ ,  $SD = .22$ ), both  $t_s > 6.7$ ,  $p_s < .001$ ,  $d_s > 0.99$ .

**Predicting how bad/good participants felt**—To be succinct, we report only significant 3-way and 4-way interactions (or the critical absence thereof) for the omnibus tests. Experiment 3a replicated the previous experiments: the 3-way response variable  $\times$  event valence  $\times$  target team interaction,  $F(1,44) = 32.74$ ,  $p < .001$ ,  $f^2_{\text{howbad}} = 0.006$ ,  $f^2_{\text{howgood}} = 0.006$ , was a significant predictor of participants' emotional responses. However, the 4-way interaction including the before/after feedback factor was not significant,  $F(1,44) = 0.03$ ,  $p = .86$ ,  $f^2_{\text{howbad}} = 0.0002$ ,  $f^2_{\text{howgood}} = 0.0002$  (nor were any of the other lower-order interactions including the before-after feedback factor: all  $p_s > .35$ ). Thus, telling participants that their team had pulled ahead did not diminish intergroup empathy bias.

In Experiment 3b, we saw the same pattern of results. The 3-way response variable  $\times$  event valence  $\times$  target team interaction predicted participants' emotional responses,  $F(1,48) = 25.86$ ,  $p < .001$ ,  $f^2_{\text{howbad}} = 0.002$ ,  $f^2_{\text{howgood}} = 0.002$ . Again, neither the 4-way interaction,  $F(1,48) = 0.01$ ,  $p = .92$ ,  $f^2_{\text{howbad}} = 0.0001$ ,  $f^2_{\text{howgood}} = 0.0001$ , nor any of the lower-order interactions, including the before/after feedback factor, were significant (with one exception: the event valence  $\times$  response variable  $\times$  before/after interaction,  $F(1,48) = 8.21$ ,  $p < .01$ ,  $f^2_{\text{howbad}} = 0.0006$ ,  $f^2_{\text{howgood}} = 0.0005$ ), suggesting that winning did not diminish intergroup empathy bias.

In order to verify that the null results for the 4-way interactions were due to participants' reduced empathy for out-group targets both before *and* after receiving feedback about pulling ahead/winning, we report simple effects analyses ratings for in-group relative to out-group targets *following the feedback*. The results of these simple effects analyses for both Experiments 3a and 3b are summarized in Table 3 (see also Fig. 3). Note that in both experiments, participants have significantly greater empathy for the in-group relative to the out-group and significantly greater Schadenfreude for the out-group relative to the in-group even after they have received information signaling the out-group is no longer a threat.

Thus, rather than removing competitive threat, informing participants that their team had pulled ahead in points or won the challenge had virtually no effect on intergroup empathy bias. These null results provide evidence against one previously empirically-validated mediator of intergroup bias (i.e., threat; Esses et al., 2001; Turner et al., 1994). Of course, finding a null result in these studies leaves open the possibility that a different manipulation of perceived threat (and its removal) could reduce intergroup empathy bias. For the current purposes, however, we next turned to a different predicted mediator of intergroup empathy bias: group entitativity.

## Experiment 4: Blurring the Boundaries Between “Us” and “Them”

In Experiment 1 we found that changing the structure of the intergroup relations from competitive to cooperative eliminated intergroup empathy bias. In many real intergroup interactions, it may be difficult to change perceptions of competition between groups if competition is an external reality of the situation. As a first step toward a possible real-world intervention, we sought to intervene on another factor that predicts intergroup bias: group ‘entitativity’. Perceiving the in-group and/or the out-group as more entitative leads to increased intergroup bias and impairs intergroup interactions (Gaertner & Schopler, 1998; Judd & Park, 1988). Despite its centrality in intergroup relations, entitativity has not yet been examined in the context of empathy; we address this gap in the current study.

Two powerful cues to group entitativity are shared traits (e.g., physical traits, Ip et. al., 2006) and shared goals (Hogg, 1992; 1993). Our previous experiments provided both cues by ostensibly assigning group membership based on personality traits, and providing groups with shared goals in the context of the competition. In the current experiment, we hold those cues constant, but attempt to intervene directly on perceptions of group entitativity by providing participants with visual evidence of high or low levels of group distinctiveness. We hypothesize that decreasing perceptions of group entitativity should significantly reduce intergroup empathy bias, even in a competitive context with information about trait-based categorization.

### Method

**Participants**—We recruited 90 participants between the ages of 18 and 60 online via amazon.com's Mechanical Turk website (we needed to increase the number of participants because of the two additional between-subjects factors). Participants received \$2 for their time. Only participants who correctly completed two manipulation check questions and the catch scenario were included (see Experiment 2), yielding an eligible 72 participants (32 female,  $M_{\text{age}} = 27.65$ ). Online informed consent and experimental procedures complied with the guidelines of the university's Institutional Review Board.

### Experiment design

**Stimuli and procedure:** The stimuli in Experiment 4 were identical to those in the competitive condition in Experiment 1. The procedure was also identical except that after participants were assigned to a team we also showed them one of two images that represented their “social network”. We asked participants to wait while the server supposedly built a network of all the current players. After 20 seconds, either a segregated or an integrated social network (see Figure 4) appeared on the screen with the following message: “This is a social network diagram of all the other current players. The red circles represent Rattlers team members and the blue circles represent Eagles team members. This diagram is based on the questions everyone answered prior to being assigned to a team.” The only other change to the current experiment was that the network appeared on each rating page in place of the team logo. We told participants “you will know whether it's a RATTLER or EAGLE team member's story by the circle highlighted in the social network.”

For example, when the event was paired with a Rattler a yellow circle highlighted a particular red node in the network.

**Measures:** Self-reported affect response scales, identification questions, and demographics questions were identical to those in Experiment 1. In-group identification items  $\alpha = .86$ ; Out-group identification items  $\alpha = .87$ .

**Analyses:** The analysis strategy was identical to that described in Experiment 1, except that instead of an intergroup-relations factor we included a level-2 factor coding whether participants were rating events in the context of a segregated or integrated social network.

## Results and Discussion

**Identification and intergroup differentiation scores**—Replicating all previous results, participants reported higher average evaluation/identification with the in-group ( $M = .74$ ,  $SD = .21$ ) than the out-group ( $M = .37$ ,  $SD = .24$ ),  $t(71) = 9.48$ ,  $p < .001$ ,  $d = 1.12$ .

**Predicting how bad/good participants felt**—Table 4 summarizes the type III test of fixed effects (controlling for in-group and out-group identification) predicting how good and how bad participants felt in response to negative and positive scenarios befalling in-group and out-group targets, after being exposed to either a segregated or integrated visual representation of the two teams. All of the main effects and lower order interactions were qualified by the predicted, significant 4-way interaction, indicating that the social network representation manipulation significantly moderated the response variable  $\times$  event valence  $\times$  target team interaction,  $F(1, 67) = 5.96$ ,  $p < .05$ ,  $f^2_{\text{howbad}} = 0.0005$ ,  $f^2_{\text{howgood}} = 0.0005$ .

As in all the preceding experiments, we computed the least squares means from the omnibus models and used them to conduct simple effects comparing the target groups in each response quadrant, in the segregated and integrated conditions, respectively (Figure 5). Participants' responses in the *segregated condition* replicated the results we observed in the previous experiments: empathy was significantly higher for in-group relative to out-group targets for both negative,  $t(70) = -7.60$ ,  $p < .001$ ,  $d = 0.90$ , and positive events,  $t(170) = -7.00$ ,  $p < .001$ ,  $d = 0.83$ , whereas counter-empathy was significantly higher for out-group relative to in-group targets for both Schadenfreude,  $t(70) = 5.46$ ,  $p < .001$ ,  $d = 0.64$ , and Glückschmerz,  $t(70) = 2.79$ ,  $p < .01$ ,  $d = 0.33$ . This pattern of intergroup empathy bias was significantly attenuated in the *integrated condition* (slightly higher empathy for in-group relative to out-group targets for both negative,  $t(70) = -3.66$ ,  $p < .001$ ,  $d = 0.43$ , and positive events,  $t(70) = -5.15$ ,  $p < .001$ ,  $d = 0.61$ ; greater counter-empathy for out-group for both Schadenfreude,  $t(70) = 2.99$ ,  $p < .01$ ,  $d = 0.35$ , and Glückschmerz,  $t(70) = 3.59$ ,  $p < .001$ ,  $d = 0.42$ ).

In summary, providing participants with cues that signaled relatively little entitativity within the two competitive groups reduced intergroup empathy bias (though it did not eliminate it), suggesting that perceptions of the in-group and out-group as divergent entities is a critical mechanism driving intergroup empathy bias. To our knowledge, this is the first experiment showing the relationship between perceptions of intergroup entitativity and empathy.

## General Discussion

In five experiments, we provided initial support for a theory of intergroup empathy that integrates classic and contemporary work on social identity and intergroup relations. We systematically explored the conditions under which people not only fail to empathize with out-group members, but also feel pleasure in response to their pain (and pain in response to their pleasure). Specifically, we manipulated functional relations between novel groups to determine how group membership and competition alters participants' empathy toward in-group and out-group members experiencing good and bad fortunes, and examined which group features reduce intergroup empathy bias. In competitive contexts, participants reported experiencing more empathy for in-group than out-group targets and more counter-empathy for out-group than in-group targets. A control experiment demonstrated that participants did not exhibit an intergroup bias in their perceptions of how targets feel in response to positive and negative events, rendering an explanation based on demand characteristics somewhat less likely. In Experiment 2, unaffiliated targets received empathic responses similar to in-group targets, demonstrating that intergroup empathy bias in competitive contexts is better characterized as *out-group apathy/antipathy* than extraordinary in-group empathy. Experiments 3a and 3b illustrated that these effects are not fully explained by the current competitive threat posed by the out-group: intergroup empathy bias persisted even after out-group competitive threat was decreased or eliminated. Experiment 4 established that intergroup empathy bias is moderated by *entitativity* and can thus be attenuated by providing participants with visual cues to reduced in-group and out-group distinctiveness.

The current experiments support our claim that intergroup empathy bias is robust among novel groups, and that changing the relational structures between groups and perceptions of group entitativity can significantly moderate intergroup empathy bias. These results illustrate the fluid nature of this phenomenon: groups need not have a long history of interaction to elicit malevolent affective reactions, but it may be possible to change these reactions with seemingly unobtrusive interventions. Furthermore, examining the effects of functional relations and group features, rather than particular social groups, should allow us to generalize our findings to other intergroup scenarios. However, this is an empirical challenge for future research.

One notable finding looking across both Experiments 1 and 2 is that participants were more empathic towards unaffiliated individuals in Experiment 2, who received responses comparable to in-group targets, than "independent" out-group members, who were targets of intergroup empathy bias in Experiment 1 (though not to the same extent as "competitive" out-group members). We do not believe this is because participants represented unaffiliated targets as in-group members; we explicitly told participants that unaffiliated individuals did not fit the profile of either an Eagle or a Rattler in order to control for these attributions. One plausible and interesting possibility is that unaffiliated individuals benefit from the interindividual-intergroup discontinuity effect. People trust groups less than individuals and expect interactions with groups to be more hostile than person-to-person interactions (Insko & Schopler, 1998). People also act less cooperatively toward groups than they do toward individuals (Insko, Wildschut, & Cohen, 2013) and behave more aggressively in intergroup

as compared to interpersonal interactions, holding all other factors constant (Meier & Heinz, 2004). Unaffiliated targets may be represented as an aggregate of *individuals*, which may give them a significant advantage over a cohesive out-group, even when that out-group is not overtly competitive. That is, instead of seeing unaffiliated targets as in-group members, we suggest that participants are seeing unaffiliated targets as individuals.

Another notable finding is that in Experiments 3a and 3b, improving in-group standing in the competition did not attenuate intergroup empathy bias. These failed interventions—but replications of the general phenomenon—reinforce the robustness of the bias. Despite participants' flexibility in deploying empathic responses to in-group targets in Experiment 1, Experiments 3a and 3b suggest that once group membership is made salient in a competitive context, intergroup empathy bias can become resistant to changes in relative group standing. These results are in tension with previous empirical validations of competitive threat as a mediator of intergroup bias. One possible interpretation is that increasing participants' groups' standing relative to their competitors also increased participants' subjective feelings of power, which in turn increased the salience of their goals (i.e., to win; Guinote, 2007) and reduced their tendency to empathize (e.g., Galinsky, Magee, Inesi, & Gruenfeld, 2006, but see Handgraaf, Van Dijk, Vermunt, Wilke, & De Dreu, 2008). On the other hand, it is possible that the out-group in the current experiment was still experienced as threatening, even after the in-group won the competition. Future experiments should investigate, for example, whether allowing teams to end in a tie or giving participants more time to process the out-group's defeat might decrease the bias, or in a more ominous interpretation of the result, why defeating the out-group galvanizes the intergroup empathy bias (Maitner et al., 2007).

The findings of Experiment 4 are encouraging to the extent that they suggest a novel means by which to reduce intergroup empathy bias. However, there remain multiple possible interpretations of the mechanism by which the network manipulation had its effect. Specifically, we did not assess participants' subjective representations of the groups and their members and thus, cannot determine whether the network diagrams provoked personalization, de-categorization, or re-categorization of the out-group (or some combination of these effects; Gaertner et al., 1999). We are fairly confident we can rule out the possibility that participants simply lost track of group membership. First, the network condition did not affect in-group and out-group identification ratings. Even participants in the integrated condition identified to a significantly greater extent with the in-group relative to the out-group, suggesting their cognitive representation of the groups remained separate. Second, only 3 out of 41 participants in the integrated condition (versus 5 out of 39 in the segregated condition) were excluded for marking the incorrect teams in the manipulation check questions, indicating that the integrated representation did not make participants more likely to lose track of their group membership. Finally, the individuating effect of highlighting a single node on each empathy judgment trial was held constant across both network conditions. Future experiments should replicate these findings and assess whether and to what extent participants' subjective cognitive representations of the groups change over the course of the task.

Looking across all five experiments, our effects were highly replicable for both the empathy and counter-empathy measures. Our findings highlight the importance of using separate (as opposed to bipolar) scales to capture intergroup empathy bias, but also raise an interesting conceptual point for future research: intergroup empathy bias is characterized by the experience of ambivalent emotions (e.g., feeling somewhat negative, but simultaneously quite positive) rather than just the absence of positive emotion in response to an out-group members' misfortunes. We also observed intergroup empathy bias for both negative and positive events. Where previous experiments have found that discrimination predicted by in-group favoritism is absent when participants have to dole out differential allocations of negative resources such as costs or burdens (as compared to positive resources, such as money or points), this asymmetry disappears when group membership is highly salient (Mummendey et al., 2001). We did not observe this asymmetry, perhaps because participants were passive observers, and not responsible for targets' positive and negative experiences.

A few limitations of the current studies merit further discussion. First, in order to provide convergent evidence for our framework, future research needs to replicate these intergroup empathy bias findings in real social groups and measure perceived competition, threat, and entitativity to determine whether these factors exert the same influence when other differences between groups are allowed to vary naturally. Second, future studies should examine if and how these results change when participants are prompted with specific emotion dependent variables (i.e., "how much empathy/Schadenfreude/Glückschmerz do you feel for this target?"). Finally, future research should also assess whether our findings would replicate when empathy and counter-empathic responses are indexed by physiological (i.e., facial EMG, fMRI; see Cikara & Fiske, 2012; Carr, Winkielman, & Oveis, 2014) or implicit measures (e.g., affective misattribution paradigm). This will not only add to our understanding about the underlying processes, but it will help develop an integrative theory of intergroup empathy that operates at multiple levels of analysis and incorporates insights from investigators in many adjacent fields.

## Conclusion

The current paper provides support for an integrative framework of intergroup empathy. We find that self-categorization and competition not only dampen empathy, but also engender counter-empathic responding (i.e., Schadenfreude, Glückschmerz) towards out-group members. Moreover, our results suggest that intergroup empathy bias in competitive contexts is driven by out-group antipathy rather than extraordinary in-group empathy. Among novel groups, this bias is strong and stable, remaining even when one's group pulls ahead or wins a competition. These findings matter because a lack of empathy may allow individuals to turn a blind eye towards others' suffering, and more importantly, feeling pleasure in response to out-group members' misfortunes may motivate individuals to inflict, support, or condone further harm. Better understanding these dynamics may help us develop more effective interventions targeting consequential outcomes: increased hostility, conflict escalation, and harm for harm's sake. It is important to reiterate, however, that the intergroup landscape is not unilaterally bleak; group membership alone is not sufficient to elicit intergroup empathy bias. When group members are engaged in a cooperative task with an

out-group or receive cues that diminish perceptions of group entitativity in a competitive context, intergroup empathy bias is significantly diminished. Better understanding how to change malevolent affective reactions with small, unobtrusive interventions in a controlled group setting may give us insights into intervention design for real-world intergroup conflicts.

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## Appendix

### Appendix

<u>Negative Events</u>	<u>Positive Events</u>
Lydia missed the bus, which left right as she arrived at the station.	Luke has a tree in the front yard that suddenly blooms in the spring even though he thought it was dead.
George stubbed his toe.	Ted found a sentimental possession he thought he had lost.
Katie got mud all over her clothes when a stranger's dog jumps on her at the park.	Monica was home alone without plans when a friend called and invited her to a fancy party.
Carol went to her favorite restaurant and learned it no longer serves her favorite dish.	Jane managed to get indoors before it started pouring rain.
Joe's soda can sprayed all over him when he opened it.	Kerri caught the bus because it got stuck at a red light.
Laura lost \$5.	Bill found a \$5 bill on the street.
Andrew sat in gum on a park bench.	Kurt happened upon a free concert in the park.
Melanie stepped in dog poo.	Kirsten found money in the coin return slot of a phone.
Mike got caught in traffic and missed the first 30 minutes of a movie he already paid for.	Jack won a bet.
Diana had a stomachache after her lunch.	Jeremy won a free meal at a raffle.
Bryan got soaked by a taxi driving through a puddle.	Sarah caught 6 green lights in a row driving to work.
Brandon accidentally walked into a glass door.	Liane ate a really good sandwich.

*Control Experiment A.* The results of Experiment 1 raised the question: would participants differentiate in-group from out-group across any measure? To address this question, we ran another version of Experiment 1 ( $N = 57$ ) in which we changed the dependent variables from “how bad/good does this make *you* feel?” to “how bad/good do you think this makes [*target's name*] feel?” As expected, the main effect of event valence in the omnibus models was significant,  $F(1,56) = 12.16, p < .01$ . On the other hand, the critical 3-way interaction was not significant,  $F(1,56) = 0.04, ns$ , and follow up analyses confirmed that none of the in-group slopes were significantly different from the out-group slopes for congruent or incongruent affect. The results of this control experiment suggest that the results observed in Experiment 1 are not merely a byproduct of intergroup differentiation. This study also addresses the possibility that people empathize less with out-group members because they perceive events that happen to the out-group differently (Miron & Branscombe, 2010).





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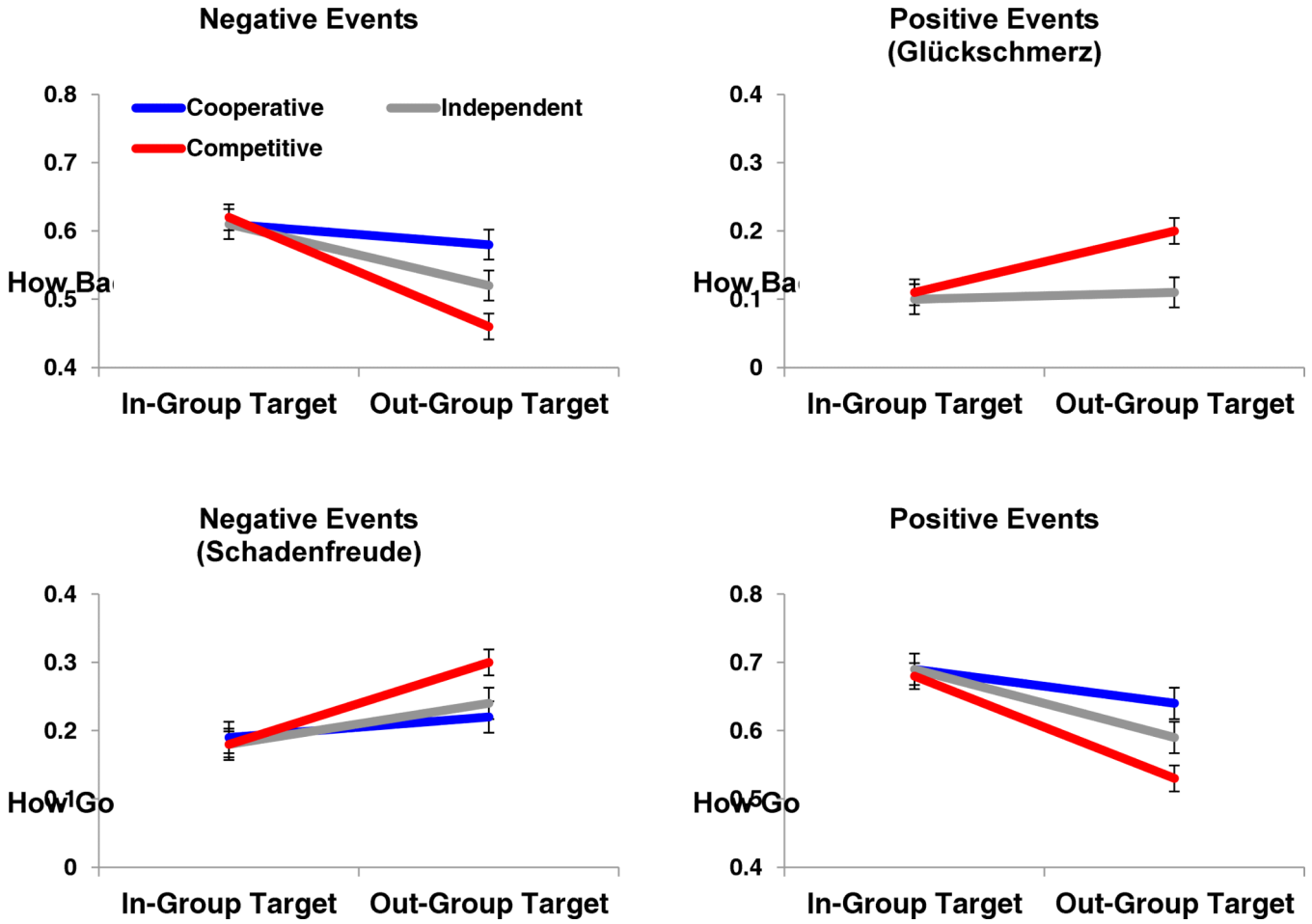
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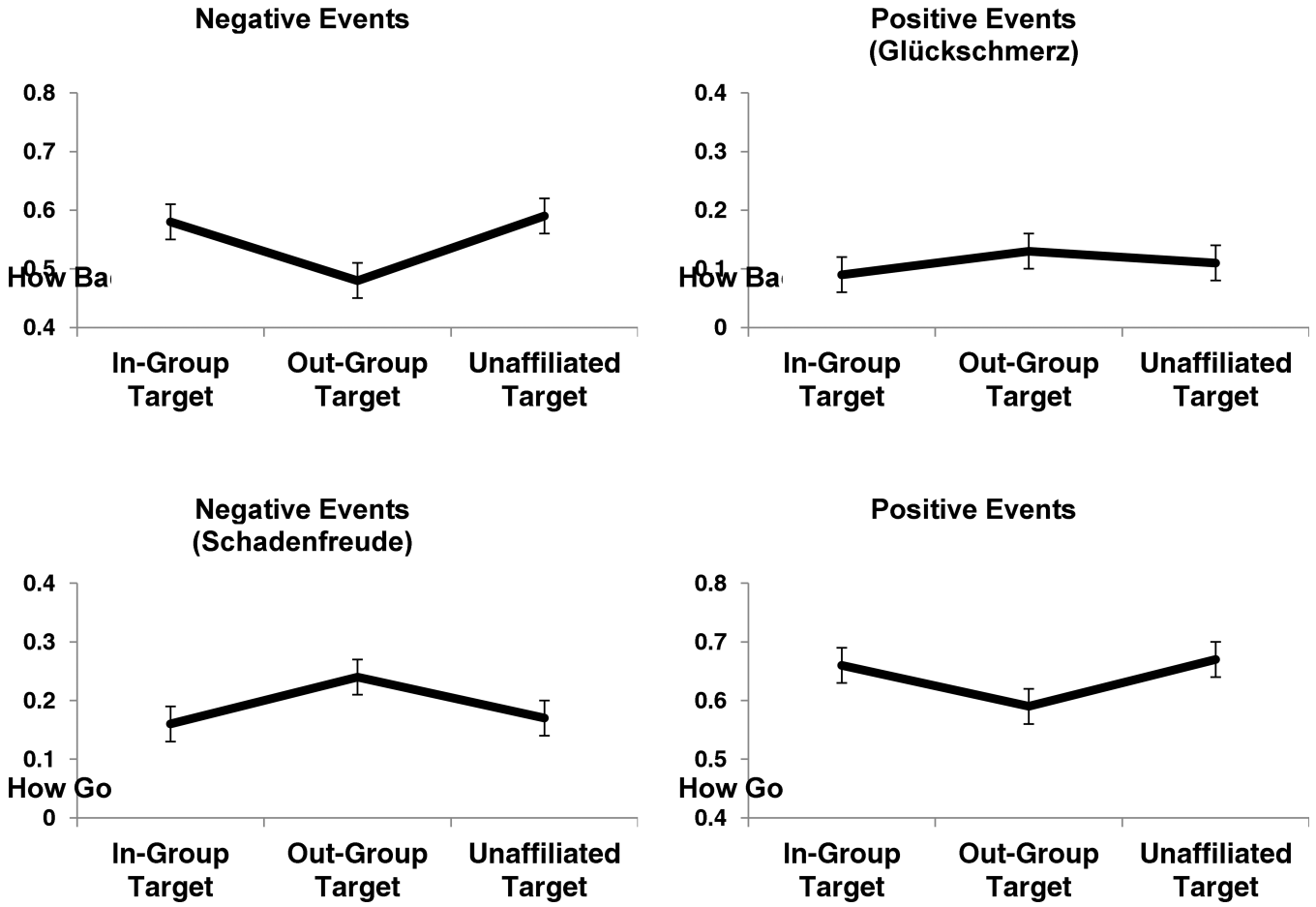
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### Research Highlights

- Competitive intergroup contexts generate an intergroup empathy bias
- People exhibit more empathy for in-group and counter-empathy for out-group targets
- Empathy bias is driven by out-group antipathy, not extraordinary in-group empathy
- Empathy bias persists after one's in-group has defeated their out-group competitors
- Empathy bias is attenuated by cues that indicate reduced group entitativity

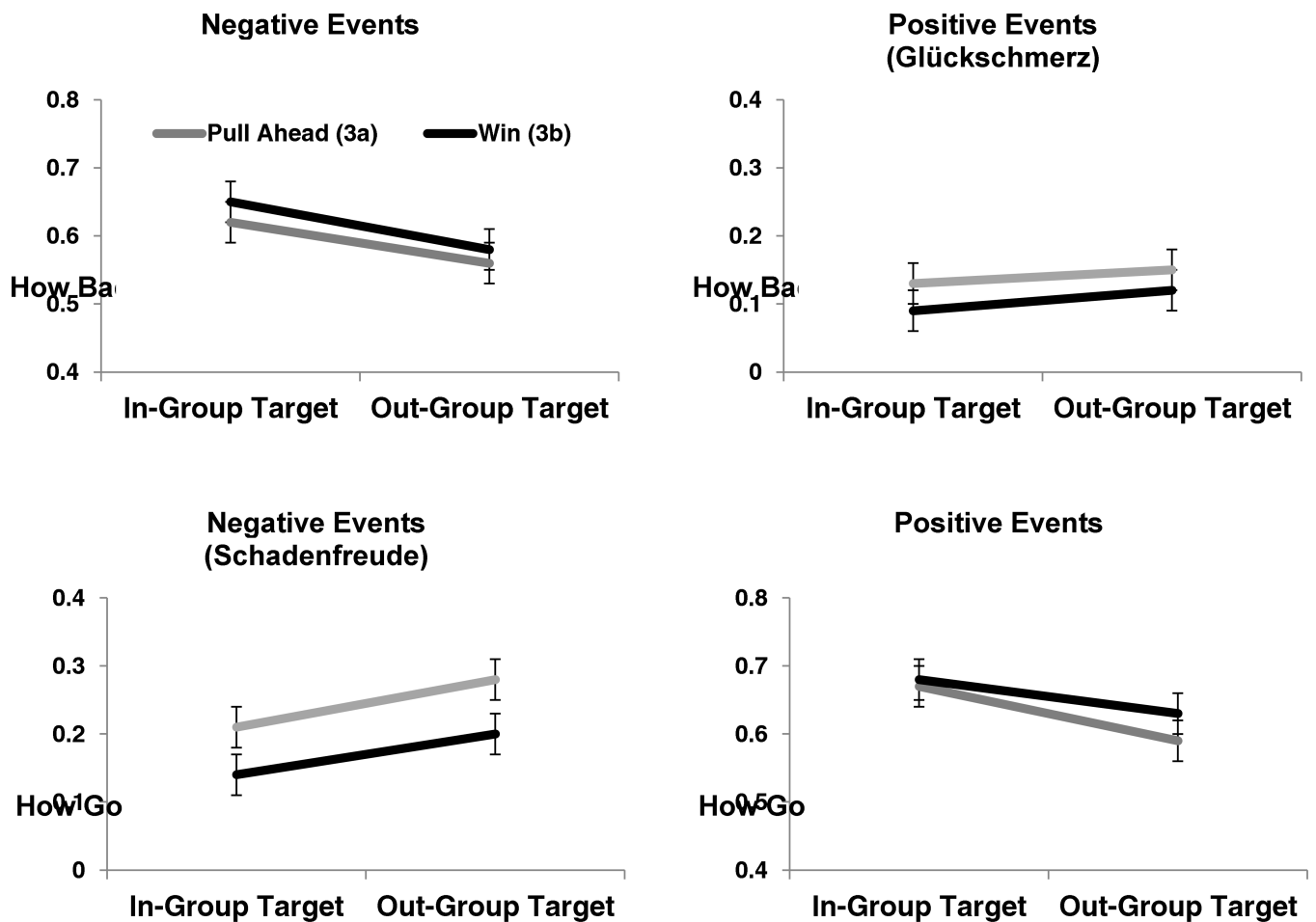


**Figure 1.** Empathy for negative and positive events, Glückschmerz, and Schadenfreude as a function of event valence (positive/negative) and target group (in-group/out-group), in cooperative, independent, or competitive intergroup context (Experiment 1). Plotted values are least squares mean estimates and standard errors computed from the omnibus model.

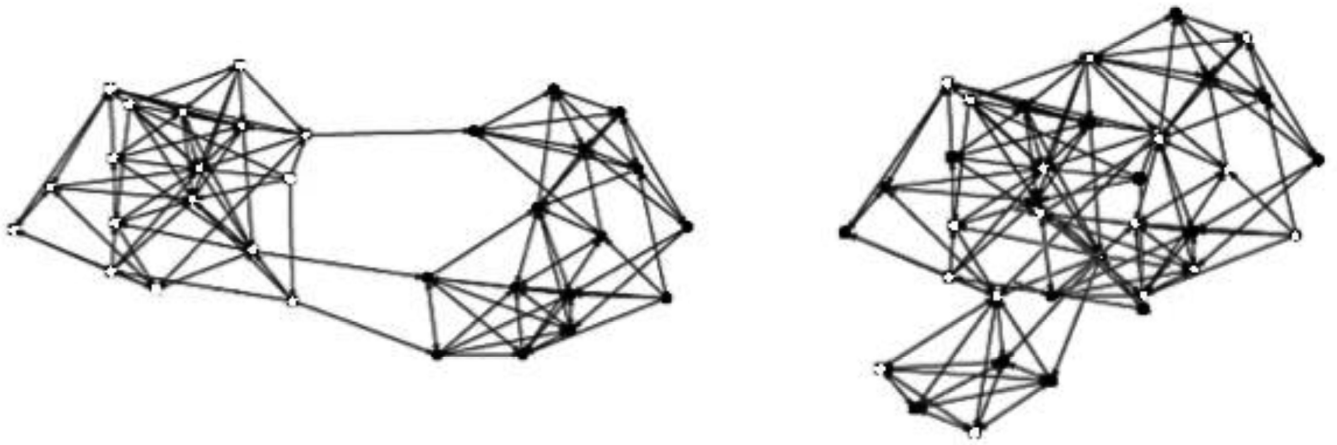


**Figure 2.** Empathy for negative and positive events, Glückschmerz, and Schadenfreude as a function of event valence (positive/negative) and target group (in-group/out-group/unaffiliated targets; Experiment 2). Plotted values are least squares mean estimates and standard errors computed from the omnibus model.

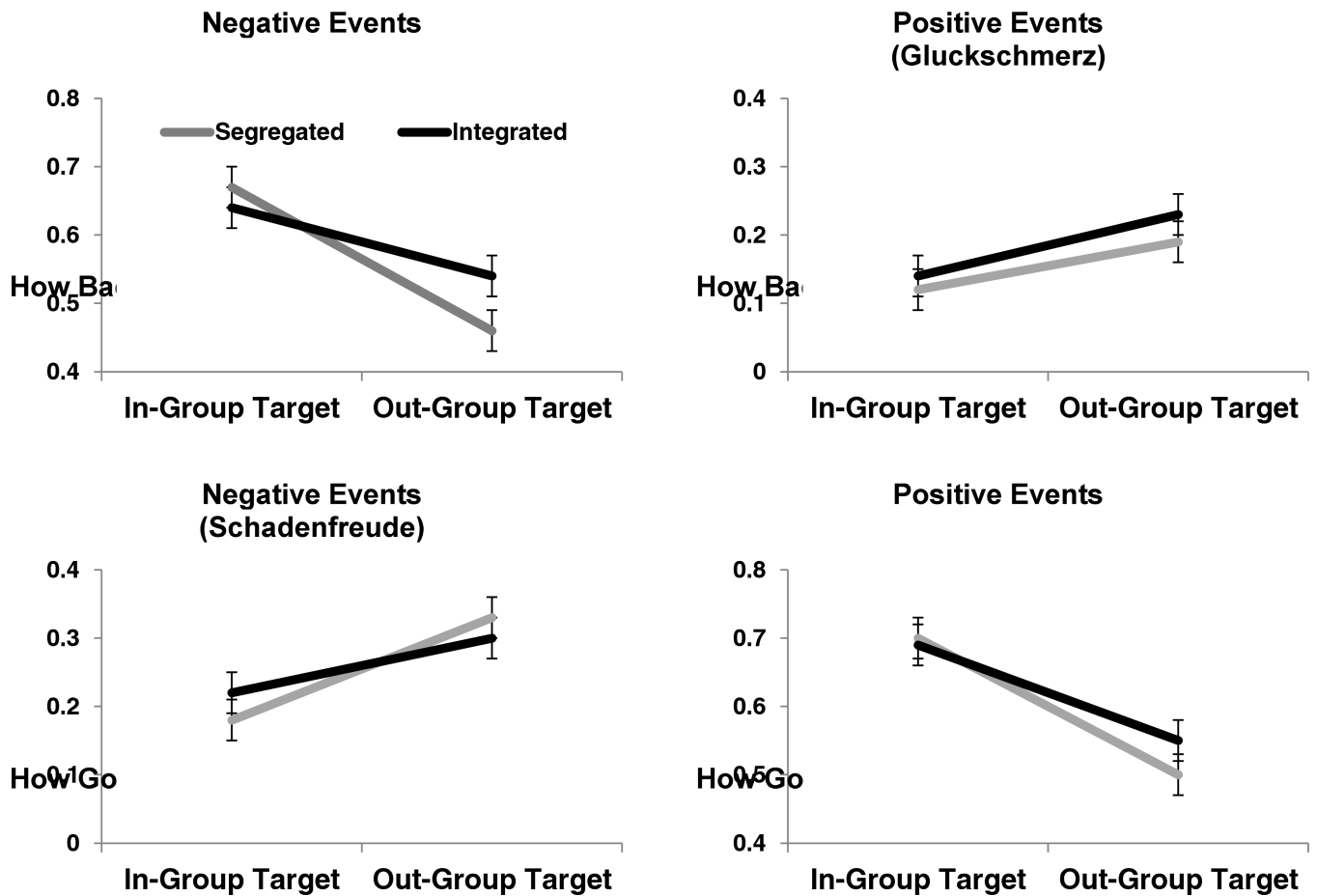




**Figure 3.** Empathy for negative and positive events, Glückschmerz, and Schadenfreude as a function of event valence (positive/negative) and target group (in-group/out-group), after receiving feedback that their team pulled ahead (Experiment 3a, in grey) or won (Experiment 3b, in black). Plotted values are least squares mean estimates and standard errors computed from the omnibus model.



**Figure 4.** Representations of segregated (high entitativity, left), and integrated (low entitativity, right) social networks. Note: red and blue nodes appearing in the study are replaced here by white and black nodes for publication purposes. (Experiment 4)



**Figure 5.** Empathy for negative and positive events, Glückschmerz, and Schadenfreude as a function of event valence (positive/negative), target group (in-group/out-group), and social network representation (segregated/integrated; Experiment 4). Plotted values are least squares mean estimates and standard errors computed from the omnibus model.

**Table 1**

Type 3 Fixed Effects of Response Variable, Event Valence, Target Team, and Functional Relations Manipulation Predicting Empathic and Counter-empathic Responses (Experiment 1)

Effect	Num DF	Den DF	F Value	Pr > F
Functional Relations (FR)	2	196	0.52	0.5966
Event Valence (EV)	1	199	13.55	0.0003
FR × EV	2	199	0.03	0.9696
Target Group (TG)	1	199	40.99	<.0001
FR × TG	2	199	2.22	0.1113
EV × TG	1	199	12.96	0.0004
FR × EV × TG	2	199	0.59	0.5538
Response Variable (RV)	1	199	18.73	<.0001
FR × RV	2	199	0.08	0.9216
EV × RV	1	199	5294.55	<.0001
FR × EV × RV	2	199	27.55	<.0001
TG × RV	1	199	2.07	0.1515
FR × TG × RV	2	199	0.64	0.5268
EV × TG × RV	1	199	160.46	<.0001
<b>FR × EV × TG × RV</b>	<b>2</b>	<b>199</b>	<b>26.59</b>	<b>&lt;.0001</b>

Note.  $n = 202$ .

**Table 2**

Type 3 Fixed Effects of Response Variable, Event Valence, and Target Team, Predicting Empathic and Counter-empathic Responses (Experiment 2)

Effect	Num DF	Den DF	F Value	Pr > F
Event Valence (EV)	1	47	0.04	0.8509
Target Group (TG)	2	94	6.84	0.0017
EV × TG	2	94	0.14	0.8710
Response Variable (RV)	1	47	3.76	0.0585
EV × RV	1	47	1910.84	<.0001
TG × RV	2	94	1.36	0.2621
<b>EV × TG × RV</b>	<b>2</b>	<b>94</b>	<b>20.43</b>	<b>&lt;.0001</b>

Note.  $n = 48$ .

**Table 3**

Simple Effects Analyses Comparing Least Squares Means for In-group and Out-group Targets Following Relative Standing Feedback (Experiments 3a & 3b)

	<u>Experiment 3a</u>			<u>Experiment 3b</u>		
	<b>Diff Est. (SE)</b>	<b>t-Value</b>	<b><i>d</i></b>	<b>Diff Est. (SE)</b>	<b>t-Value</b>	<b><i>d</i></b>
Response:						
Empathy for negative events	-.06 (.02)	-2.39 *	0.36	-.07 (.03)	-2.77 **	0.40
Empathy for positive events	-.08 (.02)	-3.54 ***	0.53	-.06 (.03)	-2.20 *	0.31
Schadenfreude	.06 (.02)	2.45 *	0.37	.07 (.03)	2.61 *	0.37
Glückschmerz	.02 (.02)	0.94	0.14	.03 (.03)	1.23	0.18

Note. Experiment 3a,  $n = 45$ ; Experiment 3b,  $n = 49$ .

SE = standard error.

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$ .

**Table 4**

Type 3 Fixed Effects of Response Variable, Event Valence, Target Team, and Social Network Manipulation Predicting Empathic and Counter-empathic Responses (Experiment 4)

Effect	Num DF	Den DF	F Value	Pr > F
Social Network (SN)	1	70	1.51	0.2230
Event Valence (EV)	1	70	19.14	<.0001
SN × EV	1	70	0.71	0.4036
Target Group (TG)	1	70	19.85	<.0001
SN × TG	1	70	4.72	0.0332
EV × TG	1	70	4.13	0.0460
SN × EV × TG	1	70	0.58	0.4470
Response Variable (RV)	1	70	4.02	0.0489
SN × RV	1	70	0.04	0.8482
EV × RV	1	70	1029.32	<.0001
SN × EV × RV	1	70	0.01	0.9369
TG × RV	1	70	0.10	0.7510
SN × TG × RV	1	70	2.29	0.1348
EV × TG × RV	1	70	121.21	<.0001
<b>SN × EV × TG × RV</b>	<b>1</b>	<b>70</b>	<b>5.96</b>	<b>0.0172</b>

Note.  $n = 72$ .