Preference for hierarchy is associated with reduced empathy and increased counter-empathy towards others, especially out-group targets[☆],[☆☆]

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ABSTRACT

The capacity to empathize with others facilitates prosocial behavior. People's willingness and capacity to empathize, however, is often contingent upon the target's group membership – people are less empathic towards those they categorize as out-group members. In competitive or threatening intergroup contexts, people may even feel pleasure (counter-empathy) in response to out-group members' misfortunes. Social dominance orientation (SDO), or the extent to which people prefer and promote group-based inequalities, is an ideological variable that is associated with a competitive view of the world, increased prejudicial attitudes, and decreased empathy. Thus, higher levels of SDO should be associated with reduced empathy and increased counter-empathy in general, but especially towards those whose subjugation maintains group inequalities. Across three studies we show that among White individuals, higher SDO levels are associated with less empathy, and more counter-empathy in response to others' good and bad fortunes. More importantly, these reductions in empathy and increases in schadenfreude as a function of SDO were significantly stronger for Asian and Black targets than for in-group White targets when group boundaries were made salient prior to the empathy ratings. Finally, in a fourth study we show that this phenomenon is not dependent upon a history of status differences: higher SDO scores were associated with decreased empathy and increased counter-empathy for competitive out-group (relative to in-group) targets in a novel group setting. We discuss implications of these effects for hierarchy maintenance.

1. Introduction

Adults, children, and even rats engage in costly helping (Bartal, Decety, & Mason, 2011; Batson, 2011). This capacity for altruism is driven by a wide variety of factors, but one well-studied, intuitive driver of helping is empathy. Of course, just because people *can* empathize does not mean they always do. One widespread boundary condition on the experience of empathy is when people interact with out-group members, especially those that are threatening to the in-group's standing (Cikara, Bruneau, & Saxe, 2011). Yet another (relatively under-explored) boundary condition on empathy is an individuals' tendency to see the social world composed of hierarchies in which groups at the bottom are clamoring to increase their status and

groups at the top are fighting to maintain their advantage (Ho et al., 2015). Here we test how individuals' preference for hierarchy interacts with target group membership and functional relations between groups to predict to what extent people feel empathy (and its opposite, counter-empathy) in response to others' (mis)fortunes.

1.1. Social dominance orientation

Social dominance theory (SDT) offers an explanation as to why hierarchies emerge and remain remarkably stable in human societies (Sidanius, Cotterill, Sheehy-Skeffington, Kteily, & Carvacho, 2017; Sidanius & Pratto, 1999). A key ideological variable in the SDT framework is social dominance orientation (SDO), which measures the

extent to which people accept and promote group-based inequality (Ho et al., 2015). People with relatively higher levels of SDO – referred to as social dominants[1] henceforth – care about maintaining the current social hierarchy and believe that some social groups should be at the top of the hierarchy and others at the bottom. Social dominants are also likely to endorse a wide range of hierarchy-enhancing attitudes, behaviors, and social policies, from xenophobia, sexism, and generalized prejudice (Pratto, Sidanius, Stallworth, & Malle, 1994; Sibley, Wilson, & Duckitt, 2007; Thomsen et al., 2010) to support for anti-immigration policies as well as the withholding of charitable support to ethnic minorities (Freeman, Aquino, & McFerran, 2009; Lindén, Björklund, & Bäckström, 2016; Thomsen, Green, & Sidanius, 2008).

Despite the wealth of research on the attitudinal and behavioral implications of being a social dominant, there is relatively little work concerning the relationship between social dominance and emotion (see Ratcliff, Bernstein, Cundiff, & Vescio, 2012 for an exception). Emotions are powerful motivators of intergroup attitudes and behaviors (Cuddy, Fiske, & Glick, 2008; Mackie, Devos, & Smith, 2000) and likely play a role in explaining why social dominants tend to be prejudiced towards out-groups and low status groups (Miller, Smith, & Mackie, 2004; Van Hiel & Kossowska, 2006). Empathy, in particular, has been highlighted as an important emotion in intergroup conflict and resolution (Cikara et al., 2011; Halpern & Weinstein, 2004). Just as political ideology is associated with motivation to empathize and a tendency to feel distress over others' suffering (Feldman, Huddy, Wronski, & Lown, 2015; Hasson, Tamir, Brahms, Cohrs, & Halperin, 2018; Jost, Badaan, Goudarzi, Hoffarth, & Mogami, 2019; Jost & Hunyady, 2003; Pliskin, Halperin, Bar-Tal, & Sheppes, 2018) so should it be the case with SDO.

1.2. Relationships between SDO, empathy, and counter-empathy

There are many definitions of empathy (Batson, 2009). Here we define empathy as the congruent emotional reaction a person feels in response to the assumed emotional state of others (Cikara, Bruneau, Van Bavel, & Saxe, 2014). Adopting this definition, empathy can be positive or negative (Table 1); empathy is not only how bad people feel when *negative* events befall others (i.e., negative empathy), but also how good they feel when others experience *positive* events (i.e., positive empathy; Cikara et al., 2014; Morelli, Lieberman, & Zaki, 2015). When a person has an emotional reaction that is *incongruent* with (and often opposite of) the assumed emotional state of another, they are feeling *counter*-empathy. This includes *schadenfreude*, or feeling pleasure at another person's pain, and *gluckschmerz*, or feeling pain at another person's pleasure (Table 1).

Schadenfreude in particular is a hostile emotion, and often directed at competitive or threatening out-group targets such as rival sports teams or political groups (Leach, Spears, Branscombe, & Doosje, 2003; Ouwerkerk, van Dijk, Vonkeman, & Spears, 2018), novel but competitive groups (Cikara et al., 2014), as well as targets who are merely stereotyped as competent and cold (Cikara & Fiske, 2013). Furthermore, emotions like schadenfreude are likely better predictors of group-based aggression and conflict than the absence of empathy alone (Cikara, 2015; Leach & Spears, 2008; Vachon, Lynam, & Johnson, 2014), underscoring the importance of investigating empathy and counter-empathy simultaneously in intergroup relations.

A survey of the current work on SDO and empathy indicates that social dominants tend to have lower trait empathy scores, or reduced tendencies to take other's perspectives and experience empathic

concern (Davis, 1983). For example, in two longitudinal studies with nearly 5000 participants, SDO at time 1 negatively predicted individual differences in empathic concern at time 2, controlling for SDO levels at time 2 (Sidanius et al., 2013). In other studies using structural equation modeling, trait empathy and SDO were negatively correlated, $r = -0.49$ (Bäckström & Björklund, 2007). A composite measure of perspective-taking and empathic concern also mediated the relationship between SDO and sexism, implying that the role that SDO plays in maintaining patriarchy is accounted for, in part, by a reduced ability to understand the emotional states of others (Nicol & Rounding, 2013). We know of only one experiment that examined *state* empathic concern and SDO. In response to people portrayed in neutral or painful scenes, participants' level of SDO was negatively associated with (negative) empathy for the target in the scene. SDO was also negatively associated with the differences in activation between the neutral and painful scenes in the left anterior insula and anterior cingulate cortices, both of which are implicated in the subjective experience of empathy (Chiao, Mathur, Harada, & Lipke, 2009).

Although this literature illustrates a clear negative relationship between SDO and trait empathy, almost no work to date has examined how SDO modulates affective state empathy—the immediate affective response felt for a specific target in a specific context—regardless of one's overall tendency to feel, or not feel, empathy (for differentiation between trait and state empathy in intergroup settings see Bruneau, Cikara, & Saxe, 2017). There is also no work on SDO's relationship with counter-empathy in general, let alone as a function of intergroup relations. Incorporating group dynamics into research on SDO and empathy is particularly important because group processes impact outcomes related to both SDO and empathy. In the latter case, individuals tend to be biased in their experiences of empathy, feeling less empathy and more counter-empathy in response to competitive or threatening out-group members' experiences relative to in-group members' experiences (Cikara et al., 2011; Han, 2018).[2]

This *intergroup empathy bias has* implications for both the willingness and capacity to engage with out-group members. For example, people reported reduced empathy in response to a person's distress if the person was not from their university (Tarrant, Dazeley, & Cottom, 2009), political group (Pliskin et al., 2018; Porat, Halperin, & Tamir, 2016), or country (Bruneau et al., 2017), and this led them to be less willing to help those in need. These biases even appear with novel groups: people who were randomly assigned to competitive teams showed more empathy and less counter-empathy towards their in-group than the out-group (Cikara et al., 2014).

With its focus on societal forces that shape both anti-egalitarian and pro-dominance motives, SDT is well suited to predict when (counter-) empathy is modulated by group dynamics (Sidanius & Pratto, 1999). Specifically, SDT explicitly incorporates competition as an inherent property of hierarchies, modeling when and how out-group aggression and hostility will arise. When individuals care about maintaining a current hierarchy where some people are at the top and others at the bottom, feeling reduced empathy and increased counter-empathy in general, but specifically towards out-group targets, should facilitate hierarchy-maintenance. Reduced empathy creates separation between

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[1] We are using the term social dominants to refer to people with *relatively* higher levels of SDO. We are not referencing any particular point on the scale as a threshold for designating someone a social dominant. Given that the mean SDO score in a given sample is usually below the midpoint of the scale, the use of the term "social dominant" is admittedly a misnomer.

[2] There is still an open question as to whether intergroup empathy bias is a broad and stable phenomenon (and thus might be better termed as *trait* intergroup empathy or trait parochialism) or context-dependent (i.e. *state* intergroup empathy). There is evidence for both formulations. For example, liberals and conservatives report feeling less empathy for political out-group in general, without referencing a particular target or event (Hasson et al., 2018). This suggests that individuals might be predisposed to feel reduced empathy towards out-group targets in general. However, other work shows that the intergroup empathy gap is modulated by the context. For example, intergroup empathy gaps emerge when groups are competing but not when they're cooperating (Cikara et al., 2014). We reserve this discussion for future research, but acknowledge the importance of the distinction.

Table 1
Matrix of perceiver emotional feelings in response to the emotional feelings of an experiencer. Positive and negative empathy are the two kinds of empathy, while schadenfreude and gluckschmerz are the two kinds of counter-empathy.

	Experiencer's emotion: positive	Experiencer's emotion: negative
Perceiver's emotion: positive	Positive Empathy	Schadenfreude
Perceiver's emotion: negative	Gluckschmerz	Negative Empathy

the self and others who might be suffering under the current social hierarchy[3] (Nicol & Rounding, 2013), while increased counter-empathy makes the current social hierarchy more enjoyable to reinforce.

Support for SDO's positive relationship with counter-empathy is augmented by the fact that feeling schadenfreude is often triggered within contexts of zero-sum intergroup competition (Cikara & Fiske, 2013; Hoogland et al., 2015; Leach & Spears, 2008), and that SDO reflects a competitive view of the world (Duckitt & Sibley, 2010). Furthermore, social dominants are willing to incur costs to the in-group in order to make the out-group suffer to a greater degree (Sidanius, Haley, Molina, & Pratto, 2007) and also favor policies that are designed to actively harm out-groups (Lindén et al., 2016). These findings suggest that social dominants might be more prone to feeling malicious emotions like spite and schadenfreude towards members of out-groups.

1.3. Overview of studies and hypotheses

In sum, past work investigating the relationship between SDO and empathy has primarily focused on examining trait empathy rather than state empathy (i.e., how good or bad people feel in response to particular individuals' experiences). Furthermore, there has been no work of which we are aware examining SDO and empathy in an explicitly intergroup context nor the relationship between SDO and counter-empathic emotions in any context.

Across four studies we address this gap in the literature. Study 1 examines the moderating role of SDO on empathic and counter-empathic responses to racial in-group and out-group members without explicitly referencing group dynamics while studies 2a and 2b test whether SDO's moderation of empathy and counter-empathy depends on the salience of group boundaries and intergroup threat. Specifically, in Study 2a, we highlight participants' own race identity, creating a situation where group-related cognitions are activated in a relatively non-threatening manner. In Study 2b we instead highlight the competitive nature of group relations, creating a situation where participants are not only reminded of group boundaries but also out-group threat. Finally, Study 3 tests the generalizability of our findings by moving into the realm of novel groups – which are divorced from stereotypes, familiarity, and historical context. We tested whether SDO predicts decreased empathy and increased counter-empathy towards all targets, but especially out-group members. We additionally manipulated functional relations between the groups to test whether a competitive lens is necessary to show group-based differences in (counter-) empathy. In these studies, we report all measures, manipulations and exclusions.

2. Study 1: SDO decreases empathic and increases counter-empathic responding towards others

The goal for Study 1 was to investigate the relationship between SDO and empathy/counter-empathy in response to in-group and out-

group (mis)fortunes. We presented monoracial White participants with targets that varied by race (i.e. White, Black, and Asian) and solicited their empathic and counter-empathic responses about negative and positive events that happened to those targets. At the end of the study we measured their SDO levels. We chose to use racial groups for these first studies because of the substantial body of work on empathy and SDO in the realm of race-based conflicts. SDO has been shown to moderate levels of prejudice towards ethnic minorities (Hiel & Mervielde, 2005) and empathy gaps between Blacks and Whites have been replicated numerous times (Chiao & Mathur, 2010; Han, 2018).

Furthermore, using racial groups allowed us to test additional predictions regarding schadenfreude. Schadenfreude most often targets individuals and groups that are envied (van Dijk, Ouwerkerk, Smith, & Cikara, 2015). The stereotype content model (Fiske, Cuddy, Glick, & Xu, 2002) predicts that groups that are perceived as competent but cold—for example, Asian-Americans—are most likely to be targets of envious prejudice (Cikara & Fiske, 2012; Lin, Kwan, Cheung, & Fiske, 2005). Thus, we expected that Asians would be especially likely to elicit feelings of schadenfreude relative to White and Black targets.

2.1. Methods

2.1.1. Participants

We recruited 200 participants from Amazon Mechanical Turk (MTurk; Buhrmester, Kwang, & Gosling, 2011; Paolacci & Chandler, 2014) and compensated them 65 cents for their time. We excluded non-monoracial White participants from the data analysis as well as those who failed the attention check in the state empathy task described below, leaving 140 participants (75 self-identified women, $M_{age} = 42.01$, $SD = 14.30$). We determined our sample size as follows: Cikara et al., 2014 (the study from which we adapted our paradigm) recruited 100 participants per condition for a final participation number of 66 participants in each condition after attention check exclusions. Given that this study is entirely within-subjects, but we needed monoracial White participants (who account for roughly 70% of the MTurk population; Levay, Freese, & Druckman, 2016), and we are investigating four-way interactions, we doubled Cikara et al.'s sample size.

2.1.2. Materials and procedure

Participants provided consent, completed the state empathy task described below, warmth and competence ratings of Blacks, Whites, and Asians, and the SDO questionnaire (in that order), followed by a series of demographic questions and the debrief.

2.1.3. State empathy task

Participants read stories ostensibly written by other participants and rated how good and how bad they felt for the target in each story. On any given trial, participants saw a picture of a White (in-group), Black (out-group) or Asian (out-group) target, and a single sentence describing an event that happened to them (See OSF project page for materials). These stories were either mildly positive or mildly negative in valence (e.g. eating a really good sandwich or stubbing one's toe). After the story, we presented participants with two 100-point slider bars without feedback: one that prompted them to rate how good they felt from *Not at All Good* (0) to *Extremely Good* (100), and one that prompted them to rate how bad they felt from *Not at All Bad* (0) to

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[3] We are not arguing that social dominants deliberately employ motivated cognition strategies to feel certain emotions that can best justify their actions and beliefs, although this might be the case. For example, both liberals and conservatives actually want to feel less empathy for out-group members (Hasson et al., 2018), suggesting that there could be a motivational component to our phenomenon.

Extremely Bad (100).[4] We counterbalanced the order of the good and bad sliders trial by trial. There was one attention check trial in which participants had to move both sliders all the way to the right that was randomly placed in the task. Participants completed three randomly assigned positive and three randomly assigned negative stories per racial target, for a total of 19 trials including the attention check.

2.1.4. Face stimuli

Faces were drawn from the M2 database, a database of 74 images of men and women from White, Black, and Asian descent (Strohminger et al., 2016). We started with a pool of eight faces per race and randomly paired six of those faces from each race with the stories to ensure that any race effects observed were not due to idiosyncrasies associated with any particular face. We used all male faces for our stimuli.[5] The attention check trial always depicted a White individual, and the identity of this individual did not differ across participants.

2.1.5. Warmth and competence items

Warmth and competence were measured using a single item per racial group. Participants indicated on 100-point slider scales how warm (i.e., good-natured, sincere, friendly) and competent (i.e., confident, capable, skillful) they thought Whites, Asians, and Blacks were (Fiske et al., 2002) on separate screens. Questions regarding warmth and competence were asked consecutively within racial groups and we randomized the presentation order of the racial groups.

2.1.6. SDO scale

The 16-item SDO_7 scale (Ho et al., 2015) measured social dominance using a 1–7 scale where 1 = *Strongly Oppose* and 7 = *Strongly Favor*. The 16 items were averaged together to give a single SDO score. Higher numbers on this scale indicates a higher acceptance of group-based hierarchy, $\alpha = 0.96$, $M = 2.52$, $SD = 1.45$. There are two sub-scales within SDO: SDO-E (anti-)egalitarianism) and SDO-D (dominance). We conducted confirmatory factor analyses and found that the data did not support a two-factor solution with SDO-E and SDO-D. Exploratory factor analysis suggested a two-factor solution that fell

along positive and negative wording instead.[6] Thus, we kept the SDO_7 scale as a single-factor scale for the analyses below.

2.1.7. Analysis plan and hypotheses

We analyzed the data using a multilevel model in which Rating Task (i.e., judgments of how bad and how good participants felt), Event Valence (i.e., positive and negative stories), Target Race (i.e., White, Black and Asian targets) and SDO (centered) interacted to predict reported emotion ratings (on a scale from 0 to 100). It is important to note that any given empathic or counter-empathic emotion is generated by the interaction between Rating Task and Event Valence. For example, schadenfreude is operationalized as how good participants felt about a negative event happening to a target. Positive empathy occurs when Rating Task = good and the Event Valence = positive, negative empathy when Rating Task = bad and Event Valence = negative, and gluckschmerz when Rating Task = bad and Event Valence = positive.

We used a participant random intercept to account for the within-subject nature of the Rating Task, Event Valence and Target Race. Entering Story ID (i.e., the particular positive and negative story presented to participants), Face ID (i.e. the particular Black, Asian, and White face presented out of the set of 24), and Trial Order as random effects did not account for any additional variance beyond Participant ID. Thus, we included only Participant ID as a random intercept in the final model. As a robustness check, we included gender as a covariate in the analyses, which did not change our results or conclusions (see supplementary materials). We chose to remove gender as a covariate given these results for increased power and model simplicity. All statistics reported are from the fully saturated model including all main and interaction effects, with bad ratings, positive events and Whites as reference groups using effects coding. All planned comparisons between means and slopes were adjusted using the Tukey method with the *emmeans* package in *R*. All descriptive statistics, correlations, ANOVA, and regression analyses tables can be found in supplementary materials.

In this study, we hypothesized that participants will in general feel more empathy than counter-empathy as people are less willing to admit to feeling counter-empathy than empathy (Cikara & Fiske, 2012), resulting in a two-way interaction between Event Valence and Rating Task. We further predicted that participants will feel more schadenfreude towards Asians than Whites and Blacks, resulting in a three-way interaction between Event Valence, Rating Task, and Target Race. Finally, we hypothesized that individuals higher in SDO would show reduced empathy and increased counter-empathy towards all targets (i.e. a significant three-way interaction between Event Valence, Rating Task, and SDO), but expected that the moderating effect of SDO on empathy and counter-empathy should be particularly strong for Asian and Black targets (i.e. a significant four-way interaction between Event Valence, Rating Task, Target Race, and SDO).

Finally, we used the *R* package *simr* to conduct sensitivity analysis simulations (Green & Macleod, 2016). These simulations suggest that at an alpha value of 0.045[7] and 80% power we could detect an effect of $b = -0.78$ for the interaction of Event Valence and Rating task, effects of $b = -1.12$ and $b = -1.16$ for the interaction between Event Valence, Rating Task, and Target Race comparing White-Asian and White-Black respectively, an effect of $b = -0.54$ for the interaction between Event Valence, Rating Task, and SDO, and effects of $b = 0.78$ and

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[4] One concern is that asking how good and bad individuals feel in response to positive and negative events cannot fully capture the constructs "empathy" and "counter-empathy." In a pilot study ($N = 353$) we assessed negative empathy and schadenfreude using a multi-item scale that included the "good" and "bad" items we use here, as well as how sad/sympathetic/compassionate/concerned the participant felt (for negative empathy) and how relieved/happy/satisfied the participant felt (for schadenfreude; items taken from Leach et al., 2003; Stürmer, Snyder, Kropp, & Siem, 2006). Each subscale was reliable: negative empathy's alpha = 0.87 and schadenfreude's alpha = 0.96. We conducted an exploratory factor analysis and both eigenvalues and parallel analyses suggested a 2-factor solution that separated negative empathy and schadenfreude cleanly. More importantly, the "how good does this make you feel" and "how bad does this make you feel" items had some of the highest factor loadings on schadenfreude (range = 0.94–0.88) and negative empathy (range = 0.89–0.56), respectively, suggesting that investigating empathy and counter-empathy using these items in isolation is valid.

[5] The theory of gendered prejudice is an intersectional theory created by integrating insights from social dominance theory and parental investment theory. According to the theory of gendered prejudice (McDonald, Navarrete, & Sidanius, 2011; Sidanius, Hudson, Davis, & Bergh, 2018), coalitional violence and discrimination are fundamentally a male-on-male phenomenon. Cognitive, affective, and behavioral processes that lead to discrepancies in how members of coalitions are treated are assumed to be targeted more towards the men of the out-group than the women. For example, fear and shooter paradigms studies using race show that the reaction in question is specifically targeted towards Black men rather than Black people in general (Navarrete et al., 2009; Plant, Goplen, & Kunstman, 2011). Thus, using male faces theoretically gives us the best chance of observing the moderating effect of SDO on group-based differences in empathy and counter-empathy.

[6] Across the four studies, SDO did not systematically factor into SDO-E and SDO-D, with the data supporting a single-factor solution in 3 out of 4 studies. We speculate in the discussion section how our results could be further nuanced theoretically by SDO-E and SDO-D. However, our data do not allow us to meaningfully test these speculations.

[7] At the recommendation of the creators of the *simr* package, we ran our simulations at an alpha value of 0.045 to account for the slight anti-conservative bias *simr* has when running power analyses converting *t* statistics into *z* statistics. This is the equivalent of assuming infinite degrees of freedom and is much easier to compute than solving for the actual value.

$b = 0.76$ for the interaction between Event Valence, Rating Task, Target Race, and SDO comparing White-Asian and White-Black respectively.

2.2. Results

We build the model hierarchically, moving through the main effects model to the four-way interaction model. At each step until the four-way interaction, the more complex model was a better fit to the data. We used the 'r.squaredGLMM' function from the *MuMIn* package in *R* to calculate a pseudo-R^2 for multilevel models (Bartoń, 2018). The marginal R^2 of the model, or the variance explained by fixed factors, is 0.505. The conditional R^2 of the model, or the variance explained by the random and fixed factors, is 0.621. Although our hypothesized four-way interaction between Event Valence, Rating Task, Target Race, and SDO was not significant, $F(2, 4878) = 0.66$, $p = .516$, we still reported the statistics from the saturated model.

2.2.1. Were participants more empathic than counter-empathic?

As expected, the two-way interaction between Event Valence and Rating Task was significant, $F(1, 4878) = 6463.49$, $p < .001$. Participants felt more good than bad when positive events happened to targets, $M_{diff} = 51.43$, $t(4878) = 64.87$, $p < .001$, $d = 1.54$, and felt more bad than good when negative events happened to targets, $M_{diff} = 38.71$, $t(4878) = 48.83$, $p < .001$, $d = 1.03$.

2.2.2. Did SDO moderate levels of empathy and counter-empathy?

Participants' basic tendency to display more empathy than counter-empathy was qualified by the hypothesized three-way interaction between Event Valence, Rating Task, and SDO, $F(1, 4878) = 101.43$, $p < .001$. SDO levels significantly moderated participants' levels of empathy and counter-empathy. None of the confidence intervals for positive empathy ($b = -1.84$, 95%CI $[-3.33, -0.35]$), negative empathy ($b = -2.32$, 95%CI $[-3.81, -0.84]$), schadenfreude ($b = 2.12$, 95%CI $[0.64, 3.61]$), and gluckschmerz ($b = 1.54$, 95%CI $[0.06, 3.03]$) included zero, indicating that SDO's relationships with empathy and counter-empathy were significant (Fig. 1). Furthermore, simple slope comparisons indicated that the only slopes that were not significantly different from each other were positive and negative empathy ($t(4878) = 0.88$, $p = .816$) as well as schadenfreude and gluckschmerz ($t(4878) = 1.05$, $p = .718$), suggesting that SDO's impact on empathy and counter-empathy was not dependent upon the positivity or negativity of the event (all other ts ranged between 6.16 and 8.09, all ps < 0.001).

2.2.3. Did participants feel increased levels of schadenfreude towards Asian relative to White and Black targets?

We hypothesized that Asian targets would receive greater amounts of schadenfreude than White or Black targets because they are seen as competent but cold (an attribution which theoretically stems from inferences of Asians' competiveness; Cikara & Fiske, 2012; Leach & Spears, 2008; van de Ven et al., 2015). To confirm that our participants saw Asians as equally competent but colder than Whites, we analyzed

the warmth and competence ratings participants reported by race. Given that participants' warmth and competence ratings were likely dependent with one another, we regressed participants' trait ratings on the interaction between Target Race (White, Black, and Asian) and Rating Type (Warmth and Competence) in a multilevel model with Participant ID as a random intercept. Participants rated Asians as less warm than Whites, $M_{diff} = -5.30$, $t(695) = -3.08$, $p = .006$, $d = -0.28$, but not more competent, $M_{diff} = 3.39$, $t(695) = 1.97$, $p = .120$, $d = 0.21$. In comparison, participants saw Blacks as equally warm as Whites, $M_{diff} = -2.39$ $t(695) = -1.39$, $p = .348$, $d = -0.10$, but less competent, $M_{diff} = -8.41$, $t(695) = -4.89$, $p < .001$, $d = -0.37$. Thus, the ratings of Asian targets conform to the predictions laid out by the Stereotype Content Model, in which Asians and Whites are both seen as highly competent but only Asians as stereotyped as colder.

When we examined affective reactions, the three-way interaction between Rating Task, Event Valence, and Target Race, $F(2, 4878) = 1.16$, $p = .312$, was not significant. Specifically, we compared participants' reported levels of empathy and counter-empathy between target races, but there was no evidence that participants reported more schadenfreude towards Asian targets than to White targets, $M_{diff} = 0.77$, $t(4878) = 0.56$, $p = .841$ or Black targets, $M_{diff} = -0.06$, $t(4878) = -0.05$, $p = .998$ (Related analyses for Studies 2a and 2b can be found in supplementary materials.).

2.2.4. Did target race influence SDO's moderation of empathy and counter-empathy?

The four-way interaction between Event Valence, Rating Task, Target Race, and SDO was not significant, $F(2, 4878) = 0.66$, $p = .516$. When conducting the planned slope comparisons between SDO slopes predicting empathy and counter-empathy, only the amount of positive empathy felt varied by race. Specifically, as SDO increased, participants felt less positive empathy for Black targets compared to White targets, $t(4878) = 2.53$, $p = .030$.

2.3. Discussion

In Study 1, participants indicated how much empathy and counter-empathy they experienced in reaction to positive and negative events happening to in-group (i.e., White) and out-group (i.e., Black and Asian) individuals. In line with our predictions, participants felt more empathy than counter-empathy. More important, as SDO increased, participants felt less empathy and more counter-empathy towards all targets. This finding dovetails with work indicating that individuals high in SDO chronically see the world in competitive terms (Duckitt & Sibley, 2010). Contrary to expectations, participants did not show increased schadenfreude on average towards Asians relative to Whites and Blacks, and SDO's relationships with empathy and counter-empathy were not significantly moderated by the race of the target.

One reason why we might not have found a significant four-way interaction between Event Valence, Rating Task, SDO, and Target Race is that in Study 1, we did not draw participants attention to group
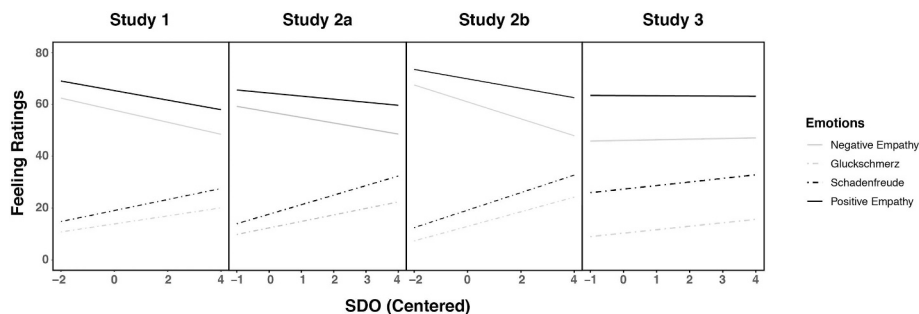
Fig. 1. The relationship between SDO, Event Valence, and Rating Task on predicted feelings in all studies.

boundaries before they completed the state empathy task. In Studies 2a and 2b, we increased the salience of group dynamics by priming in-group and out-group related cognitions, respectively.

3. Studies 2a and 2b: focusing on group boundaries leads individuals high in SDO to show less empathy and increased counter-empathy towards out-groups

The goals for Studies 2a and 2b were to replicate the findings in Study 1 and extend them by creating conditions under which SDO should moderate empathy and counter-empathy based on the target's group membership. Building on past research using scales as a way to prime group-related cognition (Ho, Sidanius, Cuddy, & Banaji, 2013), we had participants fill out a measure of racial identification in Study 2a and a measure of symbolic threat in Study 2b before the empathy task.[8] Racial identification is an ideal prime to test whether the mere activation of group boundaries without threat can lead to gaps in counter-empathy as it focuses solely on the values and virtues of the in-group rather than any threat from the out-group. Our expectation is that by making participants' racial identity salient before the empathy task, participants will see the targets in the task through a group lens and for those with high levels of SDO, they will show decreased empathy towards out-group members.

An outstanding question is whether group salience without threat will be enough to promote increased levels of counter-empathy in participants with high levels of SDO. We hypothesize that priming group boundaries without threat will not be enough to increase levels of counter-empathy among social dominants, because SDO is particularly sensitive to competition and out-group hostility which requires more than just making groups salient. Study 2b addresses this hypothesis; we use symbolic threat as a prime to reframe race relations in a competitive way, reminding (White) participants that ethnic minorities can pose a threat to their resources. If a competitive framing is necessary for SDO to modulate expressions of counter-empathy by race, we expect to see significant racial differences in the amount of counter-empathy expressed by social dominants in Study 2b but not 2a.

3.1. Methods

3.1.1. Participants

We recruited 350 participants in Study 2a and 326 in Study 2b from Amazon Mechanical Turk. In both studies we compensated participants 75 cents for their time. Again, we excluded non-monoracial Whites and participants who failed the manipulation check from the analyses, reducing the number of participants to 226 Whites (111 self-identified women), $M_{age} = 38.24$, $SD_{age} = 11.89$ in Study 2a and 210 Whites (124 self-identified women), $M_{age} = 36.86$, $SD_{age} = 12.72$ in Study 2b. We increased the number of participants and the compensation from Study 1 to account for the scale prime.

3.1.2. Materials and procedure

Studies 2a and 2b were identical to Study 1 with one change. In Study 2a participants completed a 6-item racial identification scale ($\alpha = 0.83$, $M = 4.12$, $SD = 1.21$) adapted from the Multidimensional Inventory of Racial Identity (Sellers, Smith, Shelton, Rowley, & Chavous, 1998). Sample items include "In general, my racial group is an important part of my self-image" and "I often regret that I am a member of my racial group" (reverse coded). In Study 2b participants filled out a 10-item symbolic threat scale ($\alpha = 0.90$, $M = 3.12$, $SD = 1.17$). Sample items include "Ethnic minorities are a danger to everything that is good, normal, moral, and decent in society" and "the values and beliefs of ethnic minorities regarding family issues and socializing children are

basically quite similar to those of most Americans" (reverse coded) (Stephan, Ybarra, & Bachman, 1999).

The scales were not of interest outside of priming but were reliable. SDO was also reliable in Study 2a ($\alpha = 0.95$, $M = 2.41$, $SD = 1.27$) and in Study 2b ($\alpha = 0.94$, $M = 2.51$, $SD = 1.25$).

3.2. Results

We analyzed the data as described in Study 1, building each model hierarchically. At each stage the more complex models were better fits to the data. The marginal and conditional R^2 of the model in Study 2a are 0.523 and 0.656 respectively, and 0.573 and 0.649 in Study 2b. Our predictions were also the same as in Study 1. Again, ANOVA and regression analyses tables can be found in supplementary materials. Sensitivity analysis simulations for Study 2a suggest that at 80% power with an alpha level of 0.045, we can detect a minimum effect of $b = -0.61$ for the interaction between Event Valence and Rating Task, an effect of $b = -0.47$ for the interaction between Event Valence, Rating Task, and SDO, and effects of $b = 0.68$ and $b = 0.66$ for the four-way interaction comparing White-Asian and White-Black respectively. These simulations are similar for Study 2b, as we can detect a minimum effect of $b = -0.63$ for the interaction between Event Valence and Rating Task, an effect of $b = -0.54$ for the interaction between Event Valence, Rating Task, and SDO, and an effect of $b = -0.92$ for both the four-way interactions comparing White-Asian and White-Black.

3.2.1. Were participants more empathic than counter-empathic?

Replicating Study 1, the hypothesized two-way interaction between Event Valence and Rating Task was significant in both Study 2a, $F(1, 7888) = 11,870.67$, $p < .001$, and Study 2b, $F(1, 7328) = 11,747.68$, $p < .001$. Participants felt more good than bad when positive events happened in Study 2a, $M_{diff} = 52.03$, $t(7888) = 87.86$, $p < .001$, $d = 1.58$, as well as in Study 2b: $M_{diff} = 56.91$, $t(7328) = 88.41$, $p < .001$, $d = 1.72$. They also felt more bad than good when negative events happened in Study 2a, $M_{diff} = 39.45$, $t(7888) = 66.45$, $p < .001$, $d = 1.12$ and in Study 2b: $M_{diff} = 41.75$, $t(7328) = 64.87$, $p < .001$, $d = 1.09$.

3.2.2. Did SDO moderate levels of empathy and counter-empathy?

Participants' (counter-)empathic responses were again qualified by the significant three-way interaction between Event Valence, Rating Task, and SDO in both Study 2a, $F(1, 7888) = 206.75$, $p < .001$, and Study 2b, $F(1, 7328) = 238.78$, $p < .001$ (Fig. 1). In Study 2a, as SDO levels increased, positive empathy decreased, $b = -1.18$, 95%CI [−2.55, 0.19], negative empathy decreased, $b = -2.14$, 95%CI [−3.51, −0.77], schadenfreude increased, $b = 3.67$, 95%CI [2.30, 5.05], and gluckschmerz increased, $b = 2.51$, 95%CI [1.14, 3.88]. All slopes except for positive empathy were significantly different from zero, as evidenced by each slope's 95% confidence intervals. The slopes relating SDO to emotion ratings for positive and negative empathy did not differ from each other, $t(7888) = 2.05$, $p = .169$, while the slopes for schadenfreude and gluckschmerz were marginally different from each other $t(7888) = 2.50$, $p = .061$. All other ts range between 7.89 and 12.44, with their p values all < 0.001.

The relationship between Event Valence, Rating Task, and SDO was almost identical in Study 2b. As SDO levels increased, positive empathy decreased, $b = -1.82$, 95%CI [−3.05, −0.59], negative empathy decreased, $b = -3.26$, 95%CI [−4.50, −2.03], schadenfreude increased, $b = 3.38$, 95%CI [2.15, 4.61], and gluckschmerz increased, $b = 2.81$, 95%CI [1.58, 4.05]. All slopes were significantly different from zero, as evidenced by each slope's 95% confidence intervals. Unlike Study 2a, the slopes relating SDO to feeling ratings for positive and negative empathy differed from each other, $t(7328) = 2.80$, $p = .026$, while the slopes for schadenfreude and gluckschmerz were not significantly different from each other $t(7328) = 1.10$, $p = .690$. All other t's ranged between 8.97 and 12.88, with p values $< .001$.

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[8] Please see supplementary materials for a replication of Study 2b using realistic threat as a prime instead of symbolic threat.
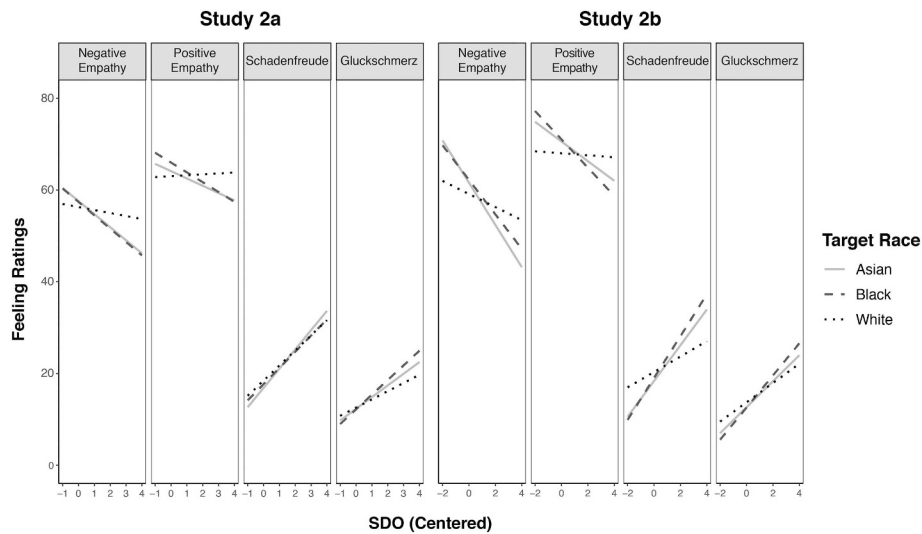
Fig. 2. The relationship between Event Valence, Rating Task, Target Group, and SDO in Studies 2a and 2b.

3.2.3. Did target race influence SDO's moderation of empathy and counter-empathy?

The predicted four-way interaction between Event Valence, Rating Task, Target Race, and SDO was significant in Study 2a, $F(2, 7888) = 9.09$, $p < .001$, and Study 2b, $F(2, 7328) = 16.38$, $p < .001$. We investigated this interaction by comparing the strength of the relationship between SDO and the four emotions as a function of target race (Fig. 2). We consider each emotion in turn.

3.2.3.1. Positive empathy. As SDO increased in Study 2a, participants were less positively empathic towards Black targets, $t(7888) = 2.89$, $p = .011$, and marginally less positively empathic towards Asian targets, $t(7888) = 2.22$, $p = .069$, relative to White targets. To aid in interpreting the effect of race on SDO's relationship with positive empathy: the difference in the amount of positive empathy shown by a participant with the lowest level of SDO and the highest level of SDO was 1.20 for White targets on a 100- point scale and 9.54 for Asian targets. This difference increased to 12.84 for Black targets. Furthermore, the slopes for White ($b = 0.20$, 95%CI $[−1.45, 1.85]$) and Asian ($b = −1.59$, 95%CI $[−3.24, 0.05]$) targets were not significantly different from zero while the slope for Black targets ($b = −2.14$, 95%CI $[−3.97, −0.49]$) was significantly different from zero, indicating that SDO's negative impact on positive empathy overall held only for Black targets.

This relationship was almost identical in Study 2b. As SDO increased in Study 2b, compared to White targets, participants were again less positively empathic towards Black targets, $t(7328) = 3.21$, $p = .004$, and marginally less empathic towards Asian targets, $t(7328) = 2.16$, $p = .079$. Furthermore, the slope for White targets ($b = −0.22$, $[−1.81, 1.37]$) was not significantly different from zero while the slopes for Black ($b = −3.09$, $[−4.68, −1.50]$) and Asian ($b = −2.15$, $[−3.74, −0.55]$) targets were significantly different from zero, indicating again that SDO was not related to amount of positive empathy participants reported for in-group targets. The difference in the amount of positive empathy shown White targets by a participant with the lowest level of SDO and the highest level of SDO was 1.32 on a 100-point scale. This difference increased to 12.90 for Asian targets and 18.54 for Black targets.

3.2.3.2. Negative empathy. In Study 2a, SDO had a stronger negative relationship with negative empathy for Black, $t(7888) = 2.79$, $p = .015$ and Asian, $t(7888) = 2.71$, $p = .018$, targets, relative to White targets. The slope for White targets ($b = −0.65$, $[−2.30, 1.00]$) was not significantly different from zero, unlike the slope for Black

($b = −2.91$, $[−4.56, −1.26]$) and Asian ($b = −2.85$, $[−4.50, −1.20]$) targets. Interpreting this effect, the difference in the amount of negative empathy shown White targets by a participant with the lowest level of SDO and the highest level of SDO was 3.90 on a 100-point scale. This difference increased to 17.10 for Asian targets and 17.46 for Black targets.

In Study 2b, compared to SDO's impact on negative empathy for White targets, SDO had a stronger negative relationship with negative empathy for Black, $t(7328) = 2.62$, $p = .024$ and Asian, $t(7328) = 3.56$, $p = .001$, targets. The slope for White targets ($b = −1.43$, $[−3.02, 0.17]$) was not significantly different from zero, unlike the slope for Black ($b = −3.76$, $[−5.36, −2.17]$) and Asian ($b = −4.60$, $[−6.20, −3.01]$) targets. Thus, across both Studies 2a and 2b, SDO did not predict how much negative empathy participants reported for in-group targets. The difference in the amount of negative empathy shown targets by a participant with the lowest level of SDO and the highest level of SDO was 8.58 for Whites on a 100-point scale, 22.56 for Black targets and 27.60 for Asian targets.

3.2.3.3. Schadenfreude. As we predicted, only following a group threat prime did slope comparisons within schadenfreude show significant modulation by race. After priming group boundaries in a non-threatening way in Study 2a, there were no significant differences in the amount of schadenfreude participant reported for White and Asian targets ($t(7888) = −1.12$, $p = .500$) or White and Black targets ($t(7888) = −0.30$, $p = .952$). However, the slopes for White ($b = 3.29$, 95%CI $[1.64, 4.94]$), Asian ($b = 4.20$, 95%CI $[2.55, 5.85]$), and Black ($b = 3.53$, 95%CI $[1.88, 5.18]$) targets were all significantly different from zero as evidenced by their 95% confidence intervals. This pattern reflects a deviation from how SDO relates to empathy. Whereas SDO was unrelated to positive and negative empathy for in-group targets, SDO was positively related to schadenfreude for *all* targets, including the in-group.

In Study 2b we primed group boundaries in a threatening way. After the prime, SDO had a stronger positive relationship with schadenfreude for Black, $t(7328) = −3.23$, $p = .004$, and Asian, $t(7328) = −2.48$, $p = .032$, targets, relative to White targets. As in Study 2a, the slope for White targets ($b = 1.68$, 95%CI $[0.09, 3.27]$) was significantly different from zero, as well as the slopes for Black ($b = 4.56$, 95%CI $[2.97, 6.16]$) and Asian ($b = 3.90$, 95%CI $[2.31, 5.49]$) targets. However, in line with our predictions, social dominants felt the highest levels of schadenfreude for out-group members. The difference in the amount of schadenfreude reported by a participant with the lowest level of SDO versus the highest level of SDO was 8.58 on a 100-point scale for White targets,

22.56 for Asian targets, and 27.60 for Black targets.

3.2.3.4. Gluckschmerz. There were no differences across target races in terms of the relationship between SDO and gluckschmerz in either Study 2a or 2b.

3.3. Discussion

In Studies 2a and 2b, White participants were primed to think about out-groups through two framings before engaging in the state empathy task. We drew participants attention to their racial in-group by having them reflect on how much they identified with their own race (non-threatening prime) or how ethnic minorities were competing for important symbolic resources (threatening prime). We found not only a significant three-way interaction between SDO, Rating Task and Event as in Study 1, but also the significant predicted four-way interaction between SDO, Rating Task, Target Race, and Event.

In Study 2a, as SDO increased, participants were less likely to feel positive or negative empathy towards Asians and Blacks in comparison to White targets experiencing the same event. However, participants' levels of SDO did not modulate counter-empathy, suggesting that activation of in-group identity was not enough to manifest differences in counter-empathy expressed towards in-group and out-group targets by SDO levels. When we primed a competitive frame between racial groups in Study 2b, participants' level of SDO was now also positively related to how much schadenfreude they expressed. As SDO increased, participants were not only less likely to feel positive or negative empathy towards Asians and Blacks, but also more likely to feel schadenfreude in comparison to White targets experiencing the same event.

4. Study 3: SDO predicts empathy and counter-empathy in novel groups

One limitation of the last three studies is our exclusive reliance on target race as a means of manipulating group membership. Race in America is a unique intergroup dynamic with a complex history. Thus, SDO differentially impacting empathy and counter-empathy by racial group membership might be idiosyncratic to American race relations. To address this concern, we moved to replicate our effects in a novel groups paradigm in Study 3. Novel groups paradigms can be considered relatively "pure" intergroup settings, divorced from historical and status-related factors. Thus, they are useful in understanding the boundary conditions of intergroup processes.

We also experimentally manipulated the group relationship in Study 3. Studies 1, 2a, and 2b collectively suggest that SDO's relationship with empathy and counter-empathy is sensitive to group salience *and* competition. Thus, in Study 3 we randomly assigned participants to teams that were cooperating or competing, with the expectation that any modulation of SDO's relationship with empathy and schadenfreude by group membership would only occur when the teams were competing (not cooperating).

Finally, we measured group identification separately from our manipulations and entered in-group identification as a covariate in the analyses. Group identification reliably moderates individuals' levels of empathy and counter-empathy (Bruneau et al., 2017; Hoogland et al., 2015; Ouwerkerk et al., 2018) in intergroup contexts. By including in-group identification in the analyses, we can assess whether SDO is playing a unique role in driving empathic and counter-empathic responses.

4.1. Methods

4.1.1. Participants

We recruited 340 participants from Amazon Mechanical Turk and compensated them $1.00 for their time. We removed participants that failed any of our attention or manipulation checks described below. 108

participants failed at least one attention or manipulation check, leaving us with a total of 232 participants in which 125 participants identified as women and 178 identified as White, $M_{age} = 35.18$, $SD = 10.43$.

4.1.2. Materials and procedure

We told participants that we were recruiting people to an ongoing problem-solving challenge involving two teams, the Eagles and the Rattlers. Participants filled out a bogus personality test that randomly assigned them to either the Rattlers or the Eagles teams although participants believed they were assigned that team based on their personality. Next, participants were told that they are working with, or competing against, the other team. The participants' team was always slightly behind the other team. Participants then completed group identification measures towards the Eagles and the Rattlers on 100-point sliders. They answered how much they valued, felt connected to, and liked the Eagles and Rattlers, respectively We averaged the three in-group and out-group items to create in-group identification ($\alpha = 0.91$) and out-group identification ($\alpha = 0.91$) indices, respectively.

Afterwards, participants completed the state empathy task as described in Study 1 with a change in how in-group and out-group membership were denoted. In each trial of the state empathy task, participants viewed a picture of either a Rattler or an Eagle logo (instead of a face) accompanied by the positive or negative story. The state empathy task again included an attention check in which participants were requested to push both sliders to one side of the scale. Next, participants completed three manipulation checks and that assessed whether they (i) knew what team they were assigned to, (ii) knew who the other team was, and (iii) remembered if the two teams were cooperating or competing. Finally, participants again completed the 16-item SDO$_7$ scale ($\alpha = 0.96$, $M = 2.32$; $SD = 1.39$), brief demographic questions, and were debriefed.

4.2. Results[9]

Our study design was a mixed 2(Event Valence: Positive, Negative) × 2(Rating Task: Good, Bad) × 2(Target Group: In-group, Out-group) × 2(Group Relationship: Cooperative, Competitive) × SDO (continuous) multilevel regression predicting emotion ratings on a 1–100 scale with random intercepts for Participant ID. Group Relationship was a between-subjects variable and was effects coded along with Event Valence, Rating Task, and Target Group: with cooperation, positive events, bad ratings, and in-group, coded as −1 (reference) respectively. We also included in-group identification in the analyses as a fixed effect. Sensitivity analysis simulations suggest that at 80% power with an alpha level of 0.045, we could detect a minimum effect of $b = -0.86$ for the interaction between Event Valence and Rating Task, an effect of $b = -0.59$ for the interaction between Event Valence, Rating Task, and SDO, an effect of $b = 0.58$ for the interaction between Event Valence, Rating Task, SDO, and Target Group, and an effect of $b = 0.59$ for the five-way interaction. The five-way interaction was the best fit to the data, and the marginal and conditional R^2 of the model were 0.388 and 0.480 respectively.

4.2.1. Group identification

As expected, participants identified more with their in-group ($M = 76.56$, $SD = 18.97$) than their out-group ($M = 47.83$, $SD = 24.49$), $t(434.88) = 14.13$, $p < .001$, suggesting our novel groups manipulation was successful.

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[9] There were several significant interactions that we did not hypothesize (see Table S11 in the Supplementary materials). We are only going to focus on the interactions we predicted.

4.2.2. Were participants more empathic than counter-empathic?

Again, participants showed higher levels of empathy than counter-empathy, $F(1, 7164) = 4016.41$, $p < .001$.

4.2.3. Did SDO moderate levels of empathy and counter-empathy?

Although the interaction between SDO, Event Valence, and Rating Task was significant, $F(1, 7164) = 7.22$, $p = .007$ (Fig. 1), pairwise comparisons indicated that none of the slopes were significantly different from one another and none of the slopes were significantly different from zero: positive empathy ($b = -0.11$, 95%CI [-1.37, 1.14]), negative empathy ($b = 0.13$, 95%CI [-1.12, 1.39]), schadenfreude ($b = 1.10$, 95%CI [-0.16, 2.35]), and gluckschmerz ($b = 1.12$, 95%CI [-0.13, 2.37]). Furthermore, all slopes except for positive empathy were positive, which deviates from the results of the last three studies. However, the higher-order interactions qualify, and explain, this finding.

4.2.4. Did target team influence SDO's moderation of empathy and counter-empathy?

As predicted, the four-way interaction between Event Valence, Rating Task, Target Group, and SDO was significant, $F(1, 7164) = 46.02$, $p < .001$. However, this finding was qualified by the significant five-way interaction.

4.2.5. Did cooperative versus competitive relations influence SDO's moderation of empathy and counter-empathy for in-group and out-group targets?

As predicted, the five-way interaction between Event Valence, Rating Task, Target Group, Group Relationship, and SDO was significant as hypothesized, $F(1,7164) = 4.52$, $p = .034$ (Fig. 3).

4.2.5.1. Cooperative condition.
Beginning with the cooperation condition, only the SDO slope for out-group negative empathy ($b = -2.20$, 95%CI [-4.38, -0.02]) was significantly different from zero. Every other emotion's confidence interval regardless of the target's group membership contained zero (see Table S13 in supplementary materials). This indicates that SDO was not a significant predictor of in-group or out-group (counter-) empathy when groups were cooperating.

We also directly compared the in-group and out-group slopes within each emotion. Although only the out-group negative empathy slope was

significantly different than zero, as SDO increased, participants' levels of negative empathy were significantly different for the in-group ($b = 1.40$, 95%CI [$-0.78,3.58$]) compared to the out-group, $M_{\text{diff}} = -3.60$, $t(7164) = -2.99$, $p = .003$. Specifically, higher SDO scores were associated with more empathy for the in-group and less empathy for the out-group. Additionally, as SDO increased, participants' levels of schadenfreude were significantly different for the in-group ($b = -1.46$, 95%CI [-3.64, 0.72]) compared to the out-group ($b = 0.94$, 95%CI [-1.24, 3.12]), $M_{\text{diff}} = 2.40$, $t(7164) = 2.00$, $p = .046$. As predicted, higher SDO scores were associated with more schadenfreude for the out-group and less schadenfreude for the in-group.

4.2.5.2. Competitive condition.
As predicted within the competition condition, the relationship between SDO and positive empathy was positive for the in-group ($b = 2.82$, 95%CI [0.81, 4.84]) and negative for the out-group ($b = -2.55$, 95%CI [-4.56, -0.53]). These two slopes were also significantly different from one another, $t(7164) = -4.84$, $p < .001$. For negative empathy, there was a positive relationship between SDO and negative empathy for the in-group ($b = 2.46$, 95%CI [0.44, 4.48]) but no relationship for the out-group ($b = -1.12$, 95%CI [-3.14, 0.89]). However, the difference between the two slopes was significantly different, $t(7164) = -3.23$, $p = .001$.

Examining counter-empathy, we found that the differences between the in-group and out-group were significant for schadenfreude, $t(7164) = 2.36$, $p = .018$ and gluckschmerz, $t(7164) = 2.71$, $p = .007$. That said, simple slopes analyses indicated SDO was only significantly related to out-group (but not in-group) schadenfreude ($b_{\text{in-group}} = 1.15$, 95%CI [$-0.87$, 3.17]; $b_{\text{out-group}} = 3.77$, 95%CI [1.75, 5.78]) and gluckschmerz ($b_{\text{in-group}} = 0.65$, 95%CI [$-1.37$, 2.66]; $b_{\text{out-group}} = 3.66$, 95%CI [1.64, 5.68]). In other words, SDO predicted participants' feelings of counter-empathy only for the out-group.

4.3. Discussion

In Study 3 we manipulated functional relations between novel groups to test the generalizability and internal validity of our previous findings. On the whole, we replicated our previous studies with a few exceptions (specifically examining in-group targets). We found that the
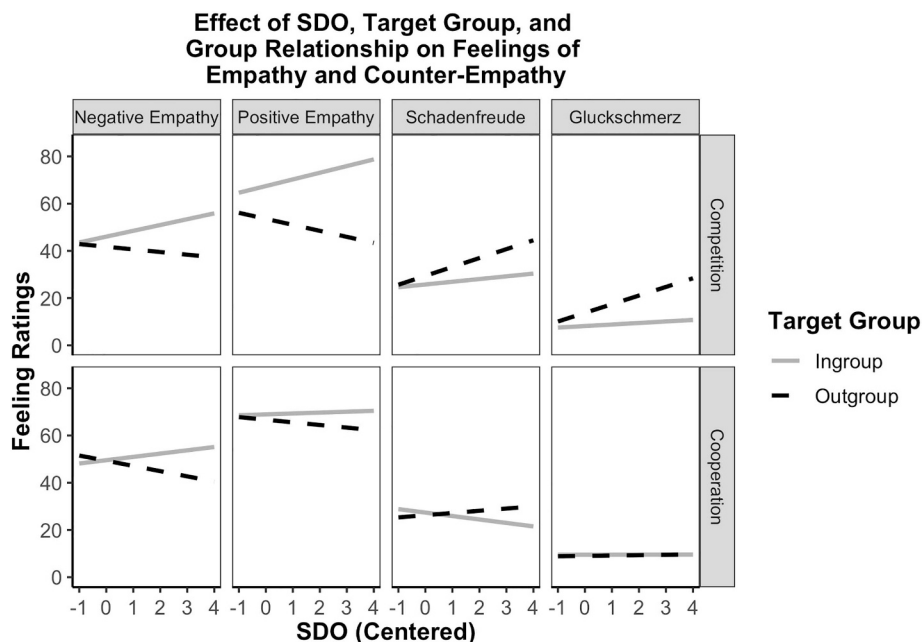

Fig. 3. The relationship between SDO, empathy, counter-empathy, target group and group relationship in Study 3.

relationship between SDO and (counter-) empathy strongly depended on group membership, with SDO positively predicting empathy and not predicting counter-empathy for the in-group (this was not the case in Studies 1, 2a, and 2b), and negatively predicting empathy and positively predicting counter-empathy for the out-group (this replicated Studies 2a and 2b). This finding further suggests that status differences are not necessary for SDO's effect on empathy and counter-empathy; group membership in a competitive context is sufficient to activate this difference in affective responding.

Finally, the pattern described above was primarily true for participants in the competition condition compared to the cooperation condition. Although there were differences between the in-group and out-group slopes for schadenfreude and negative empathy within the cooperative condition, only the out-group negative empathy slope was significantly different from zero, suggesting that SDO does not moderate empathy and counter-empathy when the intergroup context is cooperative.

5. General discussion

Though empathy is a potent predictor of helping behaviors towards others, people do not feel empathy towards all others in equal measure. Thus, we sought to understand the contextual and psychological moderators that impact when, and for whom, people decide to feel empathy. Previous work has focused on the fact that group dynamics alter empathic emotions: people reliably report less empathy (and more counter-empathy) towards those they deem as competitive "others". In the current work, we investigated how SDO moderates this relationship. By connecting SDO to work on intergroup empathy bias, we add to a small but growing literature on how specific emotional perceptions and responses are shaped by preferences for hierarchy and dominance (Ratcliff et al., 2012).

We hypothesized that SDO would be negatively related to state empathy and positively related to state counter-empathy, especially for threatening out-group members. Indeed, SDO was not more strongly related to negative empathy and counter-empathy towards out-groups prima facie. Instead, we needed to activate group boundaries and intergroup threat for SDO to moderate (counter-)empathic responses for out-group relative to in-group targets. Specifically, when we drew attention to group boundaries in a non-threatening way (Study 2a), the decrease in positive and negative empathy in participants with higher levels of SDO was more strongly directed towards racial out-groups than racial in-group members. And when we primed a competitive intergroup context (Study 2b), SDO *also* predicted increased schadenfreude towards racial out-groups relative to racial in-groups. Finally, in Study 3, we replicated these results among novel groups in competition (but not cooperation) with one another.

It is important to note that across these studies empathy and counter-empathy changed independent of one another, highlighting that these sets of emotions are not merely 'opposite sides of the same coin.' First, the correlations between empathy and counter-empathy were on average rather small. More important, manipulations that caused a decrease in empathy towards out-groups did not necessarily cause increases in counter-empathy. These findings underscore an important point: the absence of empathy is better characterized as apathy, rather than as antipathy. Apathy is not a particularly potent motivator of behavior, except perhaps neglect (Cuddy et al., 2008; Vachon et al., 2014). Given that (i) intergroup conflict is often beset with overt antipathy and (ii) decreased positive affect and increased negative affect towards out-groups can be independent predictors of attitudinal outcomes (Perry, Priest, Paradies, Barlow, & Sibley, 2018), our findings suggest the importance of studying both empathic as well as counter-empathic emotions in groups.

Overall, these results offer an intriguing possibility that SDO's relationship with empathy and counter-empathy might be functional. Because social dominants are concerned with creating and maintaining hierarchy, feeling less empathy towards out-groups may make it easier to subject them to policies and experiences that create and reinforce their subjugation to the in-group (this is related to the ideological palliation thesis; Goudarzi, Knowles, & Jost, 2019; Jost & Hunyady, 2003). Furthermore, Studies 2b and 3 support the idea that threat and explicit competition among social groups leads social dominants to further increase the gap between 'us' and 'them' by experiencing relatively greater *counter-empathy* towards out-groups. Expressing counter-empathy, and schadenfreude specifically, may motivate out-group harm (Cikara, 2015). In other words, feeling pleasure at out-group pain might make it more acceptable, even gratifying, to inflict out-group harm.

The functional role of SDO's link to empathy is speculative at this point, as we never directly manipulate hierarchy maintenance concerns nor show that the amount of empathy and counter-empathy felt towards targets mediates the relationship between SDO and hierarchy-enhancing behaviors. However, the difference in SDO's predictive power towards in-group and out-group empathy and counter-empathy in Study 3 lends support to this broad idea. SDO positively predicted empathy and negatively predicted counter-empathy for the in-group, as one would expect if the primary focus is creating a hierarchy in which one's in-group is on top.

5.1. Limitations and future research

There are several caveats to consider. First, Study 3 suggested that competitive intergroup dynamics, divorced from status and power concerns, are sufficient to lead social dominants to show differences in (counter-) empathy levels based on group membership. However, it is still an open question as to the relative impact status versus functional relations between groups play in these processes. Precursors to SDO (e.g., personality traits such as low agreeableness and openness to experiences; Ekehammar, Akrami, Gylje, & Zakrisson, 2004) impact prejudice through status rather than group memberships (Bergh, Akrami, Sidanius, & Sibley, 2016). Furthermore, people higher in SDO exhibit increased empathy towards advantaged social groups compared to disadvantaged social groups (Lucas & Kteily, 2018). These findings suggest that status, not intergroup relations, is the primary driver of SDO's impact on empathy. However, the current work and Cikara et al. (2014) find that competition without status differences between groups is sufficient to engender intergroup empathy bias. We believe that *both* intergroup relations and status should influence the amount of empathy and counter-empathy social dominants feel in a given situation. Indeed, the ideological asymmetry hypothesis (Levin, Sidanius, Rabinowitz, & Federico, 1998) posits that both group status and group affiliation determine how strongly SDO is related to hierarchy enhancing and hierarchy attenuating attitudes and beliefs. It is also currently unclear whether other aspects of group hierarchies like legitimacy or stability of the hierarchy, can further mitigate or exacerbate the relationship between SDO and (counter-) empathy. Future research should test the relative influence of these variables.

The second caveat is our narrow operationalization of empathy: the tendency for individuals to feel congruent or incongruent emotions with another person's assumed emotional state. Empathy is multifaceted and encompasses cognitive as well as affective components. We do not know, for example, if SDO affects cognitive empathy in the same way as affective empathy (in fact we have good reason to think people may be even more likely to engage in processes like perspective-taking for threatening targets; Morewedge, 2009; Vaish, Grossmann, & Woodward, 2008; Waytz et al., 2010).

The third caveat concerns the nature of the positive and negative stories used. We purposefully used mild stories that had no direct impact on social hierarchy dynamics (e.g. "George stubbed his toe"). Regardless, we still saw SDO had an impact on the amount of empathy and counter-empathy participants reported. It is unclear whether our effect reflects the upper or lower bound of empathic modulation. For

example, does SDO predict even greater decrements in empathy when the events that happen to others become more extreme or hierarchically related? Or did the mild nature of the events make it more socially acceptable for participants to express reduced empathy and increased counter-empathy? In related experiments using more extreme events across a variety of intergroup settings including among Americans vs. Arabs, Hungarians vs. Muslim refugees, and Greeks vs. Germans during Greek economic depression, people still exhibit pronounced intergroup empathy bias (Bruneau et al., 2017). These findings tentatively suggest that our effects would replicate within more extreme settings. Another future direction is to test whether our effects would replicate if the events people read had direct implications for the social hierarchy (e.g. "George lost his job", which is simultaneously more extreme and hierarchy-related). This is an important next step as these are the kinds of events that substantively can reinforce or dismantle ongoing social inequality.

The fourth and final caveat is our use of only male targets in the state empathy paradigm. We chose to use only male targets for practical (i.e., design simplicity) and theoretical (i.e., based on hypotheses from the theory of gendered prejudice) reasons. Most of the work examining gender differences in empathy focus on the experiencer and find that women report greater empathy than men (e.g., Christov-Moore et al., 2014; Clarke, Marks, & Lykins, 2016). Though there is less work examining target gender differences, what there is indicates women receive more empathy than men (Oswald, 2000; Stuijfzand et al., 2016), in line with benevolent sexism (Glick & Fiske, 1996) and the general tendency to see women as morally superior and fundamentally pure (and perhaps therefore more deserving of empathy) than men (Eagly & Mladinic, 1994; Krys et al., 2018). Although previous research (Cikara et al., 2014) has documented intergroup (counter-) empathy bias between groups using both male and female targets, it is an open question whether SDO's modulation of these emotions will be as strong for female compared to male targets. We are currently conducting further studies to address this question.

6. Conclusions

We examined the interplay between individual ideology and functional relations between groups of unequal and equal status in driving emotional responses to in-group and out-group members' experiences. Understanding the role that ideology plays in expressing empathy towards targets is critical in potential efforts to mitigate intergroup conflicts. We encourage emotions researchers to consider ideology and group dynamics and ideology researchers to consider emotion in their work.

Open practices

All study materials, data, and *R* scripts for all studies are available for download on OSF (https://osf.io/4ef6t/?view_only=b6f868173bd14b81ad8e9bb73b71014d); thus, this manuscript earned the Open Materials and Open Data badges.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jesp.2019.103871.

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