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# The Group-Member Mind Trade-Off: Attributing Mind to Groups Versus Group Members

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## Abstract

People attribute minds to other individuals and make inferences about those individuals' mental states to explain and predict their behavior. Little is known, however, about whether people also attribute minds to groups and believe that collectives, companies, and corporations can think, have intentions, and make plans. Even less is known about the consequences of these attributions for both groups and group members. We investigated the attribution of mind and responsibility to groups and group members, and we demonstrated that people make a trade-off: The more a group is attributed a group mind, the less members of that group are attributed individual minds. Groups that are judged to have more group mind are also judged to be more cohesive and responsible for their collective actions. These findings have important implications for how people perceive the minds of groups and group members, and for how attributions of mind influence attributions of responsibility to groups and group members.

## Keywords

groups, theory of mind, mind attribution, morality, responsibility, law, social cognition, legal processes

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People recognize that others around them can think, have intentions, and make plans, and therefore people understand and evaluate others' behavior in mental-state terms (Frith & Frith, 2003; Heider & Simmel, 1944; Wimmer & Perner, 1983). However, the extent to which people also attribute minds to entire groups of people is less clear. Whether or not people are willing to attribute an agenda to the Republican Party, a will to the Russian people, or plans for the next fiscal year to IBM is a matter of debate. For example, the U.S. Supreme Court recently granted corporations the right to contribute to political campaigns (effectively granting them personhood), although Justice Stevens noted in dissent, "corporations have no consciences, no beliefs, no thoughts, no desires" (*Citizens United v. Federal Election Commission*, 2010, p. 76). Psychological research suggests that some cultures are more likely to attribute minds to groups than other cultures are (Menon, Morris, Chiu, & Hong, 1999), people are more willing to attribute particular kinds of mental states (e.g., intentions) rather than others (e.g., feelings) to groups (Knobe & Prinz, 2008), and some groups are more likely to be seen as having a group mind than others are (Hamilton & Sherman, 1996; Lickel et al., 2000).

Beyond the attribution of group mind, even less is known about the relation between attributions of group mind and

attributions of mind to the members of the same group. The research reported here reveals the conditions under which people attribute minds to groups, and it provides a novel illustration of the trade-off between people's intuitive attributions of mind to groups and to group members.

Previous research has demonstrated that factors such as joint action and group cohesion increase attributions of mind to groups (Bloom & Veres, 1999; O'Laughlin & Malle, 2002) and increase the perception of groups as having the same properties as persons (Hamilton & Sherman, 1996). Strong in-group identification can also increase perceptions of in-group and out-group entitativity, which increases the perception of members of both group types as relatively homogeneous and deindividuated (Quattrone & Jones, 1980; Yzerbyt, Castano, Leyens, & Paladino, 2000). Perceived group cohesion, or entitativity (Campbell, 1958), also tends to elicit stereotyping of group members (Abelson, Dasgupta, Park, & Banaji, 1998; Yzerbyt, Corneille, & Estrada, 2001), which diminishes the perception of group members as true individuals and reduces

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the attribution of mind to these members (Morewedge & Schooler, 2011).

Research programs have pursued attributions of mind to groups and to group members separately. The relation between group mind and group-member mind has therefore been largely unexplored, despite this relation's considerable consequences for moral judgment and decision making. In particular, attributions of mind to a group can crucially influence attributions of responsibility to the group and its members. The charge of conspiracy, for example, states that an assembly of distinct individuals acted with collective intent. Similarly, the decision to punish an individual employee in a corporation when the corporation defrauds its customers often hinges on determining whether the motivations and plans of the collective match the motivations and plans of the individual (see Malle, 2011; Sherman & Percy, 2011).

In the research reported here, we tested the hypothesis that an inverse relation exists between attributions of group mind and attributions of group-member mind: The more a group is attributed a group mind, the less members of that group are attributed individual minds, and vice versa. This hypothesis is based on previous studies showing that the factor of group cohesion has opposite effects on people's attributions of group mind and group-member mind. We conducted four studies that support the prediction that there is a trade-off between group mind and group-member mind. First, we established the phenomenon: The more a group is seen as having a mind, the less its members are seen as having individual minds. Second, we replicated this phenomenon with a separate set of groups and demonstrated the consequences of mind attribution for responsibility attribution. Third, we demonstrated that manipulating the entitativity of the same set of groups produces the trade-off. Finally, using visual versus verbal stimuli, we showed that manipulating the cohesiveness of the group can produce this same trade-off not only for mind but also for attributions of responsibility: The more a group is judged to be responsible for its collective actions, the less its members are judged to be responsible for their personal actions. Together, these studies demonstrate what we term the *group-member mind trade-off* and reveal the consequences for attributions of responsibility to groups and group members.

## Study 1: The Group-Member Mind Trade-Off

### Method

**Participants.** Twenty-four people (8 male, 15 female, 1 unreported; mean age = 42.91 years) completed the study online for \$0.25 via Amazon's Mechanical Turk.<sup>1</sup>

**Procedure.** Participants evaluated 20 target groups (e.g., McDonald's corporation, the New York Yankees, the U.S. Marine Corps, all Facebook users)<sup>2</sup> on three factors. First, they rated the extent to which each group has a mind of its own

(described as the capacity to make plans, have intentions, and think for itself). Next, participants rated the extent to which the average member of each group has a mind of his or her own, and, finally, they rated the extent to which each group is cohesive (described as how similar group members are to each other, the extent to which they share a common fate, and how tightly knit the group is). Participants rated how much mind groups and individuals have on separate scales ranging from 1 (*not at all*) to 7 (*very much*), and they rated group cohesion on a scale from 1 (*low cohesion*) to 7 (*high cohesion*). We averaged judgments for each variable for each group.

## Results and discussion

Of chief importance, attributions of group mind correlated negatively with attributions of group-member mind,  $r(18) = -.60, p < .01$ . The more people attributed a mind to a group, the less people attributed minds to members of that group. In addition, attributions of group mind correlated positively with judgments of group cohesion,  $r(18) = .87, p < .0001$ , whereas attributions of group-member mind correlated negatively with judgments of group cohesion,  $r(18) = -.78, p < .0001$  (see Fig. 1 for mean ratings). These results provide initial evidence for an inverse relation between people's judgments of group mind and people's judgments of group-member mind. Given that mind attribution has critical implications for responsibility judgments (Gray, Gray, & Wegner, 2007), the next study was designed to test the consequences of the group-member mind trade-off for responsibility judgments.

## Study 2: Mind and Moral Responsibility

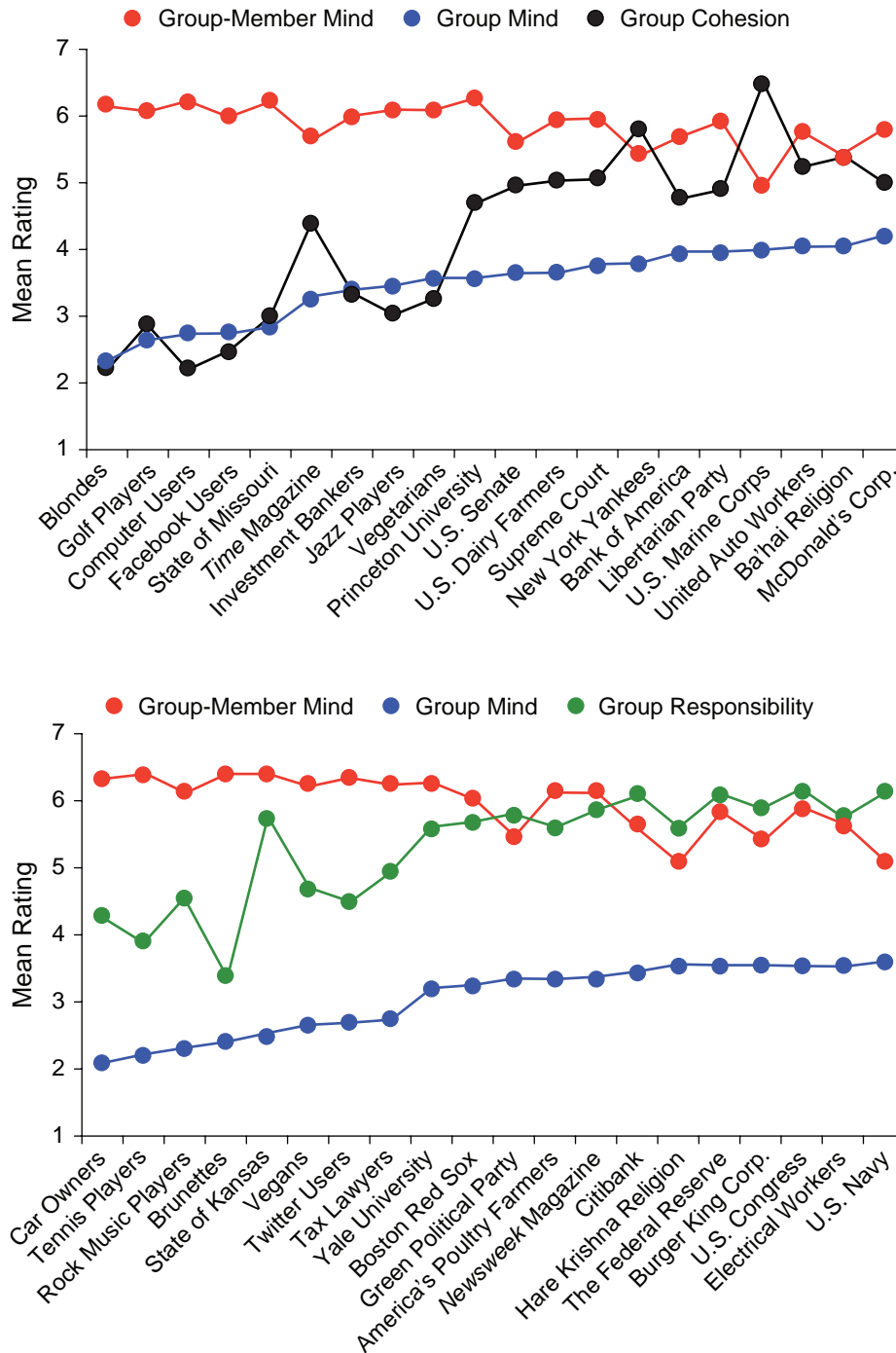
### Method

**Participants.** Eighteen participants (5 male, 12 female, 1 unreported; mean age = 39.58 years) completed the study online, as in Study 1.

**Procedure.** Participants evaluated 20 different groups than were evaluated in Study 1 (e.g., the Burger King corporation, the Boston Red Sox, the U.S. Navy, all Twitter users). Participants evaluated groups on group mind, group-member mind, and group cohesion, as in Study 1. In addition, participants rated the extent to which each group is morally responsible for its collective actions, the extent to which the average group member is morally responsible for his or her own personal actions, and the extent to which the average group member is morally responsible for the group's collective actions. Ratings were made on a 7-point scale (1 = *not at all*, 7 = *very much*). We averaged judgments for each variable for each group.

## Results and discussion

As in Study 1, the group-member mind trade-off emerged: Attributions of group mind correlated negatively with attributions of



**Fig. 1.** Mean ratings from Study 1 (top panel) and Study 2 (bottom panel). In both studies, participants rated each of 20 groups on how much mind the group has and how much mind the average member in the group has. In Study 1, participants also rated how much cohesion exists within each group, and in Study 2, they rated how much responsibility each group has for its collective actions.

group-member mind,  $r(18) = -.71, p < .0001$ . The more a group was attributed a mind, the less its members were attributed minds. In addition, the same relations observed in Study 1 between group mind, group-member mind, and group cohesion emerged in this study: Group mind correlated positively with group cohesion,  $r(18) = .91, p < .0001$ , and group-member mind correlated negatively with group cohesion,  $r(18) = -.74, p < .0001$ .

An important relation between attributions of mind and attributions of responsibility also emerged (see Fig. 1 for mean ratings). Attributions of group mind correlated positively with attributions of responsibility to the group for its collective actions,  $r(18) = .87, p < .0001$ , as well as with attributions of responsibility to each individual member of the group for the group’s collective actions,  $r(18) = .87, p < .0001$ : the more mind attributed to a group, the more responsibility attributed

to the group for its collective actions, and the more responsibility attributed to each group member for the group's collective actions. Conversely, group-member mind correlated negatively with these two variables,  $r(18) = -.62, p < .01$ , and  $r(18) = -.70, p = .001$ . Judgments of group-member responsibility for group-member actions were close to ceiling ( $M = 6.56$ ) and therefore did not correlate with other measures.

Consistent with prior research, these findings demonstrate that attributing mind to an entity (e.g., a group) allows that entity to be seen as a moral agent that can then be held responsible for its actions (Gray et al., 2007). This study establishes the relation between mind attributions and responsibility attributions not simply for individual agents but also for a complex and ambiguous entity: the group. Furthermore, Study 2 reveals a novel relation between mind and responsibility in demonstrating that attributions of mind to the group correspond positively with attributions of responsibility to the group and even to individual members of the group for the group's collective actions.

Study 2 not only replicates the group-member mind trade-off established in Study 1, but also shows direct consequences of this trade-off for judgments of collective responsibility. Yet the results of this study do not allow us to draw causal conclusions about the relation between judgments of cohesion and attributions of mind and responsibility. We therefore conducted a third study using an experimental manipulation to examine the causal role of group cohesion in the group-member mind trade-off.

### Study 3: Manipulating Group Cohesion Conceptually

Because judgments of group cohesion appear to be strongly related to attributions of group mind, Study 3 manipulated group cohesion rather than simply measuring it. We found that, holding the group itself constant, simply varying information about three tenets of entitativity—similarity, proximity, and common fate (Campbell, 1958)—across two conditions was sufficient to produce the group-member mind trade-off. In addition, whereas Studies 1 and 2 asked participants to evaluate naturally heterogeneous groups, Study 3 used a more restricted set of groups of the same qualitative type (i.e., university student organizations) to produce similar results.

#### Method

**Participants.** Sixty-two people (26 male, 36 female; mean age = 31.73 years) completed the study online, as in Studies 1 and 2.

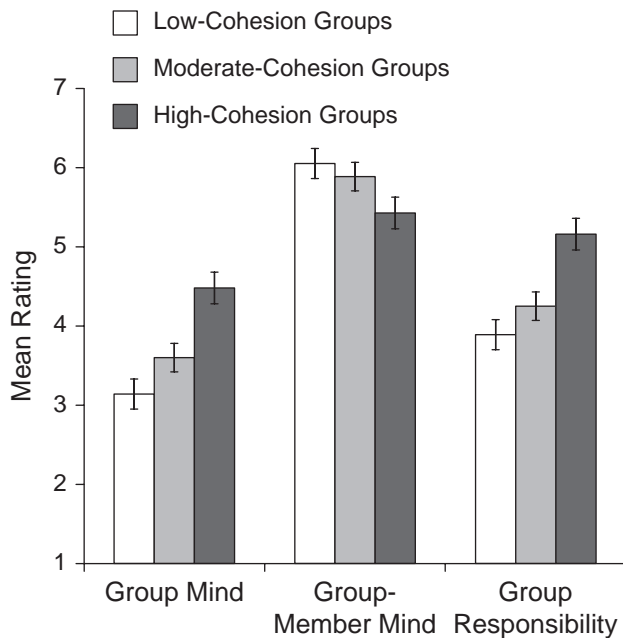
**Procedure.** Participants were told they would evaluate student clubs from a major American university and were randomly assigned to one of two conditions, which varied only in terms of how each group was described. These descriptions served as a manipulation of group cohesion. All participants

read about twelve student organizations (a jazz club, a chess club, a karate club, an improv comedy troupe, a mock trial club, a debate club, a poetry club, a trivia club, a model United Nations club, a ballroom dance club, a singers club, and a drama club), four of which were described in high-cohesion terms, four of which were described in moderate-cohesion terms, and four of which were described in low-cohesion terms.

Groups were described as having high, low, or moderate cohesion; high and low cohesiveness descriptions were counterbalanced between conditions by providing contrasting information about each group's similarity, proximity, and common fate (Campbell, 1958). This manipulation produced groups of three types. For example, in Condition A, the description of the drama club suggested low cohesion: "People in the drama club are from cities and countries around the world, they include freshman, sophomores, juniors, and seniors, they live not only all over campus, but all around the city, and they have participated in a number of drama productions and competitions in separate troops and casts." In Condition B, the description of the drama club suggested that it was highly cohesive: "Everybody in the drama club is from Ypsilanti, Michigan, they are all seniors, they live in the same house on campus, and they recently participated together as an ensemble in a national production." Moderate-cohesion groups were described in the same way across conditions with information that made them appear average in terms of cohesion. Condition did not interact with any factors of interest, so analyses were collapsed across condition.

Participants rated the extent to which each group has a mind, the extent to which the average member of the group has a mind, the extent to which the group is responsible for its collective actions, the extent to which the average member of the group is morally responsible for his or her own individual actions, the extent to which the average member of the group is morally responsible for the group's collective actions, and how hierarchical the structure of each group is; ratings were made on 7-point scales (1 = *not at all*, 7 = *very much*). Participants also rated how cohesive each group is on a 7-point scale (1 = *not at all*, 7 = *very much*); analysis of cohesiveness ratings revealed that the manipulation was effective,  $F(2, 60) = 51.60, p < .0001$ . This measure of cohesion served as a manipulation check only, and all subsequent analyses treat groups as having high cohesion, moderate cohesion, and low cohesion on the basis of the group descriptions that served as the manipulation. For each measure, we computed a high-cohesion group score, a moderate-cohesion group score, and a low-cohesion group score by averaging scores for each of the four groups per type in both conditions.

At the end of the study, participants indicated whether they had ever belonged to any of the groups mentioned. Seven participants reported belonging to at least one, but including group membership as a factor in our analyses did not meaningfully affect results.



**Fig. 2.** Results from Study 3: mean ratings of how much mind each group has, how much mind the average member in each group has, and how much responsibility each group has for its collective actions, as a function of group cohesiveness (low, moderate, or high). Error bars indicate standard errors of the mean.

## Results and discussion

A 3 (cohesion: high cohesion vs. moderate cohesion vs. low cohesion)  $\times$  2 (measure: group mind vs. group-member mind) analysis of variance (ANOVA) yielded an interaction,  $F(2, 60) = 23.96$ ,  $p < .0001$ ,<sup>3</sup> which demonstrated the same trade-off as in Studies 1 and 2. Specifically, attributions of group mind and group-member mind differed within high-cohesion groups,  $t(61) = 2.91$ ,  $p < .01$ , and low-cohesion groups,  $t(61) = 10.63$ ,  $p < .001$  (Fig. 2); participants attributed more group mind,  $t(61) = 5.84$ ,  $p < .0001$ , and less group-member mind,  $t(61) = 3.58$ ,  $p = .001$ , to high-cohesion groups than to low-cohesion groups.<sup>4</sup> Judgments of group mind for moderate-cohesion groups differed

from judgments of group mind for high- and low-cohesion groups, and judgments of group-member mind for moderate-cohesion groups differed significantly from judgments of group-member mind for high-cohesion groups (all  $ps < .05$ , see Table 1 for descriptive statistics).

Participants also attributed more responsibility to the high-cohesion groups than to the low-cohesion groups for their collective actions,  $t(61) = 6.88$ ,  $p < .0001$  (Fig. 2), and more responsibility to members of high-cohesion groups than to members of low-cohesion groups for the group's collective actions,  $t(61) = 5.81$ ,  $p < .0001$ . Judgments of individual responsibility for individual actions did not differ significantly across groups ( $p > .26$ ); this finding replicated the results of Study 2. Also, group hierarchy did not vary systematically across groups.

In sum, high-cohesion groups elicited higher group-mind judgments and lower group-member-mind judgments than low-cohesion groups did. Mind judgments corresponded with responsibility judgments: High-cohesion groups elicited greater judgments of group and group-member responsibility for the group's collective actions than low-cohesion groups did; this pattern replicated the pattern observed in Study 2. These findings emerged for judgments of high- and low-cohesion groups even though cohesion was manipulated (rather than simply measured) across conditions while holding groups constant.

In Study 4, we sought to extend these findings by manipulating group cohesion in the absence of verbal information about groups. Study 4 relied on novel nonhuman groups and manipulated group cohesion visually to further investigate the group-member mind trade-off and consequences for responsibility judgments.

## Study 4: Manipulating Group Cohesion Perceptually

Study 4 replicated and extended the patterns found in Studies 1 through 3 by manipulating group cohesion through perceptual (rather than conceptual) information. The first three studies

**Table 1.** Results From Study 3: Mean Ratings for Each Group Type

Dependent measure	High-cohesion groups	Moderate-cohesion groups	Low-cohesion groups
Group mind	4.48 <sub>a</sub> (1.85)	3.59 <sub>b</sub> (1.28)	3.15 <sub>c</sub> (1.71)
Group-member mind	5.43 <sub>a</sub> (1.39)	5.89 <sub>b,c</sub> (1.07)	6.05 <sub>c</sub> (1.28)
Group responsibility for group actions	5.16 <sub>a</sub> (1.49)	4.25 <sub>b</sub> (1.40)	3.89 <sub>c</sub> (1.52)
Group-member responsibility for group-member actions	5.87 <sub>a</sub> (1.19)	5.95 <sub>a</sub> (1.13)	6.04 <sub>a</sub> (1.23)
Group-member responsibility for group actions	4.49 <sub>a</sub> (1.42)	4.13 <sub>b</sub> (1.27)	3.38 <sub>c</sub> (1.32)
Group cohesiveness	5.77 <sub>a</sub> (1.19)	4.22 <sub>b</sub> (1.14)	3.43 <sub>c</sub> (1.41)
Group hierarchy	3.57 <sub>ab</sub> (1.62)	3.58 <sub>a</sub> (1.31)	3.29 <sub>b</sub> (1.49)

Note: Standard deviations are given in parentheses. All responses were made on scales ranging from 1 to 7. Within each row, values with different subscripts are significantly different,  $p < .05$ .

presented verbal descriptions of established human groups; thus, participants' preconceived notions of these groups might have contributed to their judgments of group mind (though this possibility is less plausible for Study 3, in which groups were held constant, and group cohesion was manipulated). Study 4, however, relied on visual depictions of novel nonhuman groups (i.e., fish). This approach enabled us to test whether low-level perceptual features that provide cues to group cohesion might produce the same trade-off as in Studies 1 to 3 and whether this trade-off applies to relatively unfamiliar groups.

## Method

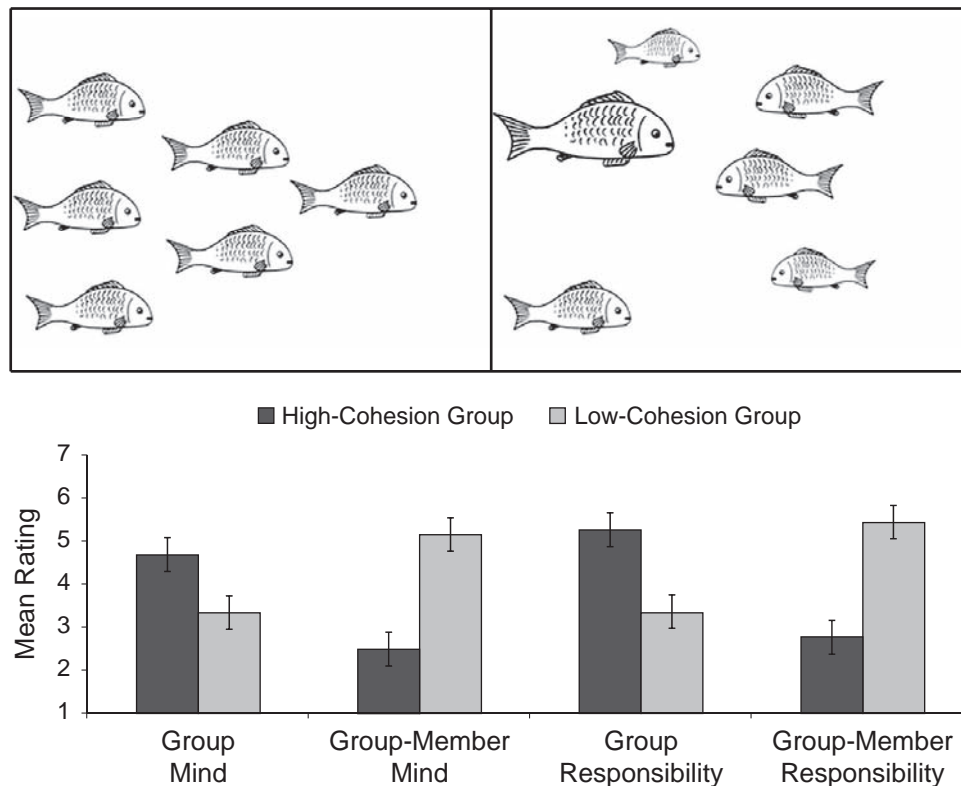
**Participants.** Twenty-five people (12 male, 13 female; mean age = 40.84 years) completed the study online, as in Studies 1 to 3.

**Procedure.** Participants viewed two 44-s animated videos of fish (the order of the videos was counterbalanced). One video presented fish of the same size moving in a coordinated manner (the high-cohesion group, which we referred to as “fall-fish”), whereas the other video presented fish of different sizes

moving in an uncoordinated manner (the low-cohesion group, which we referred to as “silversides”; see Fig. 3 for a still from each video). After viewing each video, participants rated the extent to which the group of fish has a mind, the extent to which the average fish in the group has a mind, the extent to which the group of fish is responsible for its collective actions, the extent to which the average fish in the group is responsible for its own individual actions, and the extent to which the average fish in the group is responsible for the group's collective actions; ratings were made on a 7-point scale (1 = *not at all*, 7 = *very much*). Each question referred to the fish's species name. Participants also rated how cohesive each group is on a 7-point scale (1 = *low cohesion*, 7 = *high cohesion*); analysis of cohesiveness ratings revealed that the manipulation was effective,  $t(24) = 9.82, p < .0001$ .

## Results and discussion

A 2 (cohesion: high cohesion vs. low cohesion)  $\times$  2 (measure: group mind vs. group-member mind) ANOVA yielded an interaction,  $F(1, 24) = 25.26, p < .0001$ , which demonstrated the same trade-off as was demonstrated in Studies 1 to 3. More



**Fig. 3.** Stimuli and results from Study 4. In the top panel, screenshots from the two videos used show the high-cohesion group of fish (left) and the low-cohesion group of fish (right). The graph in the bottom panel presents mean ratings as a function of group cohesiveness. Participants rated how much mind each group has, how much mind the average fish in each group has, how much responsibility each group has for its collective actions, and how much responsibility the average fish has for its individual actions. Error bars indicate standard errors of the mean.

specifically, attributions of group mind and group-member mind differed for both high-cohesion groups,  $t(24) = 3.48$ ,  $p < .01$ , and low-cohesion groups,  $t(24) = 3.62$ ,  $p = .001$  (Fig. 3); participants attributed more group mind,  $t(24) = 2.51$ ,  $p < .02$ , and less group-member mind,  $t(24) = 5.91$ ,  $p < .0001$ , to fish in the high-cohesion group than to fish in the low-cohesion group (Fig. 3).

Participants also attributed more responsibility to the high-cohesion group for its collective actions,  $t(24) = 4.04$ ,  $p < .0001$ ; more responsibility to the average member of the high-cohesion group for the group's collective actions,  $t(24) = 3.33$ ,  $p < .01$ ; and in turn less responsibility to the average member of the high-cohesion group for its individual actions,  $t(24) = 6.29$ ,  $p < .0001$  (see Fig. 3; also see Table 2 for descriptive statistics).

As in Studies 1 to 3, high-cohesion groups elicited higher group-mind judgments and lower group-member-mind judgments than low-cohesion groups did. Replicating the results of Studies 1 to 3, mind judgments in this study also corresponded with responsibility judgments: High-cohesion groups elicited greater attributions of group and group-member responsibility for the group's collective actions than low-cohesion groups did. Notably, members of high-cohesion groups were also judged as less responsible for their own individual actions.

## General Discussion

The research reported here reveals a novel trade-off in attributions of mind: The more a group is attributed a group mind, the less members of that group are attributed individual minds, and vice versa. Attributing more mind to the group is linked to judging the group—and its members—to be more responsible for the group's collective actions.

There are three possible explanations why this trade-off occurs, which future research can test more definitively. First, group cohesion may simply have separable and opposite effects on judgments of group mind and group-member mind—a cohesive group indicates a single-minded group, whereas a diverse group indicates the presence of independently minded members. Second, an “economy of mind” may

exist, such that perceivers are capable of attributing only a finite amount of mind to any social being or structure—thus, attributing mind to a group might diminish the amount of mind that a person can attribute to a group member and vice versa. A third, related possibility is that the trade-off results from a lack of motivation in the attributional process. That is, once a perceiver identifies a mind as the cause of the group's actions—be it the group itself or a particular member—the perceiver becomes less motivated to seek and identify an additional source of mind. Given that inferring mind requires motivation and cognitive resources (Apperly, Riggs, Simpson, Chiavarino, & Samson, 2006; Epley, Keysar, Van Boven, & Gilovich, 2004; Lin, Keysar, & Epley, 2010), attributing mind to one entity (whether a group or a group member) might sap the cognitive capacity and motivation to attribute mind to an additional entity.

### Does the trade-off represent a cognitive error?

The present findings may seem counterintuitive in light of existing research on the relation between the actual (rather than attributed or perceived) mental states of groups and group members. This literature demonstrates that the capacities of group mind and group-member mind are often uncorrelated, as in the case of the dissociation between group intelligence and group-member intelligence (Woolley, Chabris, Pentland, Hashmi, & Malone, 2010), the discontinuity between group hostility and individual hostility (Wildschut, Pinter, Vevea, Insko, & Schopler, 2003), or even the dissociation between group-based emotions, such as collective guilt, and individual feelings, such as personal guilt (Doosje, Branscombe, Spears, & Manstead, 1998). Other research demonstrates a relation between group mind and group-member mind, but it shows that the relation is positive, a finding in contrast with the relation observed in the studies reported here.

These previous studies demonstrate that group memory capacity correlates with the memory capacity of a specific group member (Weldon & Bellinger, 1997), individual consumer preferences correlate with collective preferences (Goel, Hofman, Lahaie, Pennock, & Watts, 2010), and American

**Table 2.** Results From Study 4: Mean Ratings for Each Group

Dependent measure	High-cohesion group	Low-cohesion group
Group mind	4.72 (2.25)	3.36 (2.08)
Group-member mind	2.52 (1.78)	5.16 (1.91)
Group responsibility for group actions	5.28 (2.05)	3.36 (1.98)
Group-member responsibility for group-member actions	2.80 (1.78)	5.44 (1.78)
Group-member responsibility for group actions	4.16 (2.17)	2.68 (1.60)
Group cohesiveness	6.44 (1.00)	3.44 (1.73)

Note: Standard deviations are given in parentheses. All responses were made on scales ranging from 1 to 7. Within each row, values differed significantly,  $p < .05$ .

individuals' self-reported mood states on Twitter predict the mood (i.e., success) of national economic markets (Bollen, Mao, & Zeng, 2011). This body of literature therefore suggests either a null or a positive relation between the actual mental capacities of groups and group members. Future research should therefore investigate whether the group-member mind trade-off observed here represents a cognitive error.

## Implications

The present findings have three major implications for how people think about the minds of groups and group members. First, attribution of mind to groups and group members affects ethical judgment and decision making. The extent to which people consider a group to be a cohesive unit with a collective mind increases their willingness to donate resources (Bartels & Burnett, 2011), distribute rights (e.g., property ownership), and attribute predatory qualities (Gao, McCarthy, & Scholl, 2010) to that group. The present research contributes to an understanding of the conditions under which these phenomena occur and the implications of these phenomena for both groups and group members. Indeed, future research should examine whether the types of minds (Gray et al., 2007) attributed to groups influence the moral evaluation and treatment of those groups. Groups vary on the extent to which they are stereotyped as interpersonally warm and competent (Cuddy, Fiske, & Glick, 2007), factors that influence how target groups are treated. For example, people are less likely to purchase products from not-for-profit corporations versus for-profit corporations because they infer that nonprofit organizations are warm yet incompetent (Aaker, Vohs, & Mogilner, 2010). Ascriptions of specific mental characteristics (e.g., personal beliefs and intentions) to various groups may also affect the moral treatment of these groups (O'Laughlin & Malle, 2002).

Second, this research informs the psychology behind legal decisions, such as those regarding corporate personhood (which assumes group mind) or the charge of conspiracy (which requires collective intent among multiple individuals; Malle, 2011). In another recent Supreme Court case, Wal-Mart was charged with discriminating against female employees in the largest class-action suit in U.S. history (*Wal-Mart Stores, Inc. v. Dukes*, 2011). The Supreme Court ruled in favor of Wal-Mart, stating that the plaintiffs (female employees) were too varied in their circumstances to constitute a class, although Wal-Mart as a defendant was allowed to represent itself as a unified entity. This case demonstrates the effect of group cohesion on judgments of mind (and hence legal rights) for groups and group members. Understanding the implications of the group-member mind trade-off in the legal domain will be another important topic for future investigation.

Finally, this research sheds light on the psychology of dehumanization (Bandura, Underwood, & Fromson, 1975; Haslam, 2006), whereby people reduce individual persons to mindless entities in a faceless mass. The inverse relation between group mind and group-member mind suggests that

perceived group cohesion should predict a willingness to dehumanize individual members of that group. Determining how attributions of mind operate across group boundaries as well as the cues that modulate these attributions (Looser & Wheatley, 2010; Morewedge, Preston, & Wegner, 2007) will be important as well. This research can help explain how people justify hostility toward large collectives and how people come to treat members of groups as unique individuals.

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## Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

## Supplemental Material

Additional supporting information may be found at <http://pss.sagepub.com/content/by/supplemental-data>

## Notes

1. Demographic factors, such as age and gender, did not meaningfully affect results in any of the studies, so they are not discussed further.
2. See the Supplemental Material available online for a complete list of materials used in Studies 1 through 4.
3. A 2 (group membership: yes vs. no)  $\times$  3 (cohesion: high cohesion vs. moderate cohesion vs. low cohesion)  $\times$  2 (measure: group mind vs. group-member mind) ANOVA yielded the same Cohesion  $\times$  Measure interaction,  $F(2, 59) = 10.43, p < .0001$ ; group membership did not interact with any other factors significantly.
4. We also computed average group-member mind ratings for the eight groups described in high-cohesion and low-cohesion terms to conduct a 2 (condition: A vs. B)  $\times$  2 (measure: group mind vs. member mind)  $\times$  2 (group cluster: [jazz club, chess club, karate club, improv troupe] vs. [model United Nations, ballroom dance club, singers club, drama club]) mixed ANOVA. This analysis revealed a three-way interaction,  $F(1, 6) = 263.59, p < .0001$ , reflecting the same pattern of results and again demonstrating the group-member mind trade-off.

## References

- Aaker, J., Vohs, K., & Mogilner, C. (2010). Non-profits are seen as warm and for-profits as competent: Firm stereotypes matter. *Journal of Consumer Research, 37*, 224–237.
- Abelson, R. P., Dasgupta, N., Park, J., & Banaji, M. R. (1998). Perceptions of the collective other. *Personality and Social Psychology Review, 2*, 243–250.
- Apperly, I. A., Riggs, K. J., Simpson, A., Chiavarino, C., & Samson, D. (2006). Is belief reasoning automatic? *Psychological Science, 17*, 841–844.
- Bandura, A., Underwood, B., & Fromson, M. E. (1975). Disinhibition of aggression through diffusion of responsibility and dehumanization. *Journal of Personality and Social Psychology, 9*, 253–269.

- Bartels, D. M., & Burnett, R. C. (2011). A group construal account of drop-in-the-bucket thinking in policy preference and moral judgment. *Journal of Experimental Social Psychology, 47*, 50–57.
- Bloom, P., & Veres, C. (1999). The perceived intentionality of groups. *Cognition, 71*, B1–B9.
- Bollen, J., Mao, H., & Zeng, X. (2011). Twitter mood predicts the stock market. *Journal of Computational Science, 2*, 1–8.
- Campbell, D. T. (1958). Common fate, similarity, and other indices of the status of aggregates of persons as social entities. *Behavioral Science, 3*, 14–25.
- Citizens United v. Federal Election Commission, 558 U.S. 08-205 (2010).
- Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2007). The BIAS map: Behaviors from intergroup affect and stereotypes. *Journal of Personality and Social Psychology, 92*, 631–648.
- Doosje, B., Branscombe, N. R., Spears, R., & Manstead, A. S. R. (1998). Guilty by association: When one's group has a negative history. *Journal of Personality and Social Psychology, 75*, 872–886.
- Epley, N., Keysar, B., Van Boven, L., & Gilovich, T. (2004). Perspective taking as egocentric anchoring and adjustment. *Journal of Personality and Social Psychology, 87*, 327–339.
- Frith, U., & Frith, C. (2003). Development and neurophysiology of mentalizing. *Philosophical Transactions of the Royal Society B: Biological Sciences, 358*, 459–473.
- Gao, T., McCarthy, G., & Scholl, B. (2010). The wolfpack effect: Perception of animacy irresistibly influences interactive behavior. *Psychological Science, 21*, 1845–1853.
- Goel, S., Hofman, J. M., Lahaie, S., Pennock, D. M., & Watts, D. J. (2010). Predicting consumer behavior with Web search. *Proceedings of the National Academy of Sciences, USA, 107*, 17486–17490.
- Gray, H., Gray, K., & Wegner, D. M. (2007). Dimensions of mind perception. *Science, 315*, 619.
- Hamilton, D., & Sherman, S. (1996). Perceiving persons and groups. *Psychological Review, 103*, 336–355.
- Haslam, N. (2006). Dehumanization: An integrated review. *Personality and Social Psychology Review, 10*, 252–264.
- Heider, F., & Simmel, M. (1944). An experimental study of apparent behavior. *American Journal of Psychology, 57*, 243–249.
- Knobe, J., & Prinz, J. J. (2008). Intuitions about consciousness: Experimental studies. *Phenomenology and the Cognitive Sciences, 7*, 67–83.
- Lickel, B., Hamilton, D. L., Wierzchowska, G., Lewis, A., Sherman, S. J., & Uhles, A. N. (2000). Varieties of groups and the perception of group entitativity. *Journal of Personality and Social Psychology, 78*, 223–246.
- Lin, S., Keysar, B., & Epley, N. (2010). Reflexively mindblind: Using theory of mind to interpret behavior requires effortful attention. *Journal of Experimental Social Psychology, 46*, 551–556.
- Looser, C. E., & Wheatley, T. (2010). The tipping point of animacy: How, when, and why we perceive life in a face. *Psychological Science, 21*, 1854–1862.
- Malle, B. F. (2011). The social and moral cognition of group agents. *Journal of Law and Policy, 19*, 95–136.
- Menon, T., Morris, M. W., Chiu, C. Y., & Hong, Y. Y. (1999). Culture and construal of agency: Attribution to individual versus group dispositions. *Journal of Personality and Social Psychology, 76*, 701–717.
- Morewedge, C. K., Preston, J., & Wegner, D. M. (2007). Timescale bias in the attribution of mind. *Journal of Personality and Social Psychology, 93*, 1–11.
- Morewedge, C. K., & Schooler, J. (2011). *When group membership reduces mind attribution*. Unpublished manuscript, Carnegie Mellon University, Pittsburgh, PA.
- O'Laughlin, M. J., & Malle, B. F. (2002). How people explain actions performed by groups and individuals. *Journal of Personality and Social Psychology, 82*, 33–48.
- Quattrone, G. A., & Jones, E. E. (1980). The perception of variability within in-groups and out-groups: Implications for the law of small numbers. *Journal of Personality and Social Psychology, 38*, 141–152.
- Sherman, S. J., & Percy, E. J. (2011). The psychology of collective responsibility: When and why collective entities are likely to be held responsible for the misdeeds of individual members. *Journal of Law and Policy, 19*, 137–170.
- Wal-Mart Stores, Inc. v. Dukes, 564 U.S. 10-277 (2011).
- Weldon, M. S., & Bellinger, K. D. (1997). Collective memory: Collaborative and individual processes in remembering. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 23*, 1160–1175.
- Wildschut, T., Pinter, B., Vevea, J. L., Insko, C. A., & Schopler, J. (2003). Beyond the group mind: A quantitative review of the interindividual-intergroup discontinuity effect. *Psychological Bulletin, 129*, 698–722.
- Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13*, 103–128.
- Woolley, A. W., Chabris, C. F., Pentland, A., Hashmi, N., & Malone, T. W. (2010). Evidence for a collective intelligence factor in the performance of human groups. *Science, 330*, 686–688.
- Yzerbyt, V. Y., Castano, E., Leyens, J.-Ph., & Paladino, M.-P. (2000). The phenomenology of the ingroup: The interplay of identification, entitativity and overexclusion. In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology* (Vol. 11, pp. 257–295). Chichester, England: Wiley.
- Yzerbyt, V. Y., Corneille, O., & Estrada, C. (2001). The interplay of subjective essentialism and entitativity in the formation of stereotypes. *Personality and Social Psychology Review, 5*, 141–155.