



ELSEVIER

Contents lists available at ScienceDirect

Consciousness and Cognition

journal homepage: www.elsevier.com/locate/concog

Lost in the crowd: Entitative group membership reduces mind attribution



Carey K. Morewedge^{a,*}, Jesse J. Chandler^b, Robert Smith^c, Norbert Schwarz^d,
Jonathan Schooler^e

^a *Tepper School of Business, Carnegie Mellon University, United States*

^b *Department of Psychology, University of Michigan, United States*

^c *Fisher College of Business, The Ohio State University, United States*

^d *Institute for Social Research, University of Michigan, United States*

^e *Department of Psychological and Brain Sciences, University of California at Santa Barbara, United States*

ARTICLE INFO

Article history:

Received 6 March 2013

Keywords:

Mind perception
Attribution
Group membership
Entitativity
Similarity
Proximity
Person perception
Social cognition

ABSTRACT

This research examined how and why group membership diminishes the attribution of mind to individuals. We found that mind attribution was inversely related to the size of the group to which an individual belonged (Experiment 1). Mind attribution was affected by group membership rather than the total number of entities perceived at once (Experiment 2). Moreover, mind attribution to an individual varied with the perception that the individual was a group member. Participants attributed more mind to an individual that appeared distinct or distant from other group members than to an individual that was perceived to be similar or proximal to a cohesive group (Experiments 3 and 4). This effect occurred for both human and nonhuman targets, and was driven by the perception of the target as an entitative group member rather than by the knowledge that the target was an entitative group member (Experiment 5).

© 2013 Elsevier Inc. All rights reserved.

1. Introduction

People are perceived differently across a variety of important dimensions when they belong to a group. Group membership changes the trait impressions that are formed of its members (Hamilton & Sherman, 1996), the emotions and behavioral responses members elicit (Cuddy, Fiske, & Glick, 2007), and the strategies perceivers use to predict their future behavior (Kahneman & Tversky, 1973; Morewedge & Todorov, 2012). We examine how group membership influences the perception of individuals on one fundamental dimension of categorization—the extent to which they are attributed mind (Dennett, 1987; Gray, Gray, & Wegner, 2007; Michotte, 1946/1963; Premack & Woodruff, 1978; Rakison & Poulin-Dubois, 2001). We suggest that when a target is perceived to belong to an entitative group, people attribute less mind to that target relative to when it is perceived as an individual.

1.1. Mind attribution

Mind attribution entails the perception that a target possesses mental states such as beliefs, desires, and complex emotions (Baron-Cohen, Leslie, & Frith, 1985; Gray et al., 2007). It is a distinct psychological process that informs and is related to

* Corresponding author. Address: Carnegie Mellon University, 237 Posner Hall, Pittsburgh, PA 15224, United States.

E-mail address: morewedge@cmu.edu (C.K. Morewedge).

a variety of other judgments and decisions such as causal attribution, behavioral prediction, policy making, and moral judgment (Bastian, Loughnan, Haslam, & Radke, 2012; Dennett, 1987; Gray, Knickman, & Wegner, 2011; Loughnan, Haslam, & Bastian, 2010; Morris, Menon, & Ames, 2001). For instance, mind attribution is related to but distinct from causal attribution. Mind attribution occurs in contexts in which causal attributions are not made (e.g., Gray et al., 2007; Morewedge, Preston, & Wegner, 2007). Conversely, causal attributions can be made without engaging in mind attribution, as when one attributes the flooding of a city to the strength of a hurricane (Morris et al., 2001; Rakison & Poulin-Dubois, 2001).

Not all minds are equal. Targets vary with regard to the capacity and complexity of mind they are attributed. Some categories of targets are generally attributed more mind (e.g., humans) than other categories (e.g., non-human animals and machines). Non-human targets may be perceived to vary on possession of the most basic elements of mind, such as consciousness, beliefs, and desires. Whereas human targets are universally regarded as comparatively high in basic elements of mind, individuals may vary in the apparent richness of their conscious experience (Haslam, Bain, Douge, Lee, & Bastian, 2005), particularly if they belong to the perceiver's ingroup rather than to an outgroup (Leyens et al., 2003). There is also substantial variation in mind attribution that is explained by incidental contextual cues such as the movement speed of the target (Morewedge et al., 2007) and by motivated reasoning on the part of the perceiver (Waytz, Morewedge, et al., 2010). Less mind is attributed to entities when one intends to eat them (Bastian, Loughnan, Haslam, & Radke, 2012; Loughnan et al., 2010), for example, and actions performed by liked targets are attributed to more complex mental states than are similar actions performed by disliked targets (Kozak, Marsh, & Wegner, 2006).

Mind attribution has important consequences. Agents with minds have moral rights and moral responsibility (Waytz, Gray, Epley, & Wegner, 2010). The rights afforded to women, minorities, persons with cognitive disabilities, and children have historically waned when those groups are dehumanized and are attributed lesser cognitive capacity (Haslam, 2006). Views regarding the morality of abortion and sustaining the life of patients in persistent vegetative states similarly hinge on whether or not the fetus or patient is perceived to have a mind (Gray et al., 2007, 2011).

Entities attributed mind also elicit different behavioral responses. People are more likely to help outgroup members who are victims of a natural disaster, for example, when they attribute more complex mental states to those victims (Cuddy, Rock, & Norton, 2007). For non-human targets, people use objects without minds and discard them when they are no longer useful, but they will maintain relationships with entities that are attributed a mind even when there is no instrumental benefit of doing so (Chandler & Schwarz, 2010; Jones & Vaughan, 1990). Given that humans automatically categorize entities according to their group memberships (e.g., Fiske & Neuberg, 1990), it is essential to understand how group membership influences attribution of mind.

1.2. Entitative groups and minds

We suggest that group membership is likely to influence mind attribution if the group is perceived to be an entitative group. Entitativity refers to the extent that a collection of individuals is perceived as a single, coherent unit, which influences the perception of groups along several dimensions. Entitative groups are judged holistically (Campbell, 1958; Hamilton & Sherman, 1996), with minimal attention to and recognition of differences between their component members (Fiske & Neuberg, 1990; Halberstadt, 2003; Hamilton, Sherman, & Rodgers, 2004; Kurzban, Tooby, & Cosmides, 2001; Mauer, Le Grand, & Monloch, 2002). When making judgments about group members and the group as a whole, greater entitativity leads people to generalize more from past experiences with a single group member (Smith, Chandler, & Schwarz, 2013) and to increased confidence in their final judgment (Dasgupta, Banaji, & Abelson, 1999; Smith, Faro, & Burson, 2013; Thakkar, 2006). This effect extends beyond physical similarity to include inferences about the homogeneity of individual members' mental states (Hamilton et al., 2004). Illustrating this tendency, recent research has shown that groups united by a common background or goal are perceived as governed by the plans and intentions of the group and each individual member is perceived to be less likely to make its own plans and think for itself (i.e., "have a mind of its own" Waytz & Young, 2012).

These findings suggest that people are likely to infer that there is less variance between the minds of entitative group members (i.e., greater homogeneity). It is not known, however, whether the entitativity of a group leads perceivers to infer that its individual members have *less mind*. Paying less attention to the variance of mental states between highly entitative group members ("these things share a common thought or goal") does not necessarily imply that people are more likely to deny that they possess mental states ("these things do not seem to have mind"). If the Boston Red Sox share a common goal to crush the New York Yankees, for example, it does not imply that each member of the Red Sox has greater or lesser mental capacity than he would if the team possessed disparate goals. In other words, the inference that a group is of "one mind" does not necessarily imply that its members lack mind.

Some research has demonstrated that people rely more on stereotypes when making judgments of members of entitative groups (Brewer & Harasty, 1996), and that the extent to which people rely on such stereotypes is inversely related to the mind attributed to their members (Ames, 2004). This does not necessarily indicate that membership in an entitative group reduces attribution of mind to individual members, however, as people can explain and predict the behavior of others by using knowledge structures such as stereotypes and naïve psychological theories without consideration of others' minds (Ames, 2004; Galinsky & Moskowitz, 2000; Saxe, 2005).

In short, membership in an entitative group changes the perception of individual group members in ways that are likely to affect the attribution of mind. Group members are perceived holistically. Their intentions and plans are perceived to be more homogenous and determined by the mental states of other group members, and people often infer their mental states

and intentions through processes that do not require the attribution of mind. We suggest that increasing the entitativity of a group reduces mind attribution to its members, especially the experiential component of individuals' mental experience that is typically absent in considerations of group mind (Bloom & Veres, 1999; Knobe & Prinz, 2008).

1.3. The present research

We present five experiments testing whether the perception that an individual target is a member of an entitative group decreases mind attribution to the target. The first four experiments examine mind attribution to fictitious non-human targets that are free from the constraints of social knowledge and expectations. Experiment 1 tested the basic effect of whether (entitative) group membership reduces mind attribution to non-human targets by manipulating the size of the group to which the target belonged (McGarty, Haslam, Hutchinson, & Grace, 1995). Experiments 2, 3, and 4 manipulated the physical similarity and proximity between the non-human target and other group members (Campbell, 1958; Lickel et al., 2000) to test whether differences in mind attribution to targets perceived as individuals and group members depends on the perception that the latter belong to an entitative group. Experiment 5 replicated these findings with human targets and further examined whether the influence of entitative group membership on mind attribution is due to perceptual differences caused by entitative group membership or inferences about members of entitative groups.

2. Experiment 1: group size

We manipulated group size and examined mind attribution to an individual target. As group size increases perceptions of group entitativity (McGarty et al., 1995), we expected that group size should be inversely related to the mind attributed to the target.

2.1. Method

2.1.1. Participants

Eighty-four commuters at South Station in Boston, Massachusetts (41 women, $M_{\text{age}} = 38.9$, $SD = 14.4$) volunteered to complete a survey.

2.1.2. Procedure

Participants saw a black and white image of a sea creature with two fins in a fish tank in the presence of zero, one, two, three, or four other identical sea creatures (between-subjects). Participants rated the extent to which the target sea creature (indicated by an arrow) appeared to possess beliefs, desires, consciousness, and intelligence on four 5-point scales (i.e., "To what extent does the target appear to possess beliefs/possess desires/be conscious/be intelligent?") with endpoints such as, *Does NOT appear to be conscious* (0) and *Definitely appears to be conscious* (4). Condition assignment and question order were random in all experiments.

2.2. Results and discussion

Mental state attributions were highly reliable (Cronbach's $\alpha = .82$), so they were averaged to create a *mind attribution* score for each participant ($M = 1.96$, $SD = 1.07$). Regressing mind attribution upon group size yielded a significant inverse linear relationship, $\beta = -.24$, $t(82) = 2.21$, $p = .03$; no quadratic relationship was found, $\beta = -.44$, $t < 1$, $p = .42$. Participants attributed less mind to a target when it appeared to belong to a entitative group—when a greater number of similar entities were present.

3. Experiment 2: divided attention or group membership

Experiment 2 tested whether mind attribution is affected by the sheer number of entities perceived simultaneously or by the perception that the target is a member of an entitative group. In other words, it tested if mind attribution is affected by the perception of multiple targets at once, or if it is affected by the perception of the target as a group member. Participants saw five entities in all conditions. The physical similarity of the target and the other four entities was varied between conditions to make the target appear to belong or not belong to their group (Dasgupta et al., 1999; Lickel et al., 2000). We predicted that participants would attribute less mind to the target when it and the other entities appeared to comprise an entitative group—when the target and other entities were physically similar.

3.1. Method

3.1.1. Participants

One hundred and fifty-seven commuters at South Station in Boston, Massachusetts (69 women, $M_{\text{age}} = 31.9$, $SD = 10.8$) volunteered to complete a survey.

3.1.2. Procedure

Participants saw a two-finned sea creature or a five-finned sea creature in the presence of four other sea creatures of the target's species or the other species (Fig. 1). The target was evaluated on the scales described in Experiment 1.

3.2. Results and discussion

Mind attribution scores ($\alpha = .81$) were submitted to a 2 (target's species: 2 fins, 5 fins) \times 2 (target-group similarity: similar, different) between-subjects ANOVA, which yielded a main effect of target species such that participants attributed less mind to targets with 2 fins ($M = 1.51$, $SD = 1.03$) than targets with 5 fins ($M = 1.87$, $SD = 1.01$), $F(1, 153) = 5.02$, $p = .03$, $\eta_p^2 = .03$. More important, it yielded a main effect of similarity such that participants attributed less mind to targets that were the same species as the group ($M = 1.47$, $SD = 1.00$) than to targets that were a different species than the group ($M = 1.91$, $SD = 1.03$), $F(1, 153) = 7.90$, $p = .006$, $\eta_p^2 = .05$. There was no interaction, $F < 1$ (see Fig. 1).

Less mind was attributed to a target whose physical appearance suggested membership in an entitative group than if its physical appearance suggested that it did not belong to the group. We had no a priori theories that or why participants might attribute more mental states to the creature with five rather than two fins, but for both species, less mind was attributed to the target when it was presented among four entities of the same species than among four entities of the other species. These results suggest that mind attribution is diminished when targets are perceived to be group members rather than when multiple entities are perceived simultaneously.

4. Experiment 3: similarity and mind

Our suggestion that reduced mind attribution occurs as a consequence of the perception that a target is a member of an entitative group must be tempered by the fact that no direct measures of entitative group membership were taken in the previous experiments. Experiment 3 directly addressed this gap by manipulating the target-group similarity and measuring both if the target was perceived to be a member of an entitative group and mind attributed to it. We expected participants to perceive targets that were more similar to other group members as belonging to a more entitative group, and to attribute less mind to targets perceived to belong to the more entitative group than to the less entitative group.

4.1. Method

4.1.1. Participants

Ninety-seven residents of Boston, MA (51 women, $M_{\text{age}} = 24.80$, $SD = 5.74$) were paid \$5 for participating.

4.1.2. Procedure

Each participant was seated in a private laboratory cubicle and then was randomly assigned to see one of two color images of a five-finned orange sea creature in a fish tank. Four other sea creatures of the same shape and color surrounded

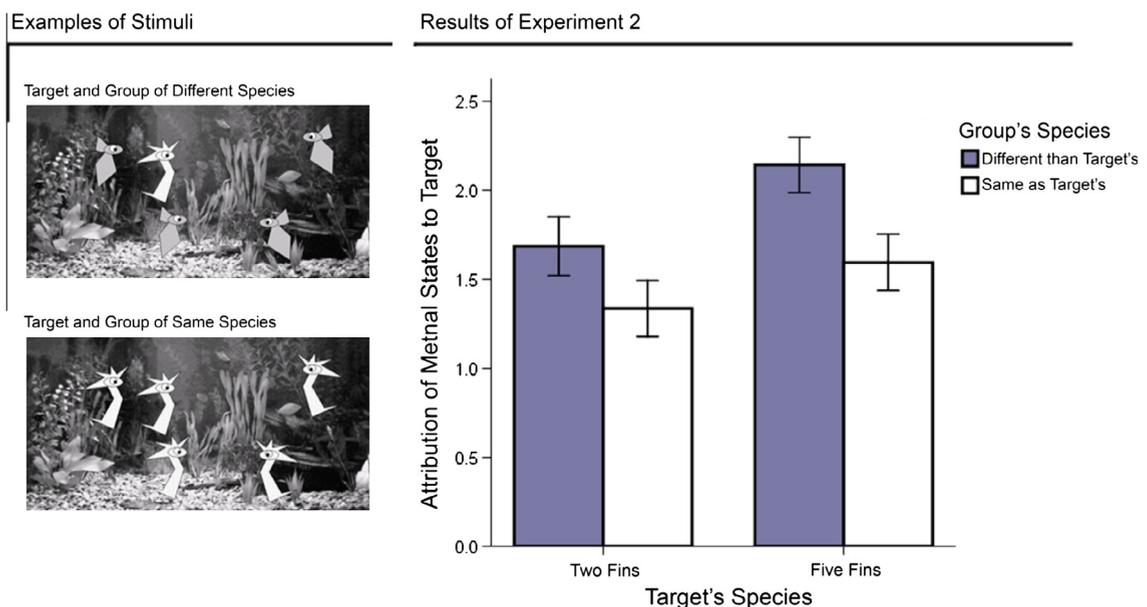


Fig. 1. Mental states were more likely to be attributed to targets when targets and group members were different species rather than the same species in Experiment 2 (figure right). Error reflects ± 1 SEM. Examples of stimuli appear on the left.

the target in one image. Four other sea creatures of the same shape but of a different color surrounded the target in the other image. Participants rated the extent to which the target appeared to possess beliefs, desires, consciousness, and intelligence on four separate 5-point scales (i.e., “To what extent does the target appear to possess beliefs/possess desires/be conscious/be intelligent?”) with endpoints such as, *Does NOT appear to be conscious* (1) and *Definitely appears to be conscious* (5).

Next, participants rated the extent to which the sea creature appeared to be an entitative group member on two 5-point scales; one had endpoints, *Does NOT appear to be a group member* (1) and *Definitely appears to be a group member* (5). The other measured how distinct the target appeared from the other sea creatures on a 5-point scale with endpoints, *Does NOT appear to be distinct from the group* (1) and *Definitely appears to be distinct from the group* (5).

4.2. Results and discussion

Two participants spent less than two seconds reading the instructions explaining the task to participants, which was an amount of time that was more than three standard deviations from the mean spent by all participants. These participants were removed from all further analyses, but the results are similar with them included. Attributions of beliefs, desires, consciousness, and intelligence were averaged to form a composite mind attribution score ($\alpha = .75$).

4.2.1. Manipulation checks

As the measures of group membership were highly correlated, $r(93) = -.54$, $p < .001$, distinctiveness was reverse coded and they were averaged to form an index of perceived group membership. Participants were more likely to perceive the target to belong to an entitative group when it was the same color as the other group members ($M = 4.29$, $SD = .73$) than when it was a different color ($M = 2.56$, $SD = 1.17$), $t(93) = 8.61$, $p < .001$.

4.2.2. Mind attribution

Most important, participants attributed less mind to the target when it appeared amidst sea creatures of the same color ($M = 2.64$, $SD = .81$) than amidst sea creatures that were a different color ($M = 3.03$, $SD = 1.01$), $t(93) = 2.09$, $p = .04$. Furthermore, attribution of mind was negatively correlated with the perception that the target was a member of an entitative group, $r(93) = -.30$. The perception that the target belonged to an entitative group thus appeared to reduce attribution of mind to the target.

5. Experiment 4: proximity and mind

We next examined the influence of a third factor that determines entitativity on mind attribution—the proximity of the target to other group members (Campbell, 1958). We expected that participants would attribute more mind to the target when it was distant from a group of similar entities than when it was close to a group of similar entities. We also measured the mind attributed to the other entities. We predicted that participants would attribute more mind to the target than the other entities when it was distant from their group (as participants should attribute less mind to the group members), but attribute no more mind to the target than to the other entities when the target was close to their group (as it too was a group member).

5.1. Method

5.1.1. Participants

Two hundred and eighty-one Americans (116 women, $M_{\text{age}} = 30.37$, $SD = 9.63$) received 25¢ for completing a survey on Amazon Mechanical Turk (AMT; Paolacci, Chandler, & Ipeirotis, 2010).

5.1.2. Procedure

Each participant was randomly assigned to see one of two color images of five identical orange sea creatures in a fish tank. In the distant condition, a target sea creature appeared to the left of the tank and the other four appeared on the right. In the close condition, all five creatures appeared on the right side of the tank. An arrow indicated the target creature. Participants first rated the extent to which the target appeared to be an entitative group member on three items adapted from Carpenter and Radhakrishnan (2002): (a) the extent to which the target creature seemed to belong to a group with a coherent identity or seem like an individual; (b) the extent to which the target creature appeared to be interdependent with the other creatures; and (c) if something good or bad happened to the target creature, to what extent it would affect the other creatures. These ratings were made on 7-point scales with endpoints such as, *Definitely seems like an individual* (1) and *Definitely seems to belong to a coherent group* (7).

Next, as the critical dependent variables, participants rated the extent to which the target appeared to have a mind and the extent to which the other creatures appeared to have a mind on two separate 7-point scales with endpoints, *As much mind as a rock* (1) and *As much mind as a human being* (7).

5.2. Results

5.2.1. Manipulation checks

Averaging across the three entitativity scales, $\alpha = .79$, participants were more likely to perceive the target as an entitative group member when the target was close to the four other creatures ($M = 5.59$, $SD = .87$) than when it was distant from the four other creatures ($M = 3.41$, $SD = 1.48$), $t(279) = 15.08$, $p < .001$.

5.2.2. Mind attribution

We examined mind attribution to the target and to the four other creatures in a 2(entity: target, others) \times 2(condition: close, distant) mixed ANOVA with repeated measures on the first factor. The analyses yielded a main effect of entity, $F(1, 279) = 17.61$, $p < .001$, a marginally significant effect of condition, $F(1, 279) = 2.41$, $p = .12$, and a significant Entity \times Condition interaction, $F(1, 279) = 16.52$, $p < .001$. Simple effects tests revealed that participants attributed less mind to the target when it was close to than distant from the four other creatures, $F(1, 279) = 7.45$, $p = .007$, whereas the target-group proximity had no effect on the mind attributed to the four other creatures, $F < 1$. Also of interest, participants in the distant condition attributed more mind to the target than to the four other creatures, $F(1, 279) = 33.76$, $p < .001$, whereas participants in the close condition attributed similar mind to the target and the four other creatures, $F < 1$ (for all means, see [Table 1](#)).

5.3. Discussion

Participants attributed less mind to a target when it was in close proximity to four other identical creatures than when it was distant from those other creatures. When the target was distant it was attributed more mind than the other four creatures. When it was in close proximity it was attributed as little mind as the four other creatures. As in the previous studies, then, participants attributed less mind to a target when it was perceived to be an entitative group member than when it was perceived as an individual. Considered together with the previous experiments, whether a target is perceived to be an entitative group member because of the number of entities present (Experiment 1), the similarity between the target and other entities (Experiments 2 and 3), or the proximity of target and other entities (Experiment 4), the perception of the target as an entitative group member reduces attribution of mind to the target.

6. Experiment 5: knowledge or perception

In our final experiment, we tested why mind attribution is affected by entitative group membership with human targets. Specifically, we tested whether the reduced attribution of mind to entitative group members is due to their perceived similarity, as we suggest, or to lay theories about group members. This is an important distinction because in many ways, group membership affects the cognition and behavior of its members in ways that suggest that they sometimes do have less mind than if they were not part of a group. Group members can become deindividuated and think, feel, and act as if they are “submerged in the group” (Festinger, Pepitone, & Newcomb, 1952). The sense of self can become diffused and evoke different behaviors when one feels deindividuated (Diener, 1979; Diener, Fraser, Beaman, & Kelem, 1976; Darley & Latané, 1968; Le Bon, 1897). Indeed, observers perceive and treat deindividuated group members differently than they do individuated group members and individuals (Brewer, Weber, & Carini, 1995; Brewer, Weber, & Carini, 1995; Kogut & Ritov, 2005; Wilder, 1978). Rather than reflect a perceptual effect of entitative group membership on mind attribution, it is possible that the reduced attribution of mind to entitative group members observed in Experiments 1–4 reflects inferences that the types of entities that belong to a group have lesser mental capacity or that group membership reduces the mental capacity of its members.

We sought to answer this question by presenting participants with human targets whose physical similarity was manipulated (between-subjects) to make the group appear either high or low in entitativity. Specifically, we showed participants a picture of three university employees who either all wore or all did not wear a uniform. We also manipulated knowledge of entitative group membership by informing one group of participants who saw the employees out of uniform that those employees wore uniforms at their job. Thus, we had three conditions that separated perceptual effects of entitative group membership (i.e., visual similarity) from the knowledge that a target is a member of an entitative group (i.e., knowledge that they wore uniforms for their work).

Table 1

Mind attribution to the target and four group members by target-group proximity.

	Distant (<i>SD</i>)	Close (<i>SD</i>)
Target entity	4.32 _a (1.46)	3.87 _b (1.35)
Other group members	3.88 _b (1.40)	3.86 _b (1.30)

Note: Means that do not share a common subscript differ significantly ($p < .01$). Standard deviations are in parentheses.

In this context it made little sense to directly ask whether the human targets had consciousness. Instead, participants rated the employees on traits that varied on the extent to which those traits reflected complex mental states. Specifically, participants rated employees on traits that varied in the extent to which they reflected *human nature* and are thought to be *uniquely human* (Haslam, 2006; Haslam et al., 2005). Human nature traits reflect an underlying essence that, though shared with other animals, is at the core of what people think of as “humanness;” entities without them are perceived to lack feelings, will or agency (Haslam, 2006; Haslam, Loughnan, Kashima, & Bain, 2008) and appear more like objects than living beings. In contrast, uniquely human traits are those that people possess but animals do not, regardless of whether they reflect something essential to humanity. Entities that lack uniquely human traits are seen as lacking refinement, culture and moral culpability for their actions.

We predicted that attribution of human nature traits would be decreased when the targets were shown in uniform (i.e., were perceived to belong to an entitative group) for several reasons. Most important, traits that are high in human nature are also rated as highly involved in cognition (Haslam et al., 2005). Additionally, although the effect of uniforms on these separate dimensions has not been directly tested, targets perceived as lacking human nature traits in prior research tend to belong to groups that stereotypically have homogenous attire (e.g., businessmen and police officers; Loughnan & Haslam, 2007).

We had no a priori predictions about whether the physical appearance of the targets would also influence attributions of uniquely human traits. Prior research has shown that at least some dehumanized groups (e.g., the mentally ill) are denied both human nature and uniquely human traits (Haslam et al., 2008). However, the extent to which a trait is uniquely human does not depend on whether it involves cognition (Haslam et al., 2005), and other research has suggested that those denied uniquely human traits can still be perceived as possessing intent. For example, African Americans were historically characterized as “ape-like” (possessing human nature, but not uniquely human traits), yet were also more likely to be convicted of murder and sentenced to the death penalty (which requires intent; Goff, Eberhardt, Williams, & Jackson, 2008).

Prior research has shown that human nature and uniquely human traits can be both positively and negatively valenced, and that dehumanization involves the denial of human nature traits regardless of valence (Haslam, 2006). Thus, we did not expect trait ascriptions to vary by trait valence.

6.1. Method

6.1.1. Pretest

Each pretest participant ($N = 141$) saw one picture of three white male university support staff employees. In a between-subjects design, participants either saw the employees wearing identical uniforms, wearing street clothes and were given a description of the uniform they normally wore, or wearing street clothes and were not told that they wore a uniform for their job. Pretest participants then rated the group of employees in the photograph on two measures of entitativity: the entitativity scales used in Experiment 3 and a measure of entitativity used by Bartels and Burnett (2011), asking participants to “rate the degree to which these employees seem like individuals or a group” on a scale with endpoints of *Individual people with distinct identities* (-3) and *A tight group with a single identity* (3).

Analyses of variance revealed that the group of employees was considered to form a more entitative group when they were shown in uniform than when they were shown out of uniform on the previously used scale ($M_{\text{uniform}} = 3.23$, $SD = .78$; $M_{\text{non-uniform}} = 2.31$, $SD = .9$) and the Bartels and Burnett (2011) measure, ($M_{\text{uniform}} = -.08$, $SD = .138$; $M_{\text{non-uniform}} = -.76$, $SD = 1.53$), all $F_s(1, 138) \geq 6.64$, $ps \leq .01$, $\eta_p^2s \geq .05$. Planned comparisons revealed that the uniformed group was rated as more entitative than both groups out of uniform on the previously used scale ($M_{\text{no-uniform}} = 2.30$, $SD = .89$; $M_{\text{described-uniform}} = 2.32$, $SD = .91$) and the Bartels and Burnett (2011) measure ($M_{\text{no-uniform}} = -.77$, $SD = 1.52$; $M_{\text{described-uniform}} = -.76$, $SD = 1.55$), all $F_s(1, 138) \geq 4.95$, $ps \leq .03$, $\eta_p^2s \geq .04$.

6.1.2. Participants

Sixty-six undergraduate students (28 women) at the University of Michigan completed the experiment as a part of a larger package of questionnaires for course credit.

6.1.3. Procedure

As in the pretest, each participant saw one picture of three white male university support staff employees. In a between-subjects design, participants either saw the employees wearing identical uniforms, saw the employees wearing street clothes and were given a description of the uniform they normally wore, or saw the employees wearing street clothes and were not told that they wore a uniform for their job. Finally, participants rated the extent to which 32 different traits (Haslam et al., 2005, see Table 2) were descriptive of the employees depicted on a scale ranging from 0 (*Not at all*) to 100 (*Entirely*).

6.2. Results and discussion

To balance ease of interpretation with comprehensiveness, we first report a focused test of the hypothesis of interest before reporting a full-factorial analysis of trait-ascriptions.

6.2.1. Focused Test of Predictions

A 3(target: uniformed, no uniform, description of uniform) \times 2(human nature traits: high, low) mixed ANOVA was conducted with repeated measures on the last factor. The predicted two-way Target \times Human nature interaction was significant, $F(2,63) = 4.94$, $p = .01$, $\eta_p^2 = .14$. Planned comparisons revealed that that people found “human nature” (i.e., cognition related) traits as less descriptive of staff depicted in identical uniforms ($M = 41.12$, $SD = 12.44$) than of staff who did not wear uniforms ($M = 47.84$, $SD = 6.21$), $F(1,63) = 5.39$, $p = .02$, $\eta_p^2 = .08$, and marginally less descriptive than of staff who normally wore uniforms but were not depicted in them ($M = 46.78$, $SD = 9.27$), $F(1,63) = 3.73$, $p = .058$, $\eta_p^2 = .06$. In contrast, participants were equally likely to find non-human nature traits as descriptive of staff in all three conditions, $F < 1$. In short, participants were less likely to attribute human nature traits to the targets when they were perceived to belong to more entitative groups (as established by pretest ratings of each group).

6.2.2. Full factorial analysis

A 3(target: wearing uniform, no uniform, description of uniform) \times 2(desirability: high, low) \times 2(uniquely human traits: high, low) \times 2(human nature traits: high, low) mixed ANOVA was conducted, with the first factor between subjects and latter factors within subjects. This analysis revealed a significant four-way interaction, $F(2,63) = 3.25$, $p = .046$, $\eta_p^2 = .09$ (see [Table 1](#) for means).

Within human nature traits, there was marginal support for the predicted main effect of condition, $F(2,63) = 3.12$, $p = .05$, $\eta_p^2 = .09$, reflecting the simple effect described earlier. The pattern within non-human nature traits (about which we had no a priori predictions) were somewhat more complicated than expected, as reflected by a three-way interaction between condition, trait desirability and whether the traits were uniquely human, $F(2,63) = 3.85$, $p = .03$, $\eta_p^2 = .11$ (see [Table 2](#)).

For non-human nature attributes that were also not uniquely human, condition had no effect, $F < 1.38$, $p = .26$. For non-human nature traits that were uniquely human, there was a significant Condition \times Trait desirability interaction, $F(2,63) = 3.35$, $p = .04$, $\eta_p^2 = .10$. Specifically, employees wearing uniforms or described as typically wearing uniforms were thought to possess more desirable uniquely human traits than undesirable uniquely human traits, $F_s(1,64) \geq 8.95$, $p_s < .001$. Employees who did not wear uniforms did not differ in desirable and undesirable uniquely human traits, $F < 1$. In hindsight, this finding is not surprising because non-human nature but uniquely human traits include a number of attributes that are of high relevance to service contexts (e.g., polite, thorough, disorganized, rude). Perceivers may expect that people who are required to wear uniforms for work may also be expected to act more professionally.

These findings qualified the two-way interaction that tested our primary hypothesis. Additionally, independent of condition, there was also a theoretically uninteresting three-way interaction between desirability, whether the traits reflected human nature and whether the traits were uniquely human, $F(1,63) = 26.24$, $p < .001$, $\eta_p^2 = .29$, that qualified a two-way interaction between whether the trait was uniquely human and desirability, $F(1,63) = 5.38$, $p = .02$, $\eta_p^2 = .08$ and a main effect of desirability $F(1,63) = 6.49$, $p = .01$, $\eta_p^2 = .09$. These results reflect that, by and large, people tended to perceive the targets as generally high on uniquely human desirable traits and low on uniquely human undesirable traits, especially those not essential to human nature (in other words, people are generally civil and inoffensive). There were no other significant effects.

6.3. Discussion

The results suggest that reduced mind attribution to entitative group members is due to a change in the perception of the target rather than to information conveyed by the knowledge that the target is a group member. Participants were less likely to attribute traits reflecting cognition, agency, and will (i.e., human nature traits) to uniformed human targets than to the same targets when they were shown out of uniform, regardless of whether participants were told that the latter group was required by their workplace to wear a uniform or not. Furthermore, the finding that human targets that are perceived to belong to a more entitative group are attributed fewer human nature traits than when they are perceived to belong to a less entitative group parallels the earlier results showing that animal targets perceived to belong to an entitative group are attributed less mind than when they are not.

Unexpectedly, we also found that people who belong to groups that require uniforms are expected to behave more professionally. Although we did not anticipate this result, it does seem to suggest that knowledge that a target wears uniforms can influence person perception for reasons beyond visual similarity. This finding also provides further confidence that the observed differences in perceptions of human nature traits were a result of visual similarity among targets shown wearing a uniform rather than the failure of participants to read the explicit description of the uniform in the condition in which it was described but not shown.

7. General discussion

The perception that a target belongs to an entitative group appears to diminish mind attribution to both non-human and human targets. Participants attributed less mind to a non-human target (i.e., a fish) when a larger number of similar fish were present than when a smaller number of similar fish were present (Experiment 1). This reduction in mind attribution appeared to be due to the target’s status as a group member rather than to the simultaneous presentation of multiple entities in a scene. Participants attributed less mind to a fish when the members of an adjacent school of fish were of the same

Table 2
Attribution of traits to human targets in Experiment 4.

Desirability	Uniquely human	Human nature	Traits	Traits attributed		
				No uniform	Described uniform	Wearing uniform
High	High	High	Ambitious, analytic, imaginative, sympathetic	48.83 (12.46)	52.30 (17.60)	39.03 (16.26)
		Low	Broad-minded, humble, polite, thorough	47.50 (10.19)	56.12 (15.11)	51.63 (9.90)
	Low	High	Active, curious, friendly, fun-loving	50.48 (10.43)	52.11 (16.13)	43.28 (13.20)
Low	High	Low	Contented, even-tempered, relaxed, selfless	47.47 (9.14)	48.14 (14.60)	44.78 (12.51)
		High	High-strung, insecure, irresponsible, reserve	46.78 (8.39)	42.35 (17.12)	42.70 (15.93)
	Low	Low	Disorganized, ignorant, rude, stingy	42.96 (13.50)	40.76 (16.71)	39.09 (18.10)
		High	Impatient, impulsive, jealous, shy	45.28 (9.62)	40.35 (12.57)	39.47 (16.55)
		Low	Simple, timid, uncooperative, unemotional	46.53 (10.81)	43.81 (13.38)	48.73 (11.63)

Note: Standard deviations are in parentheses.

species as the target than when they were of a different species than the target, even though the number of fish in the adjacent school was the same (Experiment 2).

The reduction in mind attribution to group members appeared to hinge on the perception of the target as a member of an entitative group. Less mind was attributed to targets that were more similar or closer in proximity to other group members than to targets more dissimilar to or distant from other group members (Experiments 3 and 4). The effect of entitative group membership on mind attribution similarly influenced perceptions of human targets in Experiment 5. Participants were less likely to attribute traits reflecting cognition to other people when those people were perceived to belong to an entitative group than when they not perceived as entitative group members.

Additionally, the results of Experiment 5 demonstrate that the effects of group membership on mind perception hinge on perceptual differences evoked by entitative group membership rather than on mere knowledge of the target's group membership. Knowing that the employees wore the same uniform for their work did not increase their perceived entitativity and decrease attributions of mind. Only when participants saw the employees wearing uniforms did they perceive them to belong to a more entitative group and attribute them less mind.

Complementing previous research that has suggested entitativity increases the presumed homogeneity of the mental states of group-members (Campbell, 1958; Hamilton et al., 2004; Smith et al., 2013; Waytz & Young, 2012), this research shows that entities that are perceived to belong to an entitative group are attributed less mind. Study 5 suggests that this effect has a primarily perceptual basis. How exactly this perceptual process influences mind attribution, however, requires more research to explain. Entitative group membership appears to influence mind attribution through the changes in the perception of group members, but may also result from an overgeneralization of the change in behavior that entitative group membership often entails or from explicit lay theories about the nature of groups (e.g., LeBon, 1897; for a discussion see Ger-gen, 1973). Another question for future research is how the reduced mind attribution observed in the present research (e.g., intelligence, consciousness, beliefs, desires, and human nature traits) maps onto other dimensions of mind-perception (e.g., agency and experience; Gray et al., 2007). This effect may also be moderated by cultural differences, perhaps related to the observed cultural differences in attention to figure and background (Nisbett & Miyamoto, 2005).

These findings have implications for the perception and treatment of non-human and human agents. A cow seen in the context of an entitative group (e.g., a large herd) may be perceived to have fewer mental states that justify the treatment afforded to agents with higher mental capacities (e.g., chimpanzees) than if that cow is seen alone. In a human context, people may feel less comfortable with the instrumental treatment of factory workers and demand more rights for those workers if the workers are described as individuals rather than as members of an entitative group because they will attribute them greater mind. Dehumanized targets such as objectified women (Vaes, Paladino, & Puvia, 2011) can be seen as fungible with other category members (Gervias, Vescio, & Allen, 2012). The reduced attribution of mind that results from entitative group membership may thus engender the perception that group members (e.g., employees, patients, sexualized women) are interchangeable, considered in terms of their usefulness, and are denied autonomy and agency (Nussbaum, 1999).

The elicitation of empathy for others' suffering is considered critical in decisions about whether to extend help to victims and give to charities that reduce their suffering. Whether an agent is perceived to possess the phenomenological capacity to experience mental states like pain (Knobe & Prinz, 2008) is a distinction that closely corresponds to the differences in the "human nature" dimension observed in Experiment 5. Thus, the present findings may help to explain why people donate more to victims that are singular and identified than when victims are presented as one of a large group (Kogut & Ritov,

2005; Small & Loewenstein, 2003). The perception of a victim as a member of an entitative group (which is especially likely when those victims are outgroup members), may diminish the suffering that victim is perceived to feel and the empathy her suffering evokes, which in turn reduces the impetus to help the victim.

We close by noting that the consequences of reduced mind attribution to group members may not be entirely negative. One of the primary functions of mind attribution is predicting the future behavior of other entities (Dennett, 1987; Waytz, Morewedge, et al., 2010), and this may become easier when targets are perceived as group members. Inferring others' intentions requires effort (Epley, Morewedge, & Keysar, 2004). Predicting the intentions of a group by a reliance on stereotypes, theories, or the shared intentions of its members rather than by considering the mental states of each member may allow perceivers to more rapidly anticipate and respond to the behavior of the group, or reduce the amount of information to be processed to manageable levels (Fiske & Taylor, 1984). When intergroup conflicts arise, there may be also psychological and evolutionary advantages to perceiving outgroup members as having fewer mental states if one must fight with them for survival. It is thus possible that the costs of reduced mind attribution borne by the target are offset, to some degree, by the gains conferred to the perceiver.

Acknowledgments

We thank Matt Killingsworth and Alicia Warlick for their help with the execution of these experiments.

References

- Ames, D. R. (2004). Inside the mind-reader's tool kit: Projection and stereotyping in mental state inference. *Journal of Personality and Social Psychology*, *87*, 340–353.
- Baron-Cohen, S., Leslie, A., & Frith, U. (1985). Does the autistic child have a "theory of mind?". *Cognition*, *21*, 37–46.
- 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.
- Bastian, B., Loughnan, S., Haslam, N., & Radke, H. R. M. (2012). Don't mind meat? The denial of mind to animals used for human consumption. *Personality and Social Psychology Bulletin*, *38*, 247–256.
- Bloom, P., & Veres, C. (1999). The perceived intentionality of groups. *Cognition*, *71*, B1–B9.
- Brewer, M. B., & Harasty, A. S. (1996). Seeing groups as entities: The role of perceiver motivation. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: The interpersonal context* (Vol. 3, pp. 347–370). New York: Guilford Press.
- Brewer, M. B., Weber, J. G., & Carini, B. (1995). Person memory in intergroup contexts: Categorization versus individuation. *Journal of Personality and Social Psychology*, *69*, 29–40.
- 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.
- Carpenter, S., & Radhakrishnan, P. (2002). The relation between allocentrism and perceptions of ingroups. *Personality and Social Psychology Bulletin*, *28*, 1528–1537.
- Chandler, J., & Schwarz, N. (2010). Use does not wear ragged the fabric of friendship: Thinking of objects as alive makes people less willing to replace them. *Journal of Consumer Psychology*, *20*, 138–145.
- 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.
- Cuddy, A. J. C., Rock, M., & Norton, M. I. (2007). Aid in the aftermath of Hurricane Katrina: Inferences of secondary emotions and intergroup helping. *Group Processes and Intergroup Relations*, *10*, 107–118.
- Darley, J. M., & Latané, B. (1968). Bystander intervention in emergencies: diffusion of responsibility. *Journal of personality and social psychology*, *8*(4p1), 377–383.
- Dasgupta, N., Banaji, M. R., & Abelson, R. P. (1999). Group entitativity and group perception: Association between physical features and psychological judgment. *Journal of Personality and Social Psychology*, *77*, 991–1003.
- Dennett, D.C., *The intentional stance*, 1987, Bradford Books / The MIT Press, Cambridge, MA
- Diener, E. (1979). Deindividuation, self-awareness, and disinhibition. *Journal of Personality and Social Psychology*, *37*, 1160–1171.
- Diener, E., Fraser, S. C., Beaman, A. L., & Kelem, R. T. (1976). Effects of deindividuation variables on stealing among Halloween trick-or-treaters. *Journal of Personality and Social Psychology*, *33*, 178–183.
- Epley, N., Morewedge, C., & Keysar, B. (2004). Perspective taking in children and adults: Equivalent egocentrism but differential correction. *Journal of Experimental Social Psychology*, *40*, 760–768.
- Festinger, L., Pepitone, A., & Newcomb, T. (1952). Some consequences of de-individuation in a group. *The Journal of Abnormal and Social Psychology*, *47*, 382–389.
- Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information and motivation on attention and interpretation. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 23, pp. 1–74). New York, NY: Academic Press.
- Fiske, S. T., & Taylor, S. E. (1984). *Social cognition*. New York: McGraw-Hill.
- Galinsky, A. D., & Moskowitz, G. B. (2000). Perspective-taking: Decreasing stereotype expression, stereotype accessibility, and in-group favoritism. *Journal of Personality and Social Psychology*, *78*, 708–724.
- Gergen, K. J. (1973). Social psychology as history. *Journal of Personality and Social Psychology*, *26*, 309–320.
- Gervias, S. J., Vescio, T. K., & Allen, J. (2012). When are people interchangeable sexual objects? The effect of gender and body type on sexual fungibility. *British Journal of Social Psychology*, 499–513.
- Goff, P. A., Eberhardt, J. L., Williams, M. J., & Jackson, M. C. (2008). Not yet human: Implicit knowledge, historical dehumanization, and contemporary consequences. *Journal of Personality and Social Psychology*, *94*, 292–306.
- Gray, H., Gray, K., & Wegner, D. M. (2007). Dimensions of mind perception. *Science*, *315*, 619.
- Gray, K., Knickman, T. A., & Wegner, D. M. (2011). More dead than dead: Perceptions of persons in the persistent vegetative state. *Cognition*, *121*, 275–280.
- Halberstadt, J. (2003). The paradox of emotion attribution: Explanation biases perceptual memory for emotional expressions. *Current Directions in Psychological Science*, *12*, 197–201.
- Hamilton, D. L., & Sherman, S. J. (1996). Perceiving persons and groups. *Psychological Review*, *103*, 336–355.
- Hamilton, D. L., Sherman, S. J., & Rodgers, J. S. (2004). Homogeneity, essentialism, and stereotypes. In V. Yzerbyt, C. M. Judd, & O. Corneille (Eds.), *The psychology of group perception: Perceived variability, entitativity, and essentialism* (pp. 39–60). New York: Psychology Press.
- Haslam, N. (2006). Dehumanization: An integrated review. *Personality and Social Psychology Review*, *10*, 252–264.

- Haslam, N., Bain, P., Douge, L., Lee, M., & Bastian, B. (2005). More human than you: Attributing humanness to self and others. *Journal of Personality and Social Psychology*, 89, 937–950.
- Haslam, N., Loughnan, S., Kashima, Y., & Bain, P. (2008). Attributing and denying humanness to others. *European Review of Social Psychology*, 19, 55–85.
- Jones, D. C., & Vaughan, K. (1990). Close friendships among senior adults. *Psychology and Aging*, 5, 451–457.
- Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. *Psychological Review*, 80, 237–251.
- Knobe, J., & Prinz, J. (2008). Intuitions about consciousness: Experimental studies. *Phenomenology and Cognitive Science*, 7, 67–83.
- Kogut, T., & Ritov, I. (2005). The “identified victim” effect: An identified group, or just a single individual? *Journal of Behavioral Decision Making*, 18, 157–168.
- Kozak, M. N., Marsh, A. A., & Wegner, D. M. (2006). What do I think you’re doing? Action identification and mind attribution. *Journal of Personality and Social Psychology*, 90, 543–555.
- Kurzban, R., Tooby, J., & Cosmides, L. (2001). Can race be erased? Coalitional computation and social categorization. *Proceedings of the National Academy of Science*, 98, 15387–15392.
- Le Bon, G. (1897). *The crowd: A study of the popular mind*. Macmillan.
- Leyens, J.-P., Cortes, B. P., Demoulin, S., Dovidio, J., Fiske, S. T., Gaunt, R., et al (2003). Emotional prejudice, essentialism, and nationalism. *European Journal of Social Psychology*, 33, 703–718.
- 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.
- Loughnan, S., & Haslam, N. (2007). Animals and androids: Implicit associations between social categories and nonhumans. *Psychological Science*, 18, 116–121.
- Loughnan, S., Haslam, N., & Bastian, B. (2010). The role of meat consumption in the denial of moral status and mind to meat animals. *Appetite*, 55, 156–159.
- Mauer, D., Le Grand, R., & Monloch, C. J. (2002). The many faces of configural processing. *Trends in Cognitive Sciences*, 6, 255–260.
- McGarty, C., Haslam, S. A., Hutchinson, K. J., & Grace, D. M. (1995). Determinants of perceived consistency: The relationship between group entitativity and the meaningfulness of categories. *British Journal of Social Psychology*, 34, 237–256.
- Michotte, A. (1963). *The perception of causality* (T. R. Miles & E. Miles, Trans.). New York: Basic Books.
- 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., & Todorov, A. (2012). The least likely act: Overweighting atypical past behavior in behavioral predictions. *Social Psychological and Personality Science*, 3(6), 760–766.
- Morris, M., Menon, T., & Ames, D. R. (2001). Culturally conferred conceptions of agency: A key to social perception of persons, groups, and other actors. *Personality and Social Psychology Review*, 5, 169–182.
- Nisbett, R., & Miyamoto, Y. (2005). The influence of culture: Holistic versus analytic perception. *Trends in Cognitive Sciences*, 9, 467–473.
- Nussbaum, M. C. (1999). *Sex and social justice*. New York: Oxford University Press.
- Paolacci, G., Chandler, J., & Ipeirotis, P. (2010). Running experiments on Amazon Mechanical Turk. *Judgment and Decision Making*, 5(5), 411–419.
- Premack, D., & Woodruff, G. (1978). Does the chimpanzee have a theory of mind? *Behavioral and Brain Sciences*, 4, 515–526.
- Rakison, D. H., & Poulin-Dubois, D. (2001). The developmental origin of the animate–inanimate distinction. *Psychological Bulletin*, 2, 209–228.
- Saxe, R. (2005). Against simulation: The argument from error. *Trends in Cognitive Sciences*, 9, 174–179.
- Small, D. A., & Loewenstein, G. (2003). Helping a victim or helping the victim: Altruism and identifiability. *Journal of Risk and Uncertainty*, 26, 5–16.
- Smith, R. S., Chandler, J., & Schwarz, N. (2013). *Uniform(ity): The effects of employee uniforms on judgments and attributions*. Working paper.
- Smith, R. S., Faro, D., & Burson, K. (2013). More for the many: The influence of entitativity on charitable giving. *Journal of Consumer Research*, 39, 961–976.
- Thakkar, V. (2006). *Judgment polarization or negativity: The impact of perceived entitativity on impressions about groups*. Retrieved from ProQuest Digital Dissertations (AAT 3226279).
- Vaes, J., Paladino, P., & Puvia, E. (2011). Are sexualized women complete human beings? Why men and women dehumanize sexually objectified women. *European Journal of Social Psychology*, 41, 774–785.
- Waytz, A., Gray, K., Epley, N., & Wegner, D. M. (2010). Causes and consequences of mind perception. *Trends in Cognitive Science*, 14, 383–388.
- Waytz, A., Morewedge, C. K., Epley, N., Montelone, G., Gao, J. H., & Cacioppo, J. T. (2010). Making sense by making sentient: Effectance motivation increases anthropomorphism. *Journal of Personality and Social Psychology*, 99, 410–435.
- Waytz, A., & Young, L. (2012). The group-member mind trade off: Attributing mind to groups versus group members. *Psychological Science*, 23, 77–85.
- Wilder, D. A., & Young, L. (1978). Reduction of intergroup discrimination through individuation of the out-group. *Journal of Personality and Social Psychology*, 36, 1361–1374.