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BRIEF REPORT

Language Framing Shapes Dehumanization of Groups: A Successful Replication and Extension of Cooley et al. (2017)

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In this journal, Cooley et al. (2017, Study 3) showed that presenting a social target as a group, as opposed to a group composite (i.e., people in a group) or as an individual, lowered perceptions that the target had a sense of mind (perceived capacity for experience and agency), both of which subsequently predicted lower sympathy for the target. In a direct replication but using double the sample size and preregistered hypotheses and methods, we found results strikingly supportive of the target article. We also expanded their findings, showing the effects (particularly of perceived experience) on willingness to help a target in need. The implications for using short communications to promote social change, particularly in a viral social media world, are discussed.

Keywords: replication, dehumanization, groups, mind perception

With the advent of nudge theory (Thaler & Sunstein, 2008), it is widely accepted that subtle changes in contextual cues meaningfully shape behavior, from changing eating habit, to organ donation to voting proclivity (but see Lin, Osman, & Ashcroft, 2017). In the field of dehumanization, we also know that how a social target is represented has a profound impact on how we think about and treat that target (Gray, Gray, & Wegner, 2007). For instance, as observed by Slovic (2007), we become psychically numb to large groups of people in need and are instead more likely to help specific, individuated targets. That is, we often bypass help (or intervention) paradoxically where help can do the most good. Sometimes the cues that trigger or attenuate dehumanization can be subtle or not obvious. For example, reducing the perceived divide between humans and animals reduces the dehumanization of outgroups (Costello & Hodson, 2010, 2014); when animals and humans are psychologically close, there is little value in dehumanizing an outgroup (see also Bastian, Costello, Loughnan, & Hodson, 2012).

A recent paper published in the *Journal of Experimental Psychology: General* by Cooley et al. (2017) introduced a provocative hypothesis that very subtle changes to the language describing social targets can impact sympathy felt for those targets through systematically impacting the attribution of mind to the target. In particular, they found that simply referring to people as a group (group frame) lowers attributions of experience (capacity for subjective sensations and feelings) and agency (the ability to think and behave in a rational manner) relative to referring to a group/collection of individuals (group-composite frame). As they note, logically this should not be the case—A group of 20 people is objectively equivalent to 20 people in a group. But their study demonstrates that we subjectively represent these targets as different entities, with meaningful consequences. In their Study 3, the authors exposed participants to scenario depictions of a man (individual), small company (group), or "20 employees who compose a small company" (p. 696) (group composite), whose computer security was compromised by a hacker that rendered the target bankrupt. Cooley and colleagues found that the group frame elicited the lowest sympathy, whereas the group-composite frame elicited sympathy on par with the individual target. Moreover, the authors revealed the mechanism in a mediation analysis: those in the group-composite (vs. group) frame were more humanized by being attributed greater experience and agency.

On the surface these results may seem unlikely, with the linguistic framing (group vs. group composite) subtle and rationally/objectively irrelevant. Yet the dehumanization of targets can be driven by seemingly distal factors such as the perceived divide between humans and animals (Costello et al., 2010, 2014). Moreover, recent research demonstrates that subtle and linguistic manipulations, such as emphasizing *doing* science (action) as opposed to *being* scientists (identity) boosts science interest among girls (Rhodes, Leslie, Yee, & Saunders, 2019). We therefore conducted a preregistered direct replication of Cooley et al. (2017, Study 3), approaching the project with open minds.

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These findings have not previously been presented in a public forum (e.g., conference) or posted on a listserv.

The hypotheses, methods, and analytic strategy were preregistered prior to data collection (http://aspredicted.org/blind.php?x=5tg2v8).

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The Present Replication Attempt of Cooley et al. (2017, Study 3)

Paradoxically, replications comprise only 1% of publications in the highest-impact psychology journals (Makel, Plucker, & Hegarty, 2012), yet replication is considered essential to science (see Funder et al., 2014). Hence, we directly replicated the intriguing study by Cooley et al. (2017, Study 3). In doing so we doubled their sample size and drew from a comparable sample. We preregistered our hypotheses and methods, including management of outliers. We followed their manipulation and methods precisely but added several features after the main items, including a screening tool for bots (algorithms mimicking participants) and an assessment of attention to manipulation details. In addition to the sympathy measure from the original study, we introduced willingness to help the target of the cyberattack in the scenario. We felt this would help address the central issue underlying psychic numbness, that is, turning away from targets needing assistance. Moreover, as noted by Cooley and colleagues, it is especially the perception of experience (vs. agency) that is relevant to denying mind to groups. Their study found both experience and agency to mediate relations between the manipulations and sympathy; we believed that a measure linked to acting altruistically might draw out this distinction.

Overall the present investigation brings an independent replication of a study claiming meaningful effects from a subtle linguistic tweak. We predicted that, relative to group frames, participants would feel more sympathy or willingness to help targets framed as group composites or an individual. Like Cooley and colleagues, we predicted that perceptions of both agency and experience would mediate (i.e., explain) such effects.

Method

Participants

The sample size in Cooley et al. (2017, Study 3) was 242; we aimed to double their sample size by recruiting 500 participants from Amazon's Mechanical Turk (the same recruitment platform as the target study). After removing four suspected bots who failed a basic instruction designed for this purpose, we managed to recruit 497 (239 male, 258 female) American citizens (M_{age} = 36.63, SD = 11.80). Participants identified as Caucasian (81%), African American (8%), Asian (8%), or other (2%). The study was advertised to take 5–7 min and participants were compensated $0.30 US for participation.

The hypotheses, methods, and analytic strategy were preregistered prior to data collection (http://aspredicted.org/blind.php?x=5tg2v8).[1] Data can be made available upon request to the first author. The project was approved by the research ethics board at the university of the lead author.

Method and Materials

Participants were randomly assigned to one of three framing conditions: individual (a man), group composition (20 employees that compose a small company), or group (a small company), worded exactly as in Cooley et al. (2017, Study 3). The precise wording follows:

> Take a moment to imagine a man who was quite successful. Now imagine that, recently, the man's electronic security firewalls were breached and his private accounts were hacked, and as a result he went bankrupt [individual frame].
>
> Take a moment and imagine 20 employees who compose a small company and who were quite successful. Now imagine that, recently, the 20 employees' electronic security firewalls were breached and their private accounts were hacked, and as a result the company went bankrupt [group-composition frame].
>
> Take a moment to imagine a small company that was quite successful. Now imagine that, recently, the company's electronic security firewalls were breached and its private accounts were hacked, and as a result the company went bankrupt [group frame].

After reading a scenario, participants rated mind attributions (experience; agency) and sympathy as per Cooley et al. (2017, Study 3). For mind attributions, participants were asked to rate the target in the scenario on capacity for experience (pain and suffering) and agency (having intentions and goals) on separate items ranging from 0 (*not at all capable*) to 100 (*extremely capable*). Sympathy was measured by asking participants the extent to which they felt sympathy for the target on a scale from 0 (not at all sympathetic) to 100 (extremely sympathetic). New to the present study, participants then indicated their willingness to help the target with the following item: "If you had the time and skills, how likely would you be to provide assistance to the target?" on a scale from 0 (*not at all likely*) to 100 (*extremely likely*). This item was asked after the other items to allow a direct replication of the original study and not interfere with those items.

Unlike Cooley et al. (2017, Study 3) we asked participants to tick a box that reflected the gist of the scenario they read (that is, describing security problems that happened to a man, to 20 employees that compose a small company, or to a small company). Finally, subjects completed demographics, an attention check asking respondents to type a specific passage we gave them (to filter out bots), and a suspicion check; none could identify the hypotheses.

Results

Our analytic strategy followed that of Cooley et al. (2017, Study 3). Missing data were minimal: agency (n = 1), sympathy (n = 1), and willingness to help (n = 2). Listwise deletion was used (presumably as per the target article).

Main Analyses

The effect of the experimental framing manipulation was tested in a between-subjects multivariate analysis of variance (frame: group vs. group composition vs. individual) with experience, agency, sympathy, and willingness to help entered as outcome variables. There was an overall significant effect of condition on outcomes, $F(8, 974) = 9.27$, Wilks' $\lambda = .864$, $p < .001$, $\eta_p^2 = .071$.

Mind perception (dehumanization). In keeping with Cooley et al. (2017, Study 3), there were significant effects of the framing

[1] Because of a miscommunication between researchers, the preregistration document indicates that some data collection had begun. This was an error; data were not collected until the preregistration was submitted.

on both experience, $F(2, 490) = 31.61$, $p < .001$, $\eta_p^2 = .114$, and agency, $F(2, 490) = 28.91$, $p < .001$, $\eta_p^2 = .106$. Replicating Cooley and colleagues, the target in the group frame was perceived as significantly lower in experience than targets in the group-composition or individual frames, with the latter two not differing significantly ($p = .112$; see Table 1). In keeping with Cooley and colleagues, targets were seen as lower in agency in the group than group-composite or individual conditions, but unlike the original article, individuals were rated as significantly more agentic than were group composites (see Table 1). Overall, these findings generally match the original article, with groups represented as having lower mental states (experience and agency) than group composites or individuals.

Sympathy. The experimental framing condition significantly affected ratings of sympathy, $F(2, 490) = 17.71$, $p < .001$, $\eta_p^2 = .067$. Replicating Cooley et al. (2017, Study 3), participants expressed significantly greater sympathy for the group composite or individual than the group, with no differences between group-composite and individual ratings ($p = .638$) (see Table 1).

Willingness to help. There was a significant effect of framing on willingness to help the target in the scenario, $F(2, 490) = 3.63$, $p = .027$, $\eta_p^2 = .015$. As shown in Table 1, respondents were significantly more willing to help an individual than a group, with helping toward the group composite falling in between the other conditions and not differing significantly from either (see Table 1 legend regarding a marginal trend).

Tests of Mediation of Framing Effect on Sympathy or Helping via Mind Perception

In Cooley et al. (2017, Study 3), the authors used a macro in PROCESS (Hayes, 2013) to test the indirect effects of the framing manipulation on sympathy. The authors reported significant indirect effects through each mind perception mediator on sympathy, but, as written, it is not easy to discern and evaluate the unique effects of each manipulation type in the analysis. Instead we used orthogonal contrast coding, as shown in Table 2, whereby Contrast 1 compares the two group conditions (group and group composite) to individual, and Contrast 2 compares the two group conditions to each other, all while controlling Type I error rates. We used PROCESS, submitting each of these contrast codes simultaneously, following procedures laid out by Hayes and Preacher (2014)—In each run of the model, one contrast is treated as the independent variable and the other as a covariate (then switched in subsequent runs). We used 1,000 bootstrap resamples to test for the significance of the indirect effects.

Table 1
Framing Effects on Dehumanization, Sympathy, and Willingness to Help

Condition frame	*M*	*SD*	95% CI	*N*
Experience				
Group	67.42_b	30.48	[63.67, 71.36]	163
Group-composition	82.68_a	23.48	[78.96, 86.41]	165
Individual	88.06_a	17.46	[84.33, 91.79]	165
Agency				
Group	70.37_c	28.40	[66.86, 73.89]	163
Group-composition	81.95_b	21.71	[78.46, 85.44]	165
Individual	89.39_a	16.95	[85.90, 92.88]	165
Sympathy				
Group	71.85_b	27.81	[68.32, 75.38]	163
Group-composition	83.64_a	21.07	[80.13, 87.15]	165
Individual	85.92_a	19.14	[82.41, 89.43]	165
Willingness to help				
Group	60.92_b	30.91	[56.55, 65.29]	163
Group-composition	67.82_{ab}	26.98	[63.48, 72.16]	165
Individual	68.61_a	27.14	[64.26, 72.95]	165

Note. Within each measure, cells with different subscripts differ significantly ($p < .05$). For willingness to help, group-composition marginally differed from individual ($p = .072$).

Table 2
Orthogonal Contrast Codes for Mediation Models

Variables	Contrast 1	Contrast 2
Group frame	1/3	1/2
Group-composition frame	1/3	−1/2
Individual frame	−2/3	0

Note. Contrast 1 compares individual frame to both group frames; Contrast 2 compares the two group frames.

Sympathy as criterion. The first analysis sought to replicate that of Cooley et al. (2017, Study 3). As shown in Figure 1 (top panel) thinking of groups (vs. an individual) predicted less perceived experience and lower agency, as did thinking of a group (vs. group composite). In turn, both experience and agency were associated with significantly greater sympathy for the target. The effect of Contrast 1 (groups vs. an individual) exerted a significant indirect effect through both experience ($b = -3.95$, 95% confidence interval [CI; −6.39, −2.02]) and agency ($b = -3.98$, 95% CI [−6.60, −2.14]). Contrast 2 (group vs. group composite) also exerted a significant indirect effect through both experience ($b = -4.45$, 95% CI [−7.90, −2.19]) and agency ($b = -3.34$, 95% CI [−6.42, −1.56]). Neither direct effect from manipulations to sympathy was significant, meaning that the proposed mediators were able to explain the relationship between manipulations and sympathy. Overall, these analyses show that participants reported less sympathy for targets presented as groups (vs. individual), and as a group (vs. group composite) because each elicited perceptions of the target as less capable of experiencing sensations and having agency (intentions and goals). This pattern, directly tested here using orthogonal contrast coding, supports the interpretation of their results by Cooley and colleagues.

Willingness to help as criterion. The second analysis concerns a variable not considered by Cooley et al. (2017, Study 3) but is theoretically relevant to their argument. As shown in Figure 1 (bottom panel), thinking of a group (vs. an individual) predicted less rated experience and lower agency, as did thinking of a group (vs. group composite). However, only experience subsequently positively predicted willingness to help; the path from agency to helping was not uniquely significant ($p = .952$). The effect of Contrast 1 (groups vs. an individual) exerted a significant indirect effect through experience ($b = -4.72$, 95% CI [−7.49, −2.78]) but not agency ($b = 0.06$, 95% CI [−2.05, 2.14]). Similarly, Contrast 2 (group vs. group composite) exerted a significant indirect effect through only experience ($b = -5.60$, 95% CI [−9.39, −3.11]) and not agency ($b = 0.05$, 95% CI [−1.78, 2.01]). Neither direct effect of the contrast-coded manipulations on helping were significant. Thus, participants reported less sympathy for targets presented

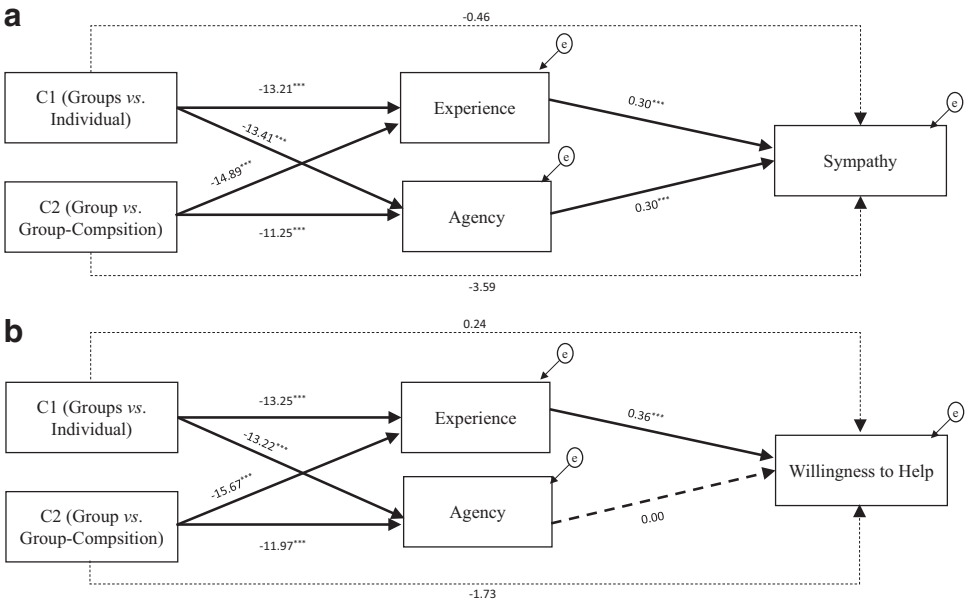

Figure 1. Indirect effects via experience and agency (humanization) on sympathy (top figure) or willingness to help (bottom figure). Dotted lines are statistically nonsignificant (at $p < .05$); unstandardized paths shown. *** $p < .001$.

as groups (vs. individual) and as a group (vs. group composite) because each elicited perceptions of the target as less capable of experiencing sensations. This pattern highlights the theorized position by Cooley and colleagues that the effects of experience (vs. agency) should be particularly relevant to group-framing effects.

Attention to Manipulation Details

Despite the study being brief, 13% of the sample did not correctly identify whether the target scenario presented on an earlier screen pertained to an individual, a group, or a group composite. Rerunning the above analyses but omitting such individuals did not change the patterns of results.

General Discussion

Cooley et al. (2017) showed that a subtle linguistic tweak, such as discussing a group (of people) as opposed to people (in a group) significantly lowered ratings of perceived experience and agency in that target (Studies 2–3), a process of dehumanization, which then lowered sympathy (Study 3). This seemingly powerful but subtle technique warrants independent replication. Here we offer a fully independent and direct replication study, doubling their sample size and preregistering hypotheses and methods in keeping with best practice. We confirmed their results very closely. Moreover, we added a measure of willingness to help the target, clarifying that the above mediation paths are particularly pertinent to perceived experience in the other, the construct identified by Cooley and colleagues as most relevant to group mind denial. Inclusion of the willingness to help measure thus sharpens our understanding of the mediating processes involved. It also adds a behavioral aspect relevant to action proneness. Intervention planners often care, as in the Slovic question (Slovic, 2007), not just about raising sympathy or empathy but also about commitment to improving the welfare of distressed others. Future research would benefit from applying these fine-grained distinctions (group vs. group composite vs. individual) to the previous psychic numbing literature that generally examines numbness to larger (vs. smaller) numbers of individuals.

It is clear that the results of the target paper are remarkably robust. Such findings offer insights into the development of prejudice interventions and for policymakers and non-governmental organizations seeking ways to maximize efforts to encourage helping of others. The results presented here seem particularly relevant for the 21st century, in which short communications on social media (e.g., Twitter) and in viral memes are becoming dominant methods to express ideas and push agendas. Of course, there is the clear potential to move the dial in a less socially constructive direction, revealing how to rob opponents (e.g., Republicans or Democrats) of more human representations. Regardless, these findings add to a growing literature that mental representations of groups (such as dehumanization) are impactful and yet open to malleability.

Context of the Research

A previous paper (Cooley et al., 2017, Study 3; *Journal of Experimental Psychology: General*) provided evidence that subtle linguistic framing (people in a group vs. a group of people) can impact the sense of mind (experience and agency) perceived in that group. Perceptions of experience and agency are central to robbing others of humanness (see Gray et al., 2007). We wondered whether we could, in our own laboratory, reproduce this finding, whereby a small linguistic tweak produced a sizable and consequential effect. Taking seriously the field's concerns with replication crises and calls for replications, we took on a replication study in this

case. In this training exercise, the second author was a student supervised by the first author (who is keen to teach the new approaches to science being advocated). We have no affiliation with the target authors or any quarrel with them; rather, we approached this project with open minds. In addition to replicating their findings closely, we extended their work, showing that such frames impact willingness to help needy others. This fits a growing appreciation in the field for the importance of dehumanizing mental representations of others.

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