NAMING AND MORALITY: HOW HAVING A NAME INFLUENCES PERCEPTIONS OF MIND AND MORAL STATUS

A Thesis
by
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Abstract

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Mind perception serves as a basis for how people make judgments about the moral value of other beings. Perception of a greater capacity for experience (e.g., joy, suffering) in another being leads to greater attributions of value (i.e., greater wrongness of harming that being). Current research has primarily focused on the concept of "dehumanization," where reducing one's perception of mind in another being leads to reduced moral valuations of that being, opening the door to mistreatment. The present study investigates this mechanism in reverse, testing whether having a name serves to enhance perceived mindedness and increase moral value. Using pill bugs, we examined this concept by having participants interact with either a named ("Ellie") or an unnamed bug, then rate perceptions of the bug's mental characteristics (e.g., capacity for joy, suffering, etc.). Results showed that participants in the named bug condition rated the bug significantly higher on measures of both experiential and agentic mindedness. Participants were then told that the bug would be exterminated and were given the opportunity to offer an open-ended amount of money in order to save the bug.

Contrary to my hypotheses, there was not a significant difference in money amounts between groups. These findings provide insight into the way that we perceive other minds and lay the foundation additional research questions about the connection between perceptions of mindedness and willingness to take action.

Keywords: Mind perception, morality, naming

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Naming and Morality: How Having a Name Influences Perceptions of Mind and Moral Status

Perceiving entities as having a mind is an important basis for judgments about their moral status. Perceiving beings as having the capacity for experiencing mental states such as fear, pain, or joy is foundational for viewing them as being entitled moral rights, including protection from unwarranted harm (Waytz, Gray, Epley, & Wegner, 2010). Past research on mindedness has largely focused on the act of denying minds to others as a means for decreasing their moral value, as in cases of prejudice (Kozak, Wegner, & Marsh, 2006), failures to help (Västfäll, Slovic, Mayorga, & Peters, 2014), or extreme acts of harm (e.g., genocide). However, little research has investigated techniques for *enhancing* mind perception as a way of increasing moral value. In the present study, we examine one possible avenue for increasing perceptions of mindedness: naming. We test the hypothesis that non-human entities that have an identifiable name will be perceived as having increased mindedness and will thereby be ascribed increased moral value, leading to an aversion to causing them harm, relative to unnamed non-human entities.

Mind Perception as a Basis for Moral Judgments

Mind perception refers to the extent to which we perceive human-like mental characteristics in another being. These characteristics are generally grouped into two distinct dimensions. The first is *agency*, whereby beings have the ability to make decisions, plan for the future, and act intentionally. The second is *experience*, characterized by the awareness of one's surroundings as well as the capacity for emotion and feeling (e.g., suffering, hunger, pleasure, etc.). Importantly, these different mental capacities imbue entities with different responsibilities and rights (Gray, Gray, & Wegner, 2007; Waytz et al., 2010). Specifically,

the capacity for agency makes an entity morally responsible for its good and bad actions. That is, to the extent an entity can make plans or act intentionally, society and individuals hold it accountable for its behavior. Contrastingly, the capacity for experience imbues an entity with moral rights, and unjustly causing it harm is viewed as immoral (Gray et al., 2007). For example, people are not generally angered by a person kicking a tree because the tree lacks the capacity for feeling pain; however, kicking a puppy is easily recognized as wrong because the puppy has the mental capacity for pain and suffering.

Some researchers have argued that mind perception underlies and motivates all moral judgment. The theory of dyadic morality asserts that all moral judgments inherently involve a responsible moral agent and an affected moral patient (Gray, Waytz, & Young, 2012). While this argument does not explain moral judgments about acts that have no discernible victims or that do not involve suffering (e.g., taboo sexual acts or harming the environment; Monroe, Guglielmo, & Malle, 2012), it is clear that where minds are perceived as being capable of suffering, it is generally considered immoral to cause them harm unnecessarily.

This conclusion is especially relevant when reasoning about the moral treatment of animals. Whereas adult humans have highly developed faculties for both experience and agency (Waytz et al., 2010)—and therefore are subject to moral rules and entitled to moral protections—animals are viewed as having reduced moral standing. People tend to think of animals as having more basic capabilities in each of these domains: not only are they less able to act decisively and plan for the future, but they are also viewed as less capable of experiencing certain emotions or phenomena (e.g., pain). This reduction is somewhat muted for animals commonly kept as pets (e.g., dogs; Gray et al., 2007), but the tendency to perceive animals as lacking agentic and experiential minds is particularly acute for animals

used as food (e.g., the "meat paradox," Loughnan, Haslam, & Bastian, 2010). This perceived lack of mindedness might allow or even motivate worse moral treatment.

Dehumanization

Even in humans, however, mind perception is not always static; types of messaging (e.g., comparing immigrants to "vermin" or an "infecting virus") can reduce perceptions of others having a mind (Marshall & Shapiro, 2018). The act of denying mindedness to others is typically referred to as dehumanization, which operates by reducing the perceived mental characteristics of the target being and serves to reduce the target's moral value (Haslam, 2006). Like mind perception, dehumanization tends to influence perception of either agency or experience. Denial of agentic mental qualities is referred to as animalistic dehumanization, characterized by perceiving entities as lacking the ability to plan for the future or act intentionally (making the object of dehumanization seem more like an animal). Denial of experiential mental qualities is referred to as mechanistic dehumanization, whereby beings are considered to be cold and emotionless, like robots (Haslam, 2006; Morera, Quiles, Correa, Delgado, & Levens, 2018). Animalistically dehumanized beings are perceived as having reduced agency and therefore are often judged as less responsible for their actions (Boudjemadi, Demoulin, & Bastart, 2017). In contrast, mechanistically dehumanized beings are perceived as having a reduced capacity for suffering; subsequently, people view these individuals as having less moral value and judge harms to them as less serious (Haslam, 2006; Bastian, Denson, & Haslam, 2013). For example, viewing professional athletes as "well-tuned machines" causes people to be less concerned about injuries to players because they may believe that the athletes are less sensitive to pain (Gray & Wegner, 2011).

Broadly, dehumanization can occur in many different ways. Others who are thought of as being low in warmth (i.e., friendliness) and competence (e.g., addicts or the homeless) are often dehumanized as well (Harris & Fiske, 2006). Morally outrageous crimes may prompt dehumanization, possibly as a means of legitimizing harsher prison sentences (Bastian et al., 2013). Monroe and Plant (2019) showed that people who disapprove of sexual outgroups (i.e., gay and transgender individuals) judge members of those groups to be less rational, leading to prejudice and discrimination (i.e., supporting policies that are harmful to members of those groups). Similarly, refugees seeking asylum in other countries can be dehumanized as a result of xenophobia, leading to poor treatment and living conditions (Varvin, 2017). In its worst iteration, dehumanization can also be a driver for genocide. Hutus in the Rwandan genocide referred to Tutsis as "roaches," and Nazis during the Holocaust called Jews "rats" and "*Untermenschen*" (i.e., "subhuman"; Conan, 2011). A noteworthy mechanism of the Nazi's dehumanization of the Jews was the removal of Jewish prisoners' names upon entering Auschwitz, where prisoners who would be forced into hard labor were given tattooed serial numbers for identification instead (United States Holocaust Memorial Museum).

Dehumanization in the Context of Animal Welfare

Whereas dehumanization has most often been studied in the context of judgments about the mindedness of other humans, it also features prominently in how people think about the minds of animals—particularly food animals. A common thread underlying differential attitudes towards and treatment of various types of animals is the idea that some are appropriate for food while others are not. The meat paradox refers to the idea that people like to eat meat but do not want to cause animals harm (Loughnan et al., 2010). This conflict

typically results in a denial of mental characteristics to food animals, thereby reducing one's obligation to feel concern for them and alleviating discomfort. In line with this claim, Bratanova, Loughnan, and Bastian (2011) found that categorizing animals as food can lead to a decrease in perceptions of their ability to suffer, corresponding with a subsequent decrease in concern for their wellbeing. Bastian, Loughnan, Haslam, & Radke (2012) offered a more pointed demonstration of this effect by showing that participants reduce their ratings of the mental life of cows when they believe that they will soon be eating beef. In this experiment, participants read a vignette about a cow grazing in a field and then gave ratings of its mental characteristics (e.g., capacity for thought, pain, etc.). Next, participants were told that they would be given something to eat later in the experiment: in one condition they would eat fruit, while in the other they would eat a burger. Afterwards participants were asked to again rate the mental characteristics of the cow. People in the fruit condition showed no significant change, while people in the burger condition reduced their ratings of the cow's mental capacities (Bastian et al., 2012).

Together these studies demonstrate that when animal suffering or slaughter is made salient, people often change their perceptions of the animals' mental characteristics, possibly as a means of reducing feelings of guilt (Loughnan et al., 2010). This effect is so pervasive that it influences perceptions of food animals even when eating meat and food production are not made salient. In the U.S. people attribute fewer and less complex capacities to food animals (e.g., cows, sheep) than to animals not considered appropriate for eating (e.g., horses, dogs). Not surprisingly, it follows that food animals are judged as less deserving of moral consideration (Bastian et al., 2012).

Naming's Impact on Mindedness and Moral Value

Past research and historical events demonstrate that taking away a person's name can be a powerful method for increasing dehumanization and enabling harmful behaviors aimed at that person or group (e.g., Nazis assigning Jews identification numbers during the Holocaust; Milgram, 1963). However, no research to date has examined whether giving an entity a name can increase its perceived mindedness and moral value. Several pieces of anecdotal evidence suggest that granting names to entities may affect perceptions of their moral status. For example, Amish dairy farmer Randy James explained the effect that naming has on the way that cows are treated (Brock, 2015):

> James states that "assigning an individual name" to the cows "somehow also gives an animal moral authority and provides a powerful deterrent to wanton cruelty—a deterrence that is absent on enormous dairy farms with thousands of completely anonymous, sequentially numbered animal units." (p. 213)

Prominent primatologist Jane Goodall echoed this sentiment in an interview preceding the release of the 2014 film *Bears,* saying that naming the animals in the movie "adds that they do all have different personalities," emphasizing the importance of thinking of them in this way in order to enhance people's compassion towards them (Rothman, 2014). Conversely, McCormick (2010) found that societies with high infant mortality tend to delay formally naming infants. One explanation for this pattern of behavior is that withholding a name from a baby during its first year of life (when mortality concerns are most pronounced) helps to reduce the trauma associated with losing the child. However, once the baby survives her first year, the likelihood that it will survive to adulthood improves; subsequently, the baby is named and achieves full "personhood" (McCormick, 2010).

Other evidence also sheds light on how naming might be related to perceptions of mindedness and moral value. Developmental research shows that children who read picture books that anthropomorphize animals are more likely to then describe real animals in human-like ways (Ganea, Canfield, Simons-Ghafari, & Chou, 2014). Furthermore, 24-month-olds show a preference for stuffed animals introduced with a proper noun (e.g. “This is ZAV”) as opposed to stuffed animals introduced with a count noun (e.g., “This is a ZAV”), suggesting that personal names increase liking (Hall, Lee, and Bélanger, 2001).

Taken together, the anecdotal and (limited) empirical evidence suggest a possible connection between naming, mindedness, and moral value. However, no study to date has directly examined this possibility. Given this information, the present study will test whether naming non-human entities works as a method of *enhancing* mind perception and increasing moral value.

Present Study

In this experiment, participants interacted with a pill bug and were subsequently told that the bug would be exterminated. Participants then had an opportunity to sacrifice real money to save the bug. Critically, the study manipulated whether the pill bugs were named or unnamed. I had three hypotheses for this project. First, I hypothesized that participants who interacted with a named bug would perceive it as more experientially minded (i.e., more capable of experience) than participants who interacted with an unnamed bug. I chose to focus specifically on experience over agency for this prediction because of the positive relationship between experience and moral value cited by Gray et al. (2007) and Bastian et al. (2012). Specifically, their data suggest that perceiving entities as having experiencing minds is closely tied to attributing moral rights to them and being averse to causing them

(unjustified) harm. Building on this relationship, my second hypothesis was that participants in the named bug condition would also be willing to pay more money to save the bug than participants in the unnamed condition. Finally, my third hypothesis predicts that perceived experiential mindedness will mediate the relationship between the naming condition and the amount of money participants give up to save the bug's life.

Method

Participants

An a-priori power analysis (G*Power, two-tailed independent samples t-test, assumed effect size $d = .40$) showed a required sample size of 200 participants (100 per condition) to achieve .80 statistical power. We were able to recruit a total of 178 students from Appalachian State University who participated for ELC credit and the opportunity to earn up to $4.00. Of those, we excluded 17 participants from the mindedness analyses because they either did not touch the bug during the naturalist task ($n = 11$) or named the bug in the unnamed condition ($n = 6$). This left a total of 161 participants for the mindedness analyses. This sample was college-aged ($M = 19.3$, $SD = 2.17$), and primarily female (73.9%) and white (71.4%). Participants identified as politically moderate ($M = 3.45$, $SD = 1.50$), on a 1 (Very liberal) – 7 (Very conservative) scale and as moderately religious ($M = 2.91$, $SD = 1.29$), on a 1 (Not at all religious) – 5 (Very religious) scale.

Procedure

Participants were tested one at a time in the lab space. Upon entering the lab, participants first completed an informed consent form. Next, they were seated at a desk, and the experimenter let them know that in addition to receiving course credit they would also be receiving $4.00 for their participation. The $4.00 was located on the desk in the form of 16

quarters, stacked in four, one-dollar increments. The researcher then explained that the experiment was about "experience," and presented the participant with a Dixie cup containing a pill bug. In the named condition the bug was introduced as "Ellie," and in the unnamed condition it was introduced simply as "the bug." The experimenter explained that the bug was clean and completely safe to handle, demonstrating by picking the bug up. The experimenter then returned the bug to the cup and invited the participant to freely interact with the bug for 2 minutes. Specifically, the researcher gave the participant the following instructions:

> OK, we're going to start with a simple task called the naturalist task. You're going to meet [Ellie/a pill bug]. [Ellie is a pill bug; she/The bug] is completely harmless and safe to handle. In this part of the experiment we're going to ask you to observe and interact with [Ellie/the bug]. You're going to spend the next 2 minutes interacting with [Ellie/the bug]. Feel free to pick [her/it] up and let [her/it] crawl around on your hands or on the table. Try to observe how [she/it] moves, and see if [she/it] rolls into [her/its] defensive posture.

After this task, participants completed the mind perception questionnaire at a different desk. The questionnaire (Appendix A) measured two separate aspects of mindedness: experience (i.e., awareness of surroundings, capacity for emotions) and agency (i.e., ability to plan for the future, make decisions). The experience subscale was measured using seven questions (e.g., *Do you think [Ellie/the bug] can feel fear? Do you think [Ellie/the bug] can feel pleasure?*) adapted from Wegner, et al. (2007) using a 1 (Definitely no) – 7 (Definitely yes) Likert scale. Responses to the seven experience items showed acceptable internal reliability (α=.66) and were averaged to create a single "experience" index for each

participant. Similarly, the agency subscale included seven questions (e.g., *Do you think [Ellie/the bug] has the capacity for planning?*) using the same on the same 1 (Definitely no) – 7 (Definitely yes) Likert scale. These items also demonstrated acceptable internal consistence (α=.78) and were averaged into a single "agency" index. Finally, participants rated how similar they felt to the bug on a 1 (Not at all similar) – 7 (Very similar) response scale. All participants who recorded a response greater than 1 were shown an additional, open-ended prompt asking them to elaborate on why they felt similar to the bug.

While the participant completed the mind perception questionnaire, the researcher prepared the materials for the next task, including the "extermination machine" (a modified coffee grinder with an added tube "for inserting pill bugs"), a coffee bean, and a slip of paper. When the participant completed the questionnaires, the researcher asked them to return to the first desk to begin the Extermination task. This task was framed in terms of investigating exterminators' experiences with exterminating bugs. The researcher introduced the extermination machine and explained that it would be used to exterminate the bug; however, if the participant wanted to intervene to save the bug, they could do so by betting some of the $4.00 they were given at the beginning of the experiment. Specifically, the researcher read the following script to explain the scenario:

> In this part of the experiment, we're going to drop [Ellie/the bug] into the device and exterminate [her/it]. However, you can attempt to save [Ellie/the bug] by spending some of your money. On this slip of paper I have an amount of money written down. You can save [Ellie/the bug] by betting some of your $4.00. If your bet is more than the amount I have written on this slip of paper, [Ellie/the bug] will be saved. We will keep any money that you bet, and you

will keep whatever money you hold onto. Let me know how much (if anything) you want to bet. Take as long as you need to decide.

This bug-killing paradigm has been used in previous studies to establish a provocative and real-stakes scenario to investigate behavior (e.g., Buckels, Jones, & Paulhus, 2013; Martens, Kosloff, & Jackson, 2010; Martens, Kosloff, Greenberg, Landau, & Schmader, 2007; Webber, Schimel, Martens, Haynes, & Faucher, 2013). After hearing this explanation, the participant made their offer, and the researcher collected the money and recorded the amount on the participant tracking sheet.[1]

The researcher would then explain that before the results of the extermination task were revealed, there was another series of surveys to be completed back at the other computer. This next group of surveys began with the Interpersonal Reactivity Index (IRI; Davis, 1980; Appendix B), a measure of individual differences in empathy. The IRI contains 28 items measured on an A (Does not describe me well) – E (Describes me very well) scale. Second, participants completed the Varieties of Sadistic Tendencies (VAST; Paulhus & Jones, 2015; Appendix C), a measure of individual differences in sadistic behaviors. The VAST contains 16 items measured on a 1 (Strongly disagree) – 5 (Strongly agree) scale.

Following these surveys participants were asked two questions about their comfort levels with bugs. First, "*In general, how afraid of bugs are you?*" (1, Extremely afraid – 7, Not afraid at all), then "*In general, how grossed out by bugs are you*" (1, Extremely grossed out – 7, Not grossed out at all). Finally, participants responded to a suspicion check: "*Was there any part of the experiment that you were skeptical or suspicious about?"* If participants

[1] No bugs were harmed during the experiment, and during the debriefing participants were reintroduced to their bug.

chose “Yes,” they were asked to elaborate about what specifically they were suspicious of in an open-ended, free response text box. This question let us know if a participant doubted that the bug was actually in danger of extermination. After completing the suspicion check question, participants completed a short demographic form and were debriefed.

Results

Effects of Naming on Perceptions of Mindedness

My first hypothesis predicted that there would be a significant difference between the named and the unnamed conditions in their perceptions of the bug’s experiential mind. To test this, I conducted an independent samples t-test comparing the average experiential mindedness scores between groups. There was a significant difference in the scores for experiential mindedness, $t(159) = 2.61$, $p = .01$, $d = 0.41$. Specifically, participants in the named condition ($M = 5.41$, $SD = 0.86$) evaluated their bug as having significantly more experiential capacities than participants in the unnamed condition ($M = 5.05$, $SD = 0.85$).

Naming’s Impact on Monetary Sacrifices

My second hypothesis was that naming would increase the amount of money people would sacrifice to save the bug from extermination compared to the unnamed bug. For analyses including the extermination task, an additional 20 participants were excluded. Sixteen participants expressed skepticism or outright knowledge that the bug was not actually in danger. Another participant indicated that they wagered money strategically, thinking that there would be multiple rounds of betting. Finally, the bets for three participants were not

recorded on the participant tracking sheet due to experimenter error, leaving a final sample of 141 participants for these analyses.[2]

An independent samples t-test revealed no significant difference in amount of money offered between conditions, $t(139) = 0.26$, $p = .80$, $d = 0.04$. Participants in the named condition ($M = 1.98$, $SD = 1.37$) gave nearly identical amounts of money to save "Ellie" as participants in the unnamed condition ($M = 1.92$, $SD = 1.29$).

Finally, my third hypothesis predicted that perceptions of experiential mindedness would mediate the relationship between the naming manipulation and the amount of money that participants gave to save the bug from extermination. Despite failing to find a significant relationship in the direct pathway from naming to money offers, it is still possible that experiential mindedness is still a competitive mediator (for more on this, see Zhao, Lynch Jr., & Chen, 2010). To investigate this possibility, I ran a mediation analysis using 10,000 bootstrap samples, which showed that experiential minded was not a significant mediator, $Z = 0.48$, $SE = 0.06$, $p = .63$ (see Table 1 for all individual pathways).

Exploratory Analyses

Impact on agentic mindedness. In addition to experiential mindedness, I also investigated participants' ratings of agentic mindedness between groups. An independent samples t-test revealed a significant difference between naming conditions, $t(159) = 3.49$, $p < .001$, $d = 0.55$. Participants in the named condition ($M = 4.01$, $SD = 3.86$) rated their bug as having more agentic qualities than participants in the unnamed condition *(*$M = 3.38$, $SD = 1.15$).

[2] Analyzing the first hypothesis using these additional exclusions yields the same pattern of results: named condition ($M = 5.38$, $SD = 0.90$), unnamed condition ($M = 5.01$, $SD = 0.83$), $t(139) = 2.58$, $p = .011$, $d = 0.44$.

Building on this finding, I further examined whether agentic mindedness served as a mediator of the relationship between naming condition and the amount of money participants gave to save the bug. A 10,000 bootstrap sample mediation analysis showed that agentic mindedness was not a significant mediator of the relationship between having a name and the amount of money participants donate to save the bug, $Z = -1.01$, $SE = .07$, $p = .31$ (see Table 2 for direct pathways).

Relationships with empathy and sadism. It was suspected that individual differences in levels of stable traits like empathy and sadistic behaviors might be predictive of participants' responses throughout this study. Specifically, it may be that people who are dispositionally higher in empathy perceive more mindedness in non-human animals and give more money to keep them from harm. Conversely, people higher in sadism may perceive less mindedness in animals and be less averted to exterminating them, subsequently giving less money to keep them from harm.

I tested these predictions using a series of linear regression models. Examining empathy showed that it failed to predict ascriptions of experience, $\beta = 0.03$, $t(159) = 0.28$, $p = .78$; or agency, $\beta = 0.02$, $t(159) = 0.134$, $p = .89$. However, it did significantly predict the amount of money offered to save the bug, $\beta = 0.35$, $t(139) = 1.98$, $p = .05$. Similarly, sadism did not significantly predict perceptions of experience, $\beta = 0.07$, $t(159) = 0.39$, $p = .70$; or agency, $\beta = 0.04$, $t(159) = 0.16$, $p = .87$; but did predict the amount of money offered to save the bug, $\beta = -0.64$, $t(139) = -2.63$, $p = .01$.

Building on these findings, I tested whether individual differences in levels of empathy or sadism acted as moderators of the relationship between naming condition and money offers. Moderation was chosen because personality traits are typically assumed to be

relatively stable over time, and are less likely to be influenced by the experimental manipulations. A moderation analysis showed that neither empathy, $Z = -1.00$, $SE = .34$, $p = .32$; nor sadism, $Z = .55$, $SE = .48$, $p = .58$; moderated the relationship between the naming manipulation and the amount of money people offered to save the bug.

Impact of perceived similarity and participants' discomfort on mindedness and monetary sacrifice. Correlations revealed significant positive relationships between perceived similarity to the bug and ratings of both experiential ($r = .345$, $p < .001$) and agentic ($r = .427$, $p < .001$) mindedness (but not money offering behavior, $r = .043$, $p = .610$; Table 3). To further investigate the role of perceived similarity in these analyses, an independent samples t-test was conducted to compare the average level of similarity between the named and the unnamed conditions; however, there was no significant difference between the naming conditions for ratings of similarity, $t(159) = 1.68$, $p = .094$, $d = 0.265$.

Lastly, I tested whether participants' level of discomfort (i.e., average measure of fear and disgust towards bugs in general) might influence perceptions of mindedness and the amount of money participants offer to save their bug; however, discomfort did not significantly correlate with perceived experience ($r = .051$, $p = .545$), agency ($r = .013$, $p = .882$) or donating behavior ($r = .011$, $p = .893$).

General Discussion

This study's main objective was to examine whether having a name influences perceptions of mindedness and moral value for non-humans. To this end, I investigated three primary hypotheses: (1) that having a name would increase perceptions of experiential mindedness, (2) that having a name would increase participants' willingness to spend real

money to save a bug from extermination, and (3) that experiential mindedness would mediate the relationship between having a name and the amount of money participants bet.

Results demonstrated support for my first hypothesis. Participants in the named bug condition rated their bug as being higher in experiential mindedness than participants in the unnamed condition. Moreover, participants in the named condition also rated bugs as being higher in agentic mindedness. Thus, this study suggests that naming non-human entities, even ones that differ dramatically from humans, makes people more willing to view them as having more human-like mental qualities such as agency, planning, and the capacity for emotions.

Despite finding support for the first hypothesis, my other two hypotheses were not supported. Naming the bug did not cause participants to give more money to save its life; nor did perceived mindedness mediate the relationship between the naming manipulation and participants' donating behavior. This finding is not in line with the existing empirical evidence that shows that increases in experiential mindedness are associated with increased ascriptions of moral value (e.g., Gray et al., 2007). The present study is the first to place participants in a scenario where they are faced with forfeiting real money in order to (presumably) save real life. These results suggest that moving from hypothetical scenarios to real world situations may diminish or eliminate the relationship between experiential mindedness and moral value. Although any null effect should be interpreted with caution, this finding opens the door to further inquiry into the kinds of situations and the degrees of realism that influence participants' willingness to take action on behalf of other beings. For example, it could be the case that giving participants more money or making them feel more attached to the money (e.g., making them earn it throughout the experiment) might have a

different effect on participants' thoughts about offering money to save the bug. Similarly, using a different kind of animal (e.g., not an insect) or different stakes (e.g., reward vs. punishment instead of life vs. death) might also change peoples' attitudes.

The exploratory analyses also uncovered several noteworthy results. First, the naming manipulation affected attributions of agentic mindedness nearly identically to what I found for experiential mindedness. Giving bugs a name increased people's willingness to attribute the ability to feel (as predicted), but it also increased perceptions of the named bug's agency (the ability to plan and from intentions). Past studies (Gray et al., 2007) argue that agency and experience are distinct from one another, but the present findings suggest that perceptions of agency and experience may be more closely related than previously thought.

Additionally, although neither aspect of mindedness significantly affected the amount of money participants offered to save the bug, individual differences in empathy and sadistic tendencies did. In general, participants higher in empathy offered more money to save the bug during the extermination task, whereas participants higher in sadistic tendencies offered less money. However, neither personality measure was significantly correlated with either measure of mindedness. This connection between personality traits and the money offers might be explained by participants' relative feelings of aversion to harm. Participants higher in empathy may be more harm-averse (thereby making higher offers to ensure the bug is not harmed), whereas, participants higher in sadistic tendencies may actually view causing harm as enjoyable and resulting in them offering less money to save the bug. One caveat to this, however, is that the measures of empathy and sadistic tendencies were collected after participants completed the extermination task and made their money offers. Thus, it is possible that participants' responses on these measures were influenced by their behavior in

that task (e.g., participants that made relatively low offers may have then responded higher on the sadistic tendencies measure to justify their behavior).

Limitations and Future Directions

Considering the results from all three hypotheses together shows that while the naming manipulation changed participants' attitudes towards the bug (hypothesis 1), it was not enough to influence participants' behavior (hypotheses 2 and 3). This pattern might suggest that the naming manipulation was effective, but not very strong, as it was sufficient to change people's attitudes, but not more costly behaviors.

Moreover, the current findings are related to a single name—"Ellie"—which could mean that this pattern of results may not be stable across different names. Different names may carry with them different assumptions of experience, agency, and even morality. A name's typical gender association may result in differences in perceived experience or agency, as men are stereotypically viewed as more agentic whereas women are viewed as being more experiential (Gray, Knobe, Sheshkin, Bloom, & Barrett, 2011). Similarly, stereotyping ethnicity or cultural significance could influence intuitions about mindedness and morality. For example, stereotypical associations with certain names or cultures may activate different aspects of mindedness. For example, Germanic-sounding names like "Gunther" may elicit more agency and less experience to American participants, while a name like "Cutesy" might evoke little agency whatsoever. Additionally, people may be more willing to let harm come to a bug named "Adolf" than "Ellie" because a name like "Adolf" primes perceptions of immorality. Since we only tested one name, the present research is not able to provide definitive answers on these questions, and future research is needed to investigate the extent to which different names can produce different perceptions.

Additionally, there are potential alternative explanations for this result related to the experimental design. First, it is possible that many participants may not have understood the nature of the extermination task and their bets to save the bug. Some participants seemed very upset at the idea of killing the bug when the extermination machine was introduced, but then made relatively low offers when asked how much they would be willing to pay to save the bug. This suggests that participants may not have fully understood how their offers would influence whether or not the bug was exterminated. A related potential confound was expressed by some other participants, who expected to encounter another bug and another betting scenario later in the experiment, and so made their bets strategically to save money for later trials. Future research using a similar paradigm could investigate this possibility further by including a measure of the extent to which participants believe they offered enough (or not) to save the bug from extermination (e.g., "*Do you think you offered enough to save the bug?*" or "*What do you think is the likelihood that your bet was enough to save the bug?*").

It is also possible that the $4.00 payment to participants was not enough to elicit a real feeling of stakes or of having "skin in the game." If participants did not feel like they really had something of value at risk, then it is possible that they did not feel particularly strongly about their bets to save the bug (which could explain why bets in both conditions converged at around $2.00—half of the total possible amount). Future studies should consider potentially using a greater amount of money or adding some manipulation to make participants feel more attached to the money (e.g., ask participants to envision ways that they could spend the money after the experiment) to enhance participants' feelings of ownership and involvement.

Finally, despite these possibilities relating to payment and participants offering money, it is worth noting that the construct validity of money offers as a measure of participants' moral valuation of the bug is unknown. While money offers to save the bug from harm seem to have face validity, this measure has not been used in previous research. It could be the case that the amount of money a participant is willing to give up in order to save the bug is not reflective of their attribution of moral value to the bug. For example, it could instead be measuring some variable relating to participants' socioeconomic status. It is possible that two participants could view the bug with the same level of mindedness and moral value but have different ideas about how valuable $4.00 is. In this case, participants that perceive the same amount of mindedness and moral value might make different offers, reflecting their different valuations of what $4.00 is worth. Researchers investigating these relationships in the future should consider including both a monetary measure and a more traditional measure of moral value (e.g., questionnaire items relating to the wrongness of harming the bug) to determine how well money offers represent moral valuations.

Conclusion

The relationship between having a name and perceptions of mindedness has been recounted anecdotally but had not been empirically supported until now. By demonstrating that having a name does enhance perceptions of mindedness in pill bugs, this project lays the foundation for future investigations into relationship between naming and mindedness. Additionally, the lack of support for my second hypothesis about increases in money amounts raises questions about the connection between perceptions of mindedness and perceptions of moral value that should be investigated in more detail in the future. To this end, these findings also suggest that stable personality traits like empathy and sadistic

tendencies may be more relevant predictors of behavior than perceptions of mindedness. Ultimately, this project opens the door to further investigations of this relationship and poses important conceptual questions about whether and how having a name relates to perceptions of mindedness, and what that relationship might mean in terms of real-world applications.

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Table 1

Experiential Mindedness as a Mediator of Naming and Money Amount

Effect	Estimate	SE	Z	*p*
Indirect	0.0266	0.0555	0.479	0.632
Direct	-0.0849	0.2199	-0.386	0.700
Total	-0.0583	0.2231	-0.261	0.794

Path Estimates

	Estimate	SE	Z	*p*
Condition → Experience	-0.3757	0.153	-2.458	0.014
Experience → Amount	-0.0708	0.135	-0.526	0.599
Condition → Amount	-0.0849	0.220	-0.386	0.700

Table 2

Agentic Mindedness as a Mediator of Naming and Money Amount

Effect	Estimate	SE	Z	*p*
Indirect	-0.0708	0.0699	-1.0129	0.311
Direct	0.0125	0.2342	0.0534	0.957
Total	-0.0583	0.2266	-0.2572	0.797

Path Estimates

	Estimate	SE	Z	*p*
Condition → Agency	-0.6318	0.1915	-3.2989	<.001
Agency → Amount	0.1120	0.0975	1.1495	0.250
Condition → Amount	0.0125	0.2342	0.0534	0.957

Table 3

Correlation Matrix

	Condition	Experience	Agency	Similarity	Empathy	Sadism	Discomfort	Gender	Politics	Religion	Amount
Condition	-										
Experience	-.21*	-									
Agency	-.27**	.67***	-								
Similarity	-.07	.31***	.41***	-							
Empathy	.03	.02	.01	.12	-						
Sadism	-.04	.03	.01	-.06	-.46***	-					
Discomfort	.02	.05	.01	-.12	-.14	.23***	-				
Gender	-.06	.002	.03	.15	.34***	-.52***	-.16	-			
Politics	-.08	.02	-.01	-.09	-.36***	.28***	.13	-.28***	-		
Religion	-.02	.09	.03	.09	-.002	-.05	-.14	-.02	.35***	-	
Amount	-.02	-.04	.10	.04	.17	-.22**	.01	.19*	-.06	-.09	-

* $p < .05$, ** $p < .01$, *** $p < .001$

Note. Gender (0 = male, 1 = female), Politics (1 = Very liberal, 7 = Very conservative), Religion (0 = Not at all religious, 4 = Very religious)

Appendix A

MINDEDNESS QUESTIONNAIRE

Answer Scale:

Definitely no | o o o o o o o | Definitely yes

1. Do you think [Ellie / the bug] can feel fear?
2. Do you think [Ellie / the bug] can feel pleasure?
3. Do you think [Ellie / the bug] can feel pain?
4. Do you think [Ellie / the bug] can feel rage?
5. Do you think [Ellie / the bug] has the capacity for self-control?
6. Do you think [Ellie / the bug] has the capacity for morality?
7. Do you think [Ellie / the bug] has the capacity for memory?
8. Do you think [Ellie / the bug] can recognize others' emotions?
9. Do you think [Ellie / the bug] has the capacity for planning?
10. Do you think [Ellie / the bug] can feel joy?
11. Do you think [Ellie / the bug] can feel happiness?
12. Do you think [Ellie / the bug] has the capacity for desiring?
13. Do you think [Ellie / the bug] has the capacity for wishing?
14. Do you think [Ellie / the bug] has the capacity for thinking?
15. Do you think [Ellie / the bug] has the capacity for tasting?
16. Do you think [Ellie / the bug] has the capacity for seeing?
17. Do you think [Ellie / the bug] has the capacity for hearing?

Appendix B

INTERPERSONAL REACTIVITY INDEX

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: A, B, C, D, or E. When you have decided on your answer, fill in the letter on the answer sheet next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can. Thank you.

ANSWER SCALE:

A	B	C	D	E
DOES NOT DESCRIBE ME WELL				DESCRIBES ME VERY WELL

1. I daydream and fantasize, with some regularity, about things that might happen to me. (FS)

2. I often have tender, concerned feelings for people less fortunate than me. (EC)

3. I sometimes find it difficult to see things from the "other guy's" point of view. (PT) (-)

4. Sometimes I don't feel very sorry for other people when they are having problems. (EC) (-)

5. I really get involved with the feelings of the characters in a novel. (FS)

6. In emergency situations, I feel apprehensive and ill-at-ease. (PD)

7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it. (FS) (-)

8. I try to look at everybody's side of a disagreement before I make a decision. (PT)

9. When I see someone being taken advantage of, I feel kind of protective towards them. (EC)

10. I sometimes feel helpless when I am in the middle of a very emotional situation. (PD)

11. I sometimes try to understand my friends better by imagining how things look from their perspective. (PT)

12. Becoming extremely involved in a good book or movie is somewhat rare for me. (FS) (-)

13. When I see someone get hurt, I tend to remain calm. (PD) (-)

14. Other people's misfortunes do not usually disturb me a great deal. (EC) (-)

15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. (PT) (-)

16. After seeing a play or movie, I have felt as though I were one of the characters. (FS)

17. Being in a tense emotional situation scares me. (PD)

18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.
(EC) (-)

19. I am usually pretty effective in dealing with emergencies. (PD) (-)

20. I am often quite touched by things that I see happen. (EC)

21. I believe that there are two sides to every question and try to look at them both. (PT)

22. I would describe myself as a pretty soft-hearted person. (EC)

23. When I watch a good movie, I can very easily put myself in the place of a leading character. (FS)

24. I tend to lose control during emergencies. (PD)

25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while. (PT)

26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me. (FS)

27. When I see someone who badly needs help in an emergency, I go to pieces. (PD)

28. Before criticizing somebody, I try to imagine how I would feel if I were in their place. (PT)

NOTE:(-) denotes item to be scored in reverse fashion
PT = perspective-taking scale
FS = fantasy scale
EC = empathic concern scale
PD = personal distress scale

A = 0
B = 1
C = 2
D = 3
E = 4

Except for reversed-scored items, which are scored:

A = 4
B = 3
C = 2
D = 1
E = 0

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Appendix C

Varieties of Sadistic Tendencies (VAST)

(Paulhus & Jones, 2015)

Please rate your agreement or disagreement on 5-point scales anchored by (1) strongly disagree and (5) strongly agree.

1. In video games, I like the realistic blood spurts.
2. I sometimes replay my favorite scenes from gory slasher films.
3. I enjoy watching cage fighting (or MMA), where there is no escape.
4. I sometimes look away in horror movies. (R)
5. In car-racing, it's the accidents that I enjoy most.
6. There's way too much violence in sports. (R)
7. I love the YouTube clips of people fighting.
8. I enjoy physically hurting people.
9. I would never purposely humiliate someone. (R)
10. I was purposely cruel to someone in high school.
11. I enjoy hurting my partner during sex (or pretending to).
12. I can dominate others using fear.
13. I enjoy making people suffer.
14. I enjoy mocking losers to their face.
15. I never said mean things to my parents. (R)
16. I enjoy tormenting animals – especially the nasty ones.

Fillers can be intermixed to offset the glut of negativity.
I'm considered to be a kind person.
By staying strong, one can better help others.
I'd do anything – even break the law – for those I love.
I go out of my way to help family members.
I have ambitions to make the world a better place.
My goal is to be a missionary and help others.
I give money to poor people on the street.
I'm worried that we have already seriously damaged the Earth.
I want to spend my life helping sick children.
I have had some really good friends.
I am a religious person.

Scoring and Norms for the VAST subscales

Vicarious sadism = mean of items 1-7; Direct sadism = mean of items 8-16.

Norms are derived from a sample of 301 participants on Mechanical Turk.

	Men		Women		α	Gender Difference Effect Size
	M	*SD*	*M*	*SD*		*d*
Direct Sadism	1.95	0.72	1.36	0.56	.84	0.93
Vicarious Sadism	2.90	0.80	2.34	0.68	.79	0.75

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Vita

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