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RESEARCH ARTICLE

The Adaptive Utility of Deontology: Deontological Moral Decision-Making Fosters Perceptions of Trust and Likeability

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Abstract Although various motives underlie moral decision-making, recent research suggests that deontological moral decision-making may have evolved, in part, to communicate trustworthiness to conspecifics, thereby facilitating cooperative relations. Specifically, social actors whose decisions are guided by deontological (relative to utilitarian) moral reasoning are judged as more trustworthy, are preferred more as social partners, and are trusted more in economic games. The current study extends this research by using an alternative manipulation of moral decision-making as well as the inclusion of target facial identities to explore the potential role of participant and target sex in reactions to moral decisions. Participants viewed a series of male and female targets, half of whom were manipulated to either have responded to five moral dilemmas consistent with an underlying deontological motive or utilitarian motive; participants indicated their liking and trust toward each target. Consistent with previous research, participants liked and trusted targets whose decisions were consistent with deontological motives more than targets whose decisions were more consistent with utilitarian motives; this effect was stronger for perceptions of trust. Additionally, women reported greater dislike for targets whose decisions were consistent with utilitarianism than men. Results suggest that deontological moral reasoning evolved, in part, to facilitate positive relations among conspecifics and aid group living and that women may be particularly sensitive to the implications of the various motives underlying moral decision-making.

Keywords Moral reasoning · Deontology · Utilitarianism · Trust · Interpersonal attraction

Social living has served the human species well. That is, the survival and reproduction of individual conspecifics have benefited from the ability to live and cooperate in social groups, more so than living in relative isolation (Williams et al. 2005). Nonetheless, in order to reap these benefits, there are associated costs to social living that must be navigated. For example, group living poses a potential risk of disease transmission (Neuberg et al. 2011). Similarly, the social exchange relationships embedded in group living can also make humans subject to exploitation by conspecifics (e.g., lying, cheating, stealing). However, it appears that humans also have adaptations to address such pitfalls of group living. In the case of disease, we have a disease avoidance system that downregulates the desire for social contact when disease cues are present (Sacco et al. 2014). Similarly, it has been argued that humans evolved morality, a system of rules defining appropriate treatment of others, including aspects of reciprocity, purity, and ingroup loyalty, to regulate intragroup relations (e.g., Darwin 1874; Graham et al. 2011; Cosmides and Tooby 2006). Such morality would thus facilitate cooperation and fair play between conspecifics. Indeed, research demonstrates a significant amount of cross-cultural consistency in moral intuition, suggesting that morality may have evolved to serve an adaptive function in terms of enhancing inclusive fitness (O'Neill and Petrinovich 1998).

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Theories of Moral Reasoning

Dual-process theories of moral reasoning posit that when performing a task in which harm must befall at least one person to aid several others, an individual's decision will be guided by concerns typically categorized by psychologists and philosophers as either deontological or utilitarian (Greene, 2007). Deontological decisions rely on rule-based logic (i.e., it is *always* wrong to hurt someone) with its adherents disallowing harm coming to anyone, even if this action would save several others, as rules established by a social group against harming innocents would preclude harming another person (Kant 1785/1959). Conversely, moral decisions guided by utilitarianism rely on cost-benefit analyses with respect to harming another, resulting in a judgment that it is acceptable to harm one person if it saves several others (Mill 1861/1998).

There is much research supporting this dual process framework for moral decision-making (Conway and Gawronski 2013; Greene 2009; Greene et al. 2004; Greene et al. 2001). However, which type of thinking is the "default" mode of processing appears to depend on the situation. What one may categorize as a deontological decision tends to be the default moral decision-making type when moral dilemmas are more personal and do not implicate the self as needing to be saved, whereas decision-makers tend to rely on utilitarian moral decision-making when moral dilemmas are more impersonal or the self is the one to be saved (Koop 2013). Additionally, research suggests that deontological decision-making is the default response when an actor has limited information available in the context of the moral dilemma situation (Baron et al. 2015). Thus, deontological moral decision-making may be a default response when individuals are confronted with novel actors and situations in which limited information is available. Such a scenario would be analogous to initially meeting prospective conspecifics and evaluating their likelihood of being exploitative or cooperative.

Whereas there is considerable research documenting the conditions under which individuals would be expected to make deontological versus utilitarian moral decisions, there has been less focus on the potential social *signaling value* of each type of moral decision. We suggest, in line with recent theory regarding the evolution of morality (Everett et al. 2016), that although individuals can utilize multiple strategies to navigate moral decisions, communicating deontologically motivated decisions may be more advantageous than utilitarian-motivated decisions in terms of signaling oneself as a trustworthy group member (even if such decisions are not rational from a purely economic standpoint).

Moral Decision-Making and Group Living

Considering ancestral humans' reliance on group living, adherence to deontology could prove more advantageous than utilitarianism in situations where signaling trustworthiness is important, as it would facilitate attainment of superordinate survival goals by ensuring no harm to conspecifics (Krebs 2008). Research suggests an innate "default" for humans to employ deontological moral reasoning, especially in novel interpersonal contexts (Conway and Gawronski 2013; Haidt 2001), which could be a decisional response to optimize group functioning. Because utilitarian decisions may require deviation from social proscriptions against ingroup harm, group members may perceive utilitarians less favorably due to their non-adherence to these group rules. Insofar as rule-based morality evolved to signal trustworthiness to conspecifics, individuals should find persons reliant on such socially prescribed moral rules (rather than cost-benefits analysis) more trustworthy and likeable.

Indeed, people do infer others' cooperative intentions and levels of trustworthiness from their past behaviors (Rezlescu et al. 2012). Given that reciprocal altruism (Trivers 1971) necessitates repeated interactions with conspecifics to facilitate equitable exchanges of goods and favors, knowledge about past behavior is a valid cue to their value as a potential ongoing social interaction partner or group member. Knowing an individual has consistently exploited others by violating the rules guiding effective reciprocal exchange gives one the opportunity to avoid exploitation by poor social exchange partners, resulting in inhibited interest in engaging such individuals (i.e., behavioral avoidance and distrust of rule-violating targets; Montoya and Horton 2014; Montoya and Insko 2008).

Extending this logic, we suggest that patterns of moral decision-making can potentially signal that a conspecific follows or violates norms against ingroup harm. For human social groups to function optimally, individual group members must follow group-level rules related to utilizing and sharing resources, even if there are costs associated with following such rules, because the moral systems endorsed by groups emphasize rule-based behavior to facilitate group goals and manage intragroup conflict (Krebs 2008). As such, individuals who consistently make deontological decisions should appear as more attractive interaction partners (e.g., more trustworthy, more likable).

Although it is possible that the utilitarian cost-benefit strategy could benefit the group, the consistent application of such a moral strategy would likely be unsettling to others, because the utilitarian's moral behavior vis-à-vis the self may appear unpredictable across contexts. Whereas the self would never be harmed by a deontological actor, under some circumstances the self would be harmed by a utilitarian actor (i.e., when the utilitarian actor believes it sufficiently beneficial to do so). Using an uncalculated cooperation framework, Jordan and colleagues (2016) demonstrated a potential basis for preferring more predictable interaction partners. Across two studies, individuals indicated greater trust in interaction partners whom they perceived as not engaging in a lengthy cost-benefit analysis of whether cooperation was in their best interest.

Such analyses could potentially signal reluctance toward cooperation that would facilitate group living, albeit at the expense of personal benefits for the individual. Put another way, one who cooperates hesitantly in one situation may be perceived as more likely to refuse to do so in future situations, compared to a person whose immediate, uncalculated tendency is to cooperate. As such, deontological groups and group members should be valued because they foster more predictable and cooperative social units since their decision-making appears less contingent on calculations of costs and benefits. If all group members are relatively deontological, then one only has to follow the group's moral rule system to maintain relative security and access to resources.

A growing body of empirical findings has provided indirect support for our hypotheses. First, individuals with greater willingness to engage in antisocial behavior, particularly individuals high in psychopathic personality traits, utilize more utilitarian moral decision-making (Bartels and Pizarro 2011; Djeriouat and Trémolière 2014). This relation appears influenced by these individuals' overall lower concern for harming others and reduced valuation of prosocial behavior (Djeriouat and Trémolière 2014; Patil 2015). Kreps and Monin (2014) have also found that individuals perceive leaders' and organizations' decision-making as less authentic when basing their decisions on utilitarian reasoning. Such perceived inauthenticity would thus preclude trust formation necessary for selecting quality interaction partners. These findings suggest that individuals may downregulate use of utilitarian moral decision-making strategies to signal their trustworthiness and individuals dispositionally more likely to use utilitarian moral decision-making strategies possess additional negative social characteristics. Thus, deontological moral decision-making may more effectively communicate social value through increased perceptions of trust and likeability.

Everett and colleagues (2016) have recently provided direct evidence of deontology fostering greater perceptions of trust than utilitarianism. Using various experimental manipulations and dependent measures of trust and interpersonal liking, they found that deontological moral decision-makers are preferred as social partners, perceived as more moral and trustworthy, and are trusted more in economic games than targets who make utilitarian moral decisions. Although their results offer a rather convincing test of the hypothesis, they are not without limitation. First, participants were only provided a verbal description of social targets' moral decision-making behavior. As such, participants were only made aware of an isolated moral decision that a target had made. Thus, it is hard to infer whether the target was dispositionally motivated by deontology versus utilitarianism, or whether it was specific to a given moral situation.

Second, in Everett and colleagues' work, the target description did not include information about sex, and no effects of participant sex were reported. Given the role target and participant sex may play in moral judgment, a critical extension of Everett and colleagues' work would be to test for such sex effects. Trémolière and colleagues (2014) have previously found that men are more reluctant than women in making utilitarian decisions when such decisions entail harm to a woman, especially in scenarios with fewer mating opportunities for them. This reluctance toward utilitarian decisions implicating harm to women could potentially elicit perceptions of them as appearing more trustworthy to a potential mate, as that mate would perceive the decision-maker as likely less willing to be exploitative. Furthermore, men's engagement in paternal behavior, which can be construed as deontological, elicits perceptions of good character and thus desirability to women (Bleske-Rechek et al. 2006). Conversely, more utilitarian men may be more exploitive in relational contexts, as utilitarianism is associated with dark triad traits (e.g., narcissism, psychopathy, Machiavellianism; Djeriouat and Trémolière 2014), which are themselves associated with short-term mating (Jonason et al. 2009). Thus, utilitarian men may not be desirable as long-term mates, and therefore, women may have a predisposition to view utilitarianism more unfavorably than men. Furthermore, it would seem sensible to consider participant sex as influential in perception of moral decision-makers, given differences in the moderating role of sex as it relates to endorsement of moral decision-making strategies (Friesdorf et al. 2015).

The Current Study

The current study was designed to test our hypothesis by replicating and extending the work of Everett and colleagues (2016) in several important ways. Whereas these researchers exposed participants to a single target who made a single moral decision, we had participants view a series of targets, each of whom made a series of either five deontological or utilitarian moral decisions to provide greater information regarding each target's morality. Thus, our procedure exposed participants to targets who had a history of relying on one kind of moral judgment as opposed to the other, rather than a single and potentially idiosyncratic moral decision, which provides a unique method to address perceptions of moral decision-making agents. Second, unlike Everett and colleagues (2016), each target was represented by a facial image, half of whom were women and half of whom were men. This allowed us to determine how target sex may (or may not) influence reactions to deontological and utilitarian moral decision-makers. Additionally, we were able to explore whether participant and target sex influence judgments with respect to deontological or utilitarian targets.

Method

Participants

One hundred thirty-three undergraduates ($M_{Age} = 20.38$, $SD = 3.83$; 54.9% White; 104 women, 29 men) at a medium-sized university in the Southeastern USA participated in exchange for course credit. A power analysis using G*Power (Faul et al. 2007) determined 90 participants were required to detect effects with a small-to-medium effect size ($f = 0.15$).

Materials and Procedure

Moral Dilemmas Participants viewed eight hypothetical target persons and ostensibly learned about how each target made moral decisions. Information about how targets made moral decisions was conveyed by hypothetical responses to various moral dilemmas paired with each target. Moral dilemmas included a broad variety of personal and impersonal dilemmas that ranged in outcome severity (we acquired the set of dilemmas in the current study from Greene et al. 2001). Targets were randomly assigned five dilemmas that varied in the extent to which they were personal/impersonal as well as severity of judgment. Participants were instructed to imagine themselves as eventually engaging in a cooperative task with each of these target persons. To foster an immersive experience for participants in their hypothetical interaction, each target person (8 total: 4 men, 4 women) was represented by a facial image selected from a series of faces from the Aging Faces Database (Minear and Park 2004) pretested for average physical attractiveness. Below each image was a moral dilemma with an accompanying hypothetical response to the dilemma from the target person. Each target was accompanied by five successive moral dilemmas and their responses to these dilemmas, for a total of 40 observed responses (8 targets made 5 responses each). Targets' responses to the five dilemmas were exclusively utilitarian or deontological within the target. Target sex was crossed with target response type (i.e., 2 men and 2 women made exclusively utilitarian responses; 2 men and 2 women made exclusively deontological responses). All dilemmas were selected from previous research (Greene et al. 2001). Each dilemma consisted of a hypothetical scenario in which a protagonist (i.e., target displayed on the computer screen) was placed in a situation with a prompt to make a difficult choice after learning the scenario. Dilemmas always pitted deontological and utilitarian options against one another, such as the choice to smother a crying infant to prevent enemy soldiers from finding one's villagers hiding in a trench and the choice to redirect a runaway trolley toward one individual tied to a track versus inaction that would result in the death of five individuals tied to another track. For example, a target who indicated, "It is morally acceptable to smother a crying infant to prevent enemy soldiers from finding one's villagers hiding in a trench", made a decision consistent with what could be categorized as utilitarian moral decision-making. A target who indicated "it is not morally acceptable to smother a crying infant to prevent enemy soldiers from finding one's villagers hiding in a trench", made a decision consistent with what could be categorized as deontological moral decision-making.

The target's moral decision followed the dilemmas as the target indicating how they would act on the difficult choice. Dilemmas were framed in parallel with a "yes" indicating a utilitarian decision (e.g., smothering the baby to save the village) and a "no" indicating a deontological (e.g., smothering the baby is *intrinsically* wrong). Naturally, choices in such scenarios do not have an objectively right or wrong answer. Rather, they were intended to communicate targets' epistemic basis for difficult moral decisions. Target presentation order was randomized between participants with dilemmas and accompanying responses counterbalanced to prevent order or stimulus effects.

Positive Perceptions Participants reported their attitudes toward each target person using a 10-item scale assessing positive perceptions. Responses were on 7-point Likert-type scales (1 = *not at all*, 7 = *very much*) to statements indicating the extent each target exemplified the item with higher scores indicating greater positive perception. This scale contained two subscales assessing participants' *liking* and *trust* toward targets, two interrelated, yet distinct, processes (e.g., Rempel et al. 2001). The trust subscale assessed perceptions of a target's benevolent intentions toward others, which may be a proxy for perception of targets' potential to like a partner in an interdependent task (e.g., Montoya and Insko 2008), whereas the liking subscale assessed participants' affinity for social targets by indicating their willingness to associate with them.

Liking The liking subscale had four items derived from interpersonal attraction measures (e.g., Montoya and Horton 2004), including, "I think I would like this person." For the liking subscale, reliability was acceptable across different target categories (female utilitarian $\alpha = 0.91$, male utilitarian $\alpha = 0.96$, female deontological $\alpha = 0.88$, male deontological $\alpha = 0.93$).

Trust The trust subscale had six items derived from trust measures for cooperative tasks (e.g., Montoya and Insko 2008). Items included, "It is unlikely this person would look out for my own best interest." Three items were reverse scored. For trust, reliability was acceptable across different target categories (female utilitarian $\alpha = 0.84$, male utilitarian $\alpha = 0.85$, female deontological $\alpha = 0.83$, male deontological $\alpha = 0.85$).

Participants entered the laboratory in groups of 1–5 for a person perception study. Following informed consent, they completed this study at individual computer cubicles. Following each "acquaintanceship," participants indicated their positive perception toward each target. Finally, participants completed demographic information, and were debriefed.

Results

To test our primary hypothesis that individuals would report greater positivity toward individuals communicating deontological than utilitarian moral decision-making, we conducted a two (target sex: female vs. male) × 2 (target morality: utilitarian vs. deontological) × 2 (positive perception subscale: liking vs. trust) × 2 (participant sex: male vs. female) mixed-model ANOVA, with repeated-measures over the first three factors. Target sex elicited neither a significant main effect nor interactions ($ps > 0.11$); we do not discuss it further.

A significant main effect for subscale emerged such that participants' trust ratings ($M = 4.06$, $SD = 1.01$) were higher than their liking ratings toward targets ($M = 3.46$, $SD = 1.21$), $F(1, 131) = 79.16$, $p < 0.001$, $\eta_p^2 = 0.377$. Importantly, a significant main effect for target morality emerged such that participants exhibited more positive perceptions toward deontological targets ($M = 4.91$, $SD = 0.92$) than utilitarian targets ($M = 2.60$, $SD = 0.92$), $F(1, 131) = 241.51$, $p < 0.001$, $\eta_p^2 = 0.648$. Consistent with hypotheses, deontological decision-makers garnered more favorable evaluations than did utilitarian.

Additionally, a significant target morality × subscale interaction emerged, $F(1, 131) = 13.25$, $p < 0.001$, $\eta_p^2 = 0.092$. To understand this interaction, we conducted paired samples t tests for liking and trust separately to determine how moral decision-making strategy influenced ratings. For the liking subscale, participants liked deontological targets ($M = 4.53$, $SD = 1.02$) significantly more than utilitarian ($M = 2.39$, $SD = 1.01$), $t(132) = 17.64$, $p < 0.001$, $d = 2.11$. For the trust subscale, participants also trusted deontological targets ($M = 5.29$, $SD = 0.83$) more than utilitarian ($M = 2.83$, $SD = 0.89$), $t(132) = 19.12$, $p < 0.001$, $d = 2.85$. This interaction and subsequent post hoc tests indicate that although participants liked and trusted deontological decision-makers more than utilitarian, the effect size was larger for perceptions of trust than liking, which is consonant with the importance of trust perceptions among conspecifics in facilitating social cooperation.

Importantly, the effects reported above were qualified by a marginally significant target morality × subscale × participant sex interaction, $F(1, 131) = 3.82$, $p = 0.053$, $\eta_p^2 = 0.028$. To better understand this pattern of results, we thought it useful to conduct a pair of exploratory 2 (target morality) × 2 (participant sex) mixed-model ANOVAs with repeated-measures over target morality; we analyzed the liking and trust subscales separately. Although our samples of male and female participants were uneven, we thought it prudent to explore the potential impact of participant sex for two reasons. Despite the smaller sample size of men, the within-subjects nature of the design ensured statistical power was adequate to explore potential sex effects without a priori predictions. No homogeneity of variance violations occurred ($ps > 0.05$), suggesting response variance was equivalent across sexes.

Analysis of the liking subscale revealed a significant participant sex × target decision interaction, $F(1, 131) = 10.29$, $p = 0.002$, $\eta_p^2 = 0.073$. Independent samples t tests indicated that although men ($M = 4.28$, $SD = 0.91$) and women ($M = 4.60$, $SD = 1.04$) demonstrated equivalent liking toward deontological targets, $t(131) = 1.51$, $p = 0.134$, $d = 0.32$, women reported liking utilitarian targets ($M = 2.26$, $SD = 0.94$) significantly less than did men ($M = 2.85$, $SD = 1.13$), $t(131) = -2.85$, $p = 0.005$, $d = 0.56$. The predicted significant main effect for liking for target decision indicated that participants liked deontological targets ($M = 4.53$, $SD = 1.02$) more than they did utilitarian ($M = 2.39$, $SD = 1.01$), $F(1, 131) = 176.00$, $p < 0.001$, $\eta_p^2 = 0.073$. For the trust subscale, no significant participant sex × target decision interaction emerged, $F(1, 131) = 1.98$, $p = 0.161$, $\eta_p^2 = 0.015$. However, the predicted main effect of target decision emerged such that participants significantly trusted deontological targets ($M = 5.29$, $SD = 0.83$), more than utilitarian ($M = 2.83$, $SD = 0.89$), $F(1, 131) = 226.25$, $p < 0.001$, $\eta_p^2 = 0.633$. Results indicate that although trust toward targets did not differ based on participant sex, women reported liking utilitarian targets significantly less than did men. Interestingly, women's aversion to utilitarian moral decision-making was evident, regardless of target sex, a point we turn to in the discussion.

Discussion

Humans have benefited greatly from the evolution of cooperation and group living. Nonetheless, the benefits of social cooperation can be achieved only insofar as individuals are able to identify conspecifics more likely to abide by the rules of social exchange (e.g., Trivers 1971). It has been hypothesized that morality evolved, in part, as means of enforcing group norms related to social exchange, thereby facilitating cooperation in groups. Thus, by identifying conspecifics who communicate high levels of trustworthiness and a willingness to abide by norms against ingroup harm, individuals are best able to create group affiliations that are beneficial to an individual's needs as they relate to survival and reproduction. Indeed, past work suggests that trust is one of the most universally valued traits when evaluating others (Cottrell, Neuberg, and Li 2007) as well as being the impetus for expressed interpersonal attraction (Montoya and Insko 2008).

In the current study, we hypothesized that a target's moral decision-making strategy is a key source of information individuals may use to draw inferences regarding another's potential trustworthiness. Consistent with recent work by Everett and colleagues (2016), we hypothesized that deontological moral decision-making may be associated with increased perceptions of trust, relative to utilitarian moral decision-making. Because deontological moral decision-making is defined by rule-based criterion (e.g., killing others is always wrong), an individual who adopts this moral framework may be perceived as more interpersonally likeable and trustworthy because their moral decision-making strategy is predictable. Conversely, because utilitarian decision-makers primarily engage in cost-benefit analyses when making moral decisions (e.g., killing one person is acceptable if it saves several others), individuals may suppress their attraction toward this type of person because one might ultimately become a victim of this person's moral decision-making. That is, to the extent that one surrounds themselves with deontological persons, an individual is relatively safe within a group so long as they abide by the rules; however, the same cannot be said for an individual who surrounds themselves with utilitarian persons. When one surrounds oneself with deontologically minded conspecifics, they likely reduce the probability of exploitation from those persons. Given that reciprocal altruism, which is the hallmark of cooperation among unrelated conspecifics, is itself a rule-based phenomenon, deontologically minded persons would likely be the ones to engage in behaviors to promote such cooperation and trust, relative to utilitarian persons.

Consistent with this hypothesis, we found that participants reported more liking and trust toward deontological decision-makers, compared to utilitarian. Interestingly, the effect of deontological decision-making was larger for perceptions of trustworthiness than for general likeability. Thus, even though individuals favor deontological decision-makers in general, they find them especially more trustworthy. Given that morality evolved in part to facilitate social cooperation in groups (e.g., Krebs 2008), it is sensible that the rule-based decision-making of deontological targets had a strong impact on participants' perceptions of trustworthiness. Importantly, whereas Everett and colleagues asked participants to judge a target based on a single moral decision, we asked participants to judge a target based on a series of moral decisions. Nonetheless, our results were highly consistent with Everett and colleagues (2016).

Sex Differences in Target Preferences

An important extension of previous research in this domain was that our methodology allowed us to test for effects of target and participant sex. Interestingly, none of our results was qualified by target sex. Participants found deontological male and female targets similarly more likeable and trustworthy than their utilitarian counterparts. Although one might hypothesize that these effects would be stronger for men's judgments of female targets and women's judgments of male targets (i.e., cross-sex effects), we hypothesized that deontological moral decision-making is primarily about communicating general social value, rather than mate value more specifically. Thus, we expected that regardless of target sex, men and women would demonstrate greater liking of deontological targets, relative to utilitarian targets, as indexed by increased perceptions of liking and trust. That is, individuals view deontological targets as more trustworthy and likeable because these individuals' decision-making communicates that their behavior is more predictable and that they are likely to follow social exchange rules.

Interestingly, participant sex qualified the primary findings in the current study. For perceptions of trust related to deontological, versus utilitarian targets, no difference emerged between either sex's ratings. That is, men and women reported similarly greater trust related to deontological targets, relative to utilitarian. For perceptions of likability, although both men and women demonstrated similarly greater liking for deontological targets relative to utilitarian targets, women displayed significantly less liking of utilitarian targets relative to men. Thus, women especially did not like utilitarian as compared to deontological targets. This sex difference in likability of deontological targets, versus utilitarian targets, may be best explained from an error management perspective (Haselton and Buss 2000). Specifically, because women would have historically demonstrated a greater reliance on social relationships for access to resources (in part, due to higher costs associated with reproduction), a more judicious attitude in evaluating others as viable social exchange partners would be beneficial. As such, women may be especially averse to others whose behavior might be associated with exploitation, such as individuals adopting a utilitarian moral decision-making framework. This pattern is reflected in the current study by females' lower reported liking toward utilitarian targets as compared to male participants. Additionally, sexual dimorphism in humans leaves women open to physically aggressive exploitation by male conspecifics and women who believe the world to be a more threatening place prefer more formidable mates to protect her and her offspring from exploitation (Sell et al. 2012; Snyder et al. 2011). Thus, although women may prefer deontological decision-makers because they themselves tend to be more likely to be deontological (e.g., Friesdorf et al. 2015; cf. Everett et al. 2016), they may also prefer this in others because it reduces their exploitation risk, which would have been a historically greater concern for ancestral women.

Limitations and Future Directions

The current results are not without limitation. The interactions we instructed participants to imagine having were ultimately

hypothetical. Participants provided judgments of targets with the understanding that there would ultimately be no physical interaction with these individuals; thus, their responses may not have reflected behavioral manifestations of attraction. Indeed, participants indicated interest in targets based on liking and trust, but these attitudinal measures may not index discrete behaviors directed toward targets. Although affective and behavioral attraction are highly related (Montoya and Horton 2004; Montoya and Insko 2008), they are still unique processes that deserve separate consideration. Future research would benefit from in vivo interactions with deontological and utilitarian decision-makers. For example, participants may elect to sit in a chair closer to a deontological person instead of a utilitarian, which would serve as a behavioral index of attraction or aversion (e.g., Kawakami et al. 2007).

The differential reaction to decisions based on participant sex also creates new opportunities for research to determine the extent to which women would continue to derogate utilitarian targets. Although associating with a utilitarian individual may leave one vulnerable to exploitation, these individuals may also be more willing to make difficult choices in regard to other people (e.g., harming another), which may serve to protect conspecifics. Research indicates that women with greater concern for physical safety exhibit greater preferences for physical traits connoting an individual as physically dominant (e.g., Sacco et al. 2015; Snyder, Fessler, Tiokhin, Frederick, Lee, and Navarrete 2011). Although such men may present a greater risk of harm to women, women would be willing to make a tradeoff to associate themselves with such individuals if they perceive their environment as particularly dangerous. Future research should address women's willingness to make tradeoffs in associating with utilitarian targets, relative to deontological, when presented with concerns of physical safety threats.

Additionally, although the current work documents the signaling advantages of deontological moral decision-making as it relates to perceptions of trust and likeability, it will be important for future work to identify the potential adaptive advantages of utilitarian moral decision-making. An adaptive function of utilitarianism may be apparent insofar as total dissociation with such individuals would be detrimental. Given that both forms of decision-making have been maintained throughout human history, it should be the case that both serve unique adaptive purposes. For example, whereas deontological moral decision-makers are perceived as warm but less competent, utilitarian decision-makers are seen as less warm but competent; as such, individuals prefer utilitarians for jobs requiring competence (e.g., managers) versus a job that may require more warmth (e.g., pediatricians; Rom et al. 2016). Given links between utilitarianism and psychopathy (Patil 2015), as well as the link between psychopathy (i.e., fearless dominance) and leadership effectiveness (e.g., effectiveness of US presidents; Lilienfeld et al. 2012), future studies should consider these associations together to identify more contexts for a utilitarianism advantage. Individuals exhibiting higher fearlessness could be less averse to difficult (but arguably necessary) decisions, even if such decisions bring harm to others (e.g., using nuclear weapons to end a war; e.g., Lucas and Galinsky 2015). Thus, although we think it likely that deontological decision-makers will tend to be seen as more trustworthy than utilitarian decision-makers, it is likely that in some situations utilitarian decision-makers may be more *preferred* to fulfill certain roles (e.g., "hard nosed" leaders in situations of intergroup conflict).

Conclusion

The benefits of group living are contingent upon individual members following rules of social exchange adopted by the group in order to avoid exploitation. As a result, human morality may have evolved to maximize group cooperation by codifying a set of social exchange rules that reduce anti-social behavior of individual group members that would interfere with the effective survival of a particular group. Although individuals can adopt either a utilitarian or deontological strategy for navigating moral conflict, the current results suggest that deontological moral reasoning communicates to others that a person abides by established social rules, and would therefore be a trustworthy and valuable social exchange partner.

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