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Moral Expansiveness: Examining Variability in the Extension of the Moral World

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The nature of our moral judgments—and the extent to which we treat others with care—depend in part on the distinctions we make between entities deemed worthy or unworthy of moral consideration—our moral boundaries. Philosophers, historians, and social scientists have noted that people's moral boundaries have expanded over the last few centuries, but the notion of moral expansiveness has received limited empirical attention in psychology. This research explores variations in the size of individuals' moral boundaries using the psychological construct of moral expansiveness and introduces the Moral Expansiveness Scale (MES), designed to capture this variation. Across 6 studies, we established the reliability, convergent validity, and predictive validity of the MES. Moral expansiveness was related (but not reducible) to existing moral constructs (moral foundations, moral identity, "moral" universalism values), predictors of moral standing (moral patiency and warmth), and other constructs associated with concern for others (empathy, identification with humanity, connectedness to nature, and social responsibility). Importantly, the MES uniquely predicted willingness to engage in prosocial intentions and behaviors at personal cost independently of these established constructs. Specifically, the MES uniquely predicted willingness to prioritize humanitarian and environmental concerns over personal and national self-interest, willingness to sacrifice one's life to save others (ranging from human out-groups to animals and plants), and volunteering behavior. Results demonstrate that moral expansiveness is a distinct and important factor in understanding moral judgments and their consequences.

Keywords: moral expansiveness, moral concern, moral circle, moral judgment, self-sacrifice.

In 2008, Spain took steps to become the first country to extend basic "human" rights to great apes (e.g., right to life, freedom from torture; Glendinning, 2008). In 2012, the Whanganui River in New Zealand was officially granted legal personhood status, being recognized as a "person" with its own "rights and interests" under law (Fairbrother, 2012). More recently, Pope Francis addressed the United Nations general assembly on the inherent rights of the environment, arguing that all living creatures possess intrinsic value (Goldenberg & Kirchgaessne, 2015). These examples of granting rights typically reserved for people to nonhuman entities illustrate a general point noted by prominent theorists: Moral boundaries—the distinction between those entities that are deemed worthy of moral consideration and those that are not—are expanding over time (Bloom, 2010; Glover, 1999; Lecky, 1869; Pinker, 2011; Singer, 1981).

Although there may be a general trend toward more expansive moral boundaries, people's reactions to granting moral concern to entities such as rivers and animals are likely to differ widely. Some people may view granting moral consideration to animals and rivers as absurd and nonsensical, whereas others may believe that moral concern should extend even further. The extent to which people are expansive in their moral concern is a critical issue, as moral judgments and the ethical treatment of others depend on where people's moral boundaries end (Pizarro, Detweiler-Bedell, & Bloom, 2006). Entities outside the moral boundary can be subjected to horrific treatment with little concern for their welfare (e.g., live-cattle trade, the Holocaust), and important social and political debates often focus on entities that may sit on the margins of moral boundaries (e.g., fetuses and abortion). Therefore, it is important to develop an understanding of individual differences in the extension of moral concern, and the correlates and consequences of being more or less morally expansive.

Although there have been philosophical (Singer, 1981) and historical (Pinker, 2011) examinations of moral expansiveness, there is no established measure assessing individual differences in the size of a person's moral world. In response to this, we develop

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an approach to understanding moral expansiveness by measuring individual variation in the extent of people's moral concern for others and identifying its psychological implications. Specifically, the current research develops and validates a measure of moral expansiveness—the Moral Expansiveness Scale (MES)—and demonstrates that moral expansiveness is an important and unique predictor of moral attitudes and behavior.

What Is Moral Expansiveness?

Moral expansiveness refers to the breadth of entities deemed worthy of moral concern and treatment. A less morally expansive person restricts concern to those entities that are considered "close" (e.g., their family). A more morally expansive person extends moral care and consideration beyond these boundaries to more "distant" entities (e.g., animals or plants). Therefore, moral expansiveness captures the willingness to extend moral concern to others (the "breadth" of a person's moral world).

Critical to our understanding of moral expansiveness is a graded approach to measuring the intensity of people's moral concern for different entities. Singer (1981) characterized the moral circle as a boundary distinguishing those entities deemed worthy of moral consideration from those that are not. However, as noted by Pizarro et al. (2006), an either–or approach to understanding moral inclusion fails to account for the graded and multifaceted nature of moral concern. "Moral concern" can span from believing an entity's rights and well-being take precedence over all other considerations, to a perception that their needs and rights are worthy of limited consideration without being a primary concern. Our approach to moral expansiveness recognizes this "depth" of a person's moral world, such that some people will show a higher level of moral concern than others for the same entity. Accordingly, our approach to measuring moral expansiveness incorporates both breadth (extending some moral concern to more types of entities) and depth (the level of moral concern extended to each entity). Maximal moral expansiveness is demonstrated by granting the highest moral concern to all types of entities.

Further, we argue there is an intuitive link between expanding moral boundaries and a willingness to make personal sacrifices for those granted moral inclusion. The potential costs of moral inclusion, such as the use of time, money, or other resources to benefit the welfare of others, have often been noted (Opotow, 2011; Pinker, 2011; Singer, 1981). Acknowledging that another entity is worthy of moral standing is more meaningful when it involves a commitment to defending or enacting those moral rights. Therefore, we argue that moral expansiveness is a unique construct that captures the extent of a person's moral world in a way that also recognizes varying levels of moral concern. Other approaches to moral concern have not directly assessed moral standing or have focused on broad sets of entities (e.g., all humanity). By focusing on how moral concern is applied across an extensive range of entities, moral expansiveness can provide new insights into moral psychology. Here we compare moral expansiveness with prominent existing constructs in moral psychology.

Moral foundations theory (MFT; Haidt & Joseph, 2004) focuses on the basic foundations people rely on to make moral judgments, such as perceptions of harm or sanctity, rather than who is an appropriate entity for moral consideration. Some moral foundations, particularly Loyalty/betrayal, suggest the extension of moral concern is restricted (to the in-group). Thus, moral foundations might indirectly *predict* moral expansiveness, and perhaps especially the tendency to limit moral concern, but it does not claim to be a *measure* of moral expansiveness.

Moral expansiveness is also different from moral identity—a self-conception organized around the degree to which a set of desirable moral traits (e.g., caring, compassionate, honest) are personally valued (Aquino & Reed, 2002). Hence, moral identity does not directly capture the extent, or the targets, of moral concern. For example, a person can perceive themselves as holding moral values and being a moral person whether they apply moral concern to many things or to just a few. Although moral expansiveness has a different focus than moral identity, they may be linked empirically if having more expansive moral concern provides a basis for a stronger moral identity.

Theories of values have identified that some values are typically described as "moral" (Schwartz, 2007). For example, universalism values (e.g., protecting the environment, equality, a world at peace) reflect an understanding, tolerance, and concern for the well-being of all people and for nature. Although these values reflect moral concern, they are very general (e.g., a world at peace) and do not empirically capture the extent to which moral standing is afforded to a range of targets. The current research can help us understand how moral values and moral expansiveness are linked.

Finally, a recent line of work by Gray and colleagues has established the vital role of mind perception in moral decision making (H. M. Gray, Gray, & Wegner, 2007; K. Gray & Schein, 2012; K. Gray & Wegner, 2011; K. Gray, Young, & Waytz, 2012). Specifically, this research has emphasized the dyadic nature of morality—that moral decision making involves perceptions of moral agents (entities possessing moral responsibility) and moral patients (entities deserving of moral rights). Relevant to the proposed work, research has determined that perceptions of the capacity for sensation and feelings—moral patiency—predict attributions of moral standing. However, although measures of patiency/experience have not previously been applied to capture generalized concern for others, the current research can determine whether the tendency to extend moral concern to a greater number of entities corresponds with perceptions of the capacity for experience. By directly capturing the breadth of a person's moral world and the relative moral weight attached to entities that reside within it, the concept of moral expansiveness has the potential to provide important and novel insights into each of these related moral constructs.

Measuring Moral Expansiveness

As discussed, our approach to measuring moral expansiveness incorporates three important elements: (a) a graded approach to moral concern, (b) a broad range of entities, and (c) the consideration of personal costs when granting moral inclusion. The graded approach to our measure captures the reality that people do not make judgments about moral concern in an all-or-nothing way, but have levels of concern varying from strong to none (Opotow, 2011; Pizarro et al., 2006). This approach differs from earlier measures that have involved dichotomous judgments, such as circling entities that are included in the "moral circle" or crossing out those that are excluded (Bastian, Costello, Loughnan, & Hodson, 2012a; Laham, 2009). Such explicit choices of who is in-

cluded or excluded as moral entities offers critical insight into the boundaries of moral concern, but should be supplemented with recognition of the varying strength of moral concern people display (e.g., strong moral obligations vs. some acknowledgment of moral rights). Thus, we used a graded approach to measure moral expansiveness that incorporates both the boundary of inclusion–exclusion and different levels of moral concern.

Second, previous "moral circle" measures have targeted subsets of entities (e.g., "fringes of life" and animals; Bastian et al., 2012a; Laham, 2009; Opotow, 1993). Related constructs such as identification with all humanity (McFarland, Webb, & Brown, 2012) and connectedness to nature (Mayer & Frantz, 2004) focus on a restricted set of entities. Moving forward, instead of focusing on specific groups, the complex nature of the moral landscape must be reflected with a representative spread of entities (e.g., incorporating various human targets, animals, and the environment).

Third, as highlighted by Opotow (2011), an appropriate measure should incorporate a willingness to make personal sacrifices, reflecting a realistic pursuit of moral inclusion. Moral inclusion does not just involve cognitive judgments about moral standing, but should also have personal and behavioral consequences. Both Singer (1981) and Pinker (2011) argued that expanding moral concern involves detaching ourselves from our own narrow perspectives and self-interest: A move that can entail some level of personal cost and self-sacrifice. If an entity is granted moral inclusion, then on some level it is acknowledged as worthy to share in valuable (and often limited) resources. Thus, moral expansiveness goes beyond abstract moral judgments relating to moral standing and involves moral obligations and commitments to actively protect the moral rights of others, even at personal cost.

The MES

Because existing constructs do not meet all the criteria we believe are necessary to capture moral expansiveness, we constructed the MES. In the MES, participants indicate the relative moral standing of a wide range of entities by placing them within four defined boundaries: an inner circle (entities worthy of the "highest level of moral concern and standing . . . you have a moral obligation to ensure their welfare and feel a sense of personal responsibility for their treatment"), an outer circle ("These entities deserve moderate moral concern and consideration . . . you are still concerned about their moral treatment; however, your sense of obligation and personal responsibility is greatly reduced"), fringes of moral concern ("These entities deserve minimal moral concern and standing, but you are not morally obliged or personally responsible for their treatment"), and outside the moral boundary ("These entities deserve no moral concern or standing . . . feeling concern or personal responsibility for their moral treatment is extreme or nonsensical"). The four boundaries of morality are graded (inner circle = 3, outer circle = 2, fringes = 1, outside = 0), and an aggregate score is calculated to reflect the expansiveness of an individual's moral world.

Using this measurement approach, the overall MES score summarizes the "breadth" and the "depth" of a person's moral world. Further, the potential consequences of moral expansion are incorporated within this graded boundary approach, as it directs people to consider the personal costs of moral inclusion. In order to provide an extensive map for how people structure their moral worlds, 30 entities were included spanning 10 categories: family and friends, in-group, out-group, revered people, stigmatized, villains, high-sentience animals, low-sentience animals, plants, and environment. Three entities were included in each of these categories (see Appendices A and B for the complete scale[1]).

Overview of Studies

The current research comprises six studies that establish the validity of the MES and its contribution as a unique predictor of moral decision making. Study 1 establishes the reliability of the MES, describes normative beliefs about which entities are central versus distal in terms of moral concern, and examines the relationships between moral expansiveness and demographic variables. Study 2 examines the convergent and predictive validity of the MES compared with established "moral" constructs. Study 3 examines the unique role of moral expansiveness—relative to "moral" and "generalized" constructs linked with moral concern—in predicting intentions when individuals are faced with an extremely costly ultimatum: to sacrifice one's life to protect others. Studies 4 and 5 apply the self-sacrifice criterion to determine the predictive utility of moral expansiveness against alternative measures of moral standing (experience and warmth), and to establish that expansiveness cannot be reduced to a general sense of personal responsibility. Finally, Study 6 demonstrates that the MES predicts behavior at a personal cost over and above a range of existing constructs. The sample size for all studies met the recommendations for hierarchical regression in relation to cases per predictor according to Brace, Kemp, and Snelgar (2009; i.e., at least five cases per variable).

Study 1: Reliability and Structure of the MES

Study 1 had three functions: (a) to test the reliability of the MES, (b) to map normative patterns of the extent to which entities are central versus distal in people's moral worlds, and (c) to explore how moral expansiveness varies as a function of demographic characteristics (age, political conservatism, religiosity, and gender). Strong relationships between demographic variables and the MES were not expected. However, because political conservatism is associated with less moral regard toward out-group members (Bassett, 2010; van Leeuwen & Park, 2009), and less engagement in environmentalism (Neumayer, 2004), we expected that there would be a negative association between moral expansiveness and political conservatism.

Method

One hundred twenty-six U.S. participants (52.38% male; M_{age} = 34.59, SD = 11.89) were sourced through Amazon's

[1] Initially, we also incorporated an "objects" category, including entities such as rocks. After reviewing responses, it became clear that most participants struggled with thinking about the moral standing of objects. As result of this, and due to the low alpha of the objects category (α = .54), these entities were not included in the scale beyond this point. Note also that slight adjustments were made to a small number of MES entities from Study 3 onward; "parent" was changed to "family member" in order to represent a nonspecific member of kin, and "friend" was changed to "close friend" in order to emphasize a very close nonkin member.

Mechanical Turk. Participants were first introduced to the concept of "moral circles" and then completed the MES,[2] followed by demographic questions. These included two single-item measures of political conservatism: economic conservatism ("Please indicate your political beliefs from left/liberal to right/conservative on issues of the economy, e.g., social welfare, government spending, tax cuts"; 1 = *left/liberal* to 7 = *right/conservative*), and social conservatism ("Please indicate your political beliefs from left/liberal to right/conservative on social issues, e.g., immigration, homosexual marriage, abortion"; 1 = *left/liberal* to 7 = *right/conservative*). Also included was a four-item Religiosity scale (e.g., "How religious are you?"; 1 = *not at all religious* to 7 = *very religious*; $\alpha = .92$; Cohen, Malka, Rozin, & Cherfas, 2006).

Results and Discussion

Nine participants (7.14%) were excluded on the basis of failed attention checks and not engaging with the task appropriately,[3] leaving 117 participants. Each participant's MES score was calculated based on the placement of the target entities within the graded boundaries of concern (inner circle = 3, outer circle = 2, fringes = 1, outside = 0). Hence, the aggregate MES score across the 30 entities could vary from 0 to 90, with higher scores indicating greater moral expansiveness. The means, standard deviations, and correlations between the total MES and entity groups are displayed in Table 1. The 30 items formed an MES scale with strong internal consistency ($\alpha = .92$), with a mean of 44.21 (SD = 12.30, range: 17–84).

The mean MES scores of the entity groups were plotted in order to illustrate the normative structure of the moral world (see Figure 1). Family and friends (ratings in this category had very low variance) were consensually deemed to be worthy of the highest moral concern, followed by the in-group ($\alpha = .67$), revered individuals ($\alpha = .61$), stigmatized individuals ($\alpha = .80$), and the out-group ($\alpha = .80$). High-sentience animals ($\alpha = .89$) held the highest moral standing of nonhuman groups, followed by environmental targets ($\alpha = .92$), low-sentience animals ($\alpha = .86$), and plants ($\alpha = .87$). Villains ($\alpha = .92$) appeared on the outer edges of the moral world and held the lowest moral standing of all targets.

There were no significant relationships between the MES and demographic variables: age, $r = -.09$, $p = .35$; conservatism—economic, $r = -.18$, $p = .06$; conservatism—social, $r = -.04$, $p = .29$; or Religiosity, $r = .09$, $p = .34$. There were also no differences in MES scores between males ($M = 44.00$, $SD = 12.77$) and females ($M = 44.44$, $SD = 11.85$), $t(115) = -.19$, $p = .85$, 95% CI [−4.97, 4.09].

The findings from Study 1 provide support for the reliability of the MES. Further, these data revealed a normative structure of the moral world. Generally, human targets are worthy of the greatest moral concern and consideration (unless they have committed an act to lose this, i.e., "villains"). However, nonhuman targets (including animals, plants, and the environment) still consistently hold some moral standing. The MES produced no strong associations with key demographic variables, indicating that moral expansiveness is not reducible to general political attitudes or religious beliefs.

Study 2: Comparing Moral Expansiveness With Other Moral Constructs

Study 2 explored the unique convergent and predictive validity of moral expansiveness compared with other constructs that focus on moral judgments and moral values: moral foundations (Haidt & Joseph, 2004), moral identity (Aquino & Reed, 2002) and moral (universalism) values (Schwartz, 2007). As described in the introduction, we expect moral expansiveness assesses a unique aspect of moral cognition and will predict moral decision making after controlling for these established morality constructs.

It is also important to establish convergent validity of the MES. It is expected that there will be some overlap between moral expansiveness and the other moral constructs because they all form a part of people's moral judgments. For example, placing greater emphasis on basic concerns for the suffering of others (Care/harm of MFT), and concerns relating to unfair treatment and inequality (Fairness/cheating), may be associated with more expansive moral boundaries. Therefore, positive correlations between the MES and endorsement of the "harm" and "fairness" foundations were expected. Conversely, the "binding foundations" of "loyalty," "authority," and "purity" are associated with in-group loyalty, endorsement of traditional social hierarchies, and marking a group's cultural boundaries, respectively (Graham, Haidt, & Nosek, 2009). Therefore, endorsement of these "binding foundations" suggests a greater focus on in-group considerations at the expense of more disadvantaged or "distant" humans, as well as animals and the environment. Consequently, negative relationships between MES and these foundations were expected.

Previous research has identified a relationship between moral identity and increased moral regard toward out-group members (Reed & Aquino, 2003). Moreover, endorsement of universalism values such as equality and protecting the environment have been associated with greater moral inclusivity (Schwartz, 2007). Therefore, positive associations between moral identity, universalism values, and the MES were predicted.

In terms of predictive utility, moral expansiveness should be particularly powerful in predicting moral decision making and behavioral intentions in contexts in which protecting the rights and needs of others incurs some cost. One way to assess this is to create a context in which this tendency might emerge, such as pitting in-group concerns against out-group concerns. This is similar to the approach taken by McFarland and Matthews (2005), in which participants judged the relative importance of national self-interest goals versus broader human rights goals (e.g., maintaining a strong national military vs. ending child prostitution worldwide). We developed a similar measure that included not just concern for human out-groups, but also extended to nonhuman animals and the environment. It was hypothesized that moral expansiveness would predict willingness to support altruistic human and nonhuman

[2] Note slight changes were made to the original MES instructions used in Studies 1–3 from Study 4 on-wards. Instructions were streamlined and more consistent terminology was used (e.g, moral concern and standing vs. moral rights and consideration). In addition, potential overlap between criterion measures was reduced (e.g., notions of personal sacrifice were replaced with personal responsibility). See Appendix A for finalized MES instructions.

[3] Participants were deemed to not be engaging with the MES task when "villains" had higher MES scores than family and/or in-group members.

Table 1
Means, Standard Deviations, and Correlations Between the MES and Individual Entity Groups, Study 1

Overall MES and entity groups	Mean/*SD*	1	2	3	4	5	6	7	8	9	10	11
1. MES	44.21 (12.30)	—	—	—	—	—	—	—	—	—	—	—
2. Family/friends	8.90 (.40)	.15	—	—	—	—	—	—	—	—	—	—
3. In-group	6.40 (1.58)	.64***	.15	—	—	—	—	—	—	—	—	—
4. Revered	5.39 (1.68)	.74***	.20*	.70***	—	—	—	—	—	—	—	—
5. Stigmatized	5.35 (2.00)	.71***	.13	.55***	.61***	—	—	—	—	—	—	—
6. Out-group	4.52 (1.92)	.68***	.05	.64***	.66***	.66***	—	—	—	—	—	—
7. Animals (high sentience)	3.85 (2.35)	.78***	.17†	.32***	.37***	.48***	.36***	—	—	—	—	—
8. Environment	3.53 (2.39)	.67***	.08	.23*	.38***	.29**	.15	.52***	—	—	—	—
9. Animals (low sentience)	2.64 (2.30)	.75***	.10	.22*	.33***	.34***	.26**	.81***	.54***	—	—	—
10. Plants	2.52 (2.20)	.71***	.06	.24*	.36***	.24*	.21*	.55***	.78***	.66***	—	—
11. Villains	1.10 (1.77)	.30**	−.25**	.23*	.21*	.25**	.42***	.03	−.13	.08	.02	—

Note. MES = Moral Expansiveness Scale.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

concerns against in-group concerns, over and above established morality measures.

Method

Participants and measures. One hundred twenty-three U.S. participants (64.23% male; M_{age} = 34.01, *SD* = 11.57) were sourced through Amazon's Mechanical Turk. Participants completed the MES, the three established morality constructs, and criterion measures described in the following section.

Morality measures.

Moral foundations. The short version of the Moral Foundations Questionnaire (MFQ20; Graham et al., 2009) assessed five moral foundations: Care/harm (α = .77), Fairness/cheating (α = .65), Loyalty/betrayal (α = .69), Authority/subversion (α = .75),

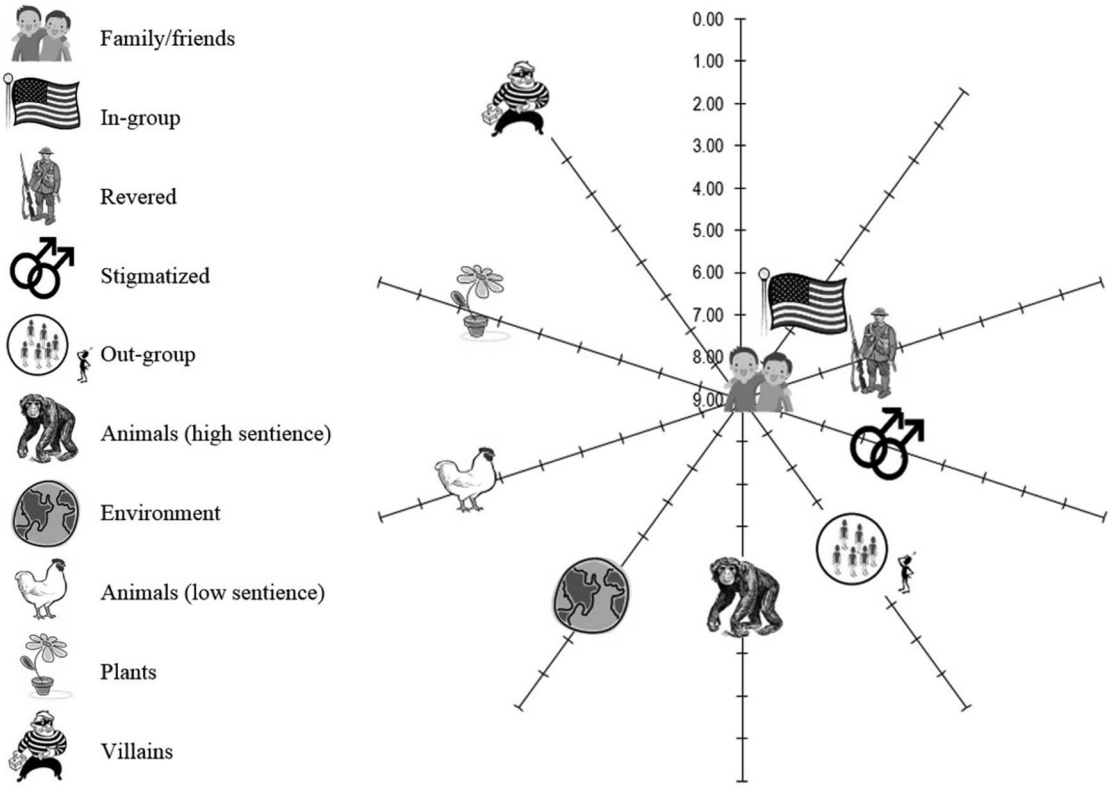

Figure 1. Normative pattern of entities on the Moral Expansiveness Scale, with more central positions indicating greater moral concern.

and Purity/degradation (α = .87). Within this scale, some items ask participants to consider the relevance of a number of factors in deciding whether something is right or wrong (e.g., "Whether or not someone suffered emotionally"; 0 = *not at all relevant* to 5 = *extremely relevant*), and other items ask participants to indicate their level of agreement with a range of morally relevant statements (e.g., "Compassion for those who are suffering is the most crucial virtue"; 0 = *strongly disagree* to 5 = *strongly agree*).

Moral identity. The 10-item Self-Importance of Moral Identity scale (Aquino & Reed, 2002) captures the extent to which a range of moral characteristics (e.g., caring, compassionate, fair) are personally valued. The scale comprises two dimensions: Internalization (e.g., "It would make me feel good to be a person who has these characteristics"; α = .79), and Symbolization (e.g., "I am actively involved in activities that communicate to others that I have these characteristics"; α = .88). All items used a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*).

Universalism. Six universalism values (e.g., broadmindedness, equality) were selected from Schwartz (1992). These were rated as guiding principles in one's life (1 = *not at all important* to 5 = *extremely important*; α = .83).

Criterion measures. The criterion measures captured willingness to engage in in-group or personal sacrifice for both human and nonhuman targets in situations such as policy making, donations, and charitable giving.

Human and nonhuman concern judgments. We adapted and extended McFarland et al.'s (2012) Human Rights Choices Questionnaire, which requires participants to make choices about who should have priority in rights and welfare dilemmas. These items examined concern for humans (e.g., "a—making medicines available overseas for those who cannot afford them" vs. "b—making sure America has the best hospitals in the world"; 1 = *Item a is much more important* to *5 = Item b is much more important*); concern for nonhuman animals (e.g., "a –protecting the habitats of chimpanzees and the other great apes around the world," vs. "b—ensuring the cost of living remains stable in America"); and concern for the environment (e.g., "a—protecting the world's remaining old-growth forests" vs. "b—preventing another U.S. recession"). Participants were required to choose the relative importance of these nationalistic and self-interested concerns against concerns for more distant targets—both human and nonhuman (eight items; α = .81).

Kidney donation. This personal sacrifice measure was designed to capture concern for human targets at a personal cost. It required participants to imagine an organ shortage at a local hospital and to indicate how likely they would be to donate one of their kidneys to a range of seven targets (e.g., charity worker, refugee, convicted murderer) on a 7-point scale (1 = *very unlikely*, 7 = *very likely*; α = .92).

Financial donation. Because kidney donation is restricted to human targets, a second measure assessing financial donation was created for nonhuman animals and the environment. This measure required participants to imagine they had recently inherited a large sum of money. Participants were then asked how likely they would be to donate a portion of it to a range of six charities (e.g., saving chimpanzee habitats, restoring blue-fin tuna populations, saving endangered plant species; 1 = *very unlikely*, 7 = *very likely*; α = .93).

Results and Discussion

Using the same exclusion criteria as Study 1, four participants (3.25%) were excluded, leaving 119 participants for analysis. The mean MES score was 54.13 (*SD* = 13.00, range: 22–87).

Convergent validity. Table 2 shows that the MES shared weak to moderate correlations with other morality constructs (rs < .37), indicating that it shares meaningful variance with other approaches to assessing morality, but not to the point of redundancy. Scores on the MES were significantly correlated with four of the five moral foundations. As predicted, those high in moral expansiveness were more likely to base their moral judgments on considerations of the well-being of others and protecting them from harm (Care/harm). Conversely, the MES was moderately negatively correlated with "binding" foundations: Loyalty, Authority, and Purity. As predicted, those high in moral expansiveness reported greater endorsement of universalism values. However, expansive moral concern was not related to moral identity (Aquino & Reed, 2002), both when it was operationalized as the extent to which desirable moral traits are central to an individual's

Table 2
Relationships Between the MES, Morality Measures, and Four Criterion Judgments, Study 2

Morality measures	MES	Human moral concern	Nonhuman moral concern	Kidney donation (human)	Financial donation (nonhuman)
MES	—	.42***	.44***	.25**	.35***
Moral foundations					
Care/harm	.26**	−.01	.16†	.09	.37***
Fairness/cheating	.09	−.08	.01	−.09	.19*
Loyalty/betrayal	−.31**	−.27**	−.26**	−.00	−.09
Authority/subversion	−.27**	−.44***	−.34***	−.11	−.16†
Purity/degradation	−.24**	−.42***	−.16†	−.26**	−.08
Moral identity					
Internalization	.12	−.21*	.02	−.16†	−.03
Symbolization	.08	−.04	.14	.09	.18*
Universalism values	.36***	.14	.31**	−.05	.38***

Note. MES = Moral Expansiveness Scale.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

self-concept (Internalization), and as the extent to which people engaged in public expressions of these traits (Symbolization).

Predictive validity. Correlations among the criterion measures and predictors can also be found in Table 2. As predicted, the MES showed strong and statistically significant correlations with all four criterion judgments. Universalism values and the Authority/subversion, Loyalty/betrayal, and Purity/degradation moral foundations subscales were significantly associated with two of the four criterion variables, whereas the other moral constructs correlated with just one of the criterion variables.

A set of hierarchical regressions were performed to determine whether moral expansiveness could account for unique variance in moral decision making over and above established measures. Demographic variables[4] (age, gender, and religiosity) were entered at Step 1; the moral foundations dimensions, moral identity, and universalism values were entered at Step 2; and the MES was entered at Step 3. Collinearity diagnostics indicated no problematic multicollinearity (all variance inflation factor [VIFs] <3.6). Results for the human and nonhuman concern criterion measures are shown in Table 3; results for kidney and financial donation measures are shown in Table 4. As can be seen, moral expansiveness accounted for unique variance over these established measures when predicting (a) prioritizing global humanitarian concerns over in-group concerns, (b) prioritizing animal and environmental concerns over in-group concerns, (c) a willingness to donate one's kidneys to a range of nonkin targets, and (d) financial donations to animal welfare and environmental causes. These findings, as well as the weak to moderate correlations between the MES and the other predictors, suggests that moral expansiveness is capturing a distinct element of moral cognition, which can make a unique contribution to our understanding of moral judgments and their consequences.

Study 3: Willingness to Self-Sacrifice and Moral Expansiveness

In Study 3, we tested the limits of the relationship between moral expansiveness and the willingness to sacrifice by examining whether moral expansiveness has a unique role in predicting behavioral intentions when individuals are faced with an extremely costly ultimatum: to sacrifice one's life to protect others. Extrapolating from Study 2, we predicted that those with more expansive moral boundaries should be more willing to sacrifice themselves to save the lives of a range of human and nonhuman entities. Further, as in Study 2, we expected that this relationship would hold after controlling for the morality constructs previously established in the literature.

In Study 3, we aimed to further establish the convergent and predictive validity of the MES against measures not explicitly invoking morality, but that have been linked to moral concern. Previous research has established that dispositional empathy has been related to altruistic tendencies (Eisenberg, 2010; Paciello, Fida, Cerniglia, Tramontano, & Cole, 2013; Pizarro et al., 2006), and at least conceptually linked to the notion of expansive moral concern (Pinker, 2011; Singer, 1981). Other relevant theories focus on specific entities, such as humanity as a whole (identification with all humanity; McFarland et al., 2012) or nature (connectedness to nature; Mayer & Frantz, 2004), which may be related to the extent of moral concern afforded to particular targets. Therefore, although not explicitly evoking morality, it is important to empirically demonstrate that moral expansiveness makes a unique practical contribution over and above these constructs. Further, because these constructs are all associated with the extension of concern, it is informative to understand whether they are related to moral expansiveness.

Consistent with Study 2, moral expansiveness should be associated with a willingness to extend moral concern to both human and nonhuman targets. It was therefore anticipated that greater moral expansiveness would be associated with a tendency to identify with all humanity (McFarland et al., 2012) and with perceived connection to the natural world (Mayer & Frantz, 2004). Moral expansiveness should also be associated with empathic traits, specifically, increased empathic concern and perspective taking (Davis, 1983; Pizarro et al., 2006). However, it is expected that the MES will make a unique contribution over and above these constructs in predicting a willingness to protect the rights and needs of others.

Finally, given the nature of the criterion judgments, we included five control variables. These included three demographic control variables used in Study 2—age, gender and religiosity—and two additional control variables: belief in the afterlife and social desirability. We surmised that people who believe in life after death might be more willing to sacrifice their lives, as it would be seen as less costly and even potentially rewarding. The need to control for a tendency to provide socially desirable responses was expected given the potentially discomforting nature of the judgments.

Method

Participants and measures. Three hundred sixteen U.S. participants (58.20% female, $M_{age}= 36.16$, $SD = 12.35$) were sourced through Amazon's Mechanical Turk. They completed an online questionnaire that included the MES, the willingness to self-sacrifice measure, the "morality" constructs from Study 2 (moral foundations, the two dimensions of moral identity, and universalism values), and a set of "generalized concern" measures.

Additional controls. Measures of belief in the afterlife and social desirability were included as additional controls. A three-item version of the Belief in Afterlife Scale (Osarchuk & Tatz, 1973) was used in order to control for perceptions of a life after death (e.g., "There is no such thing as a life after death"; 1 = *strongly disagree* to 7 = *strongly agree*; $\alpha = .95$). To account for the tendency to provide overtly desirable responses, an 11-item version (Reynolds, 1982) of the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) was used (e.g., "I'm always willing to admit it when I make a mistake"; 1 = *true*, 2 = *false*; $\alpha = .80$).

Generalized concern measures.

Empathy. To assess empathy, the Empathic Concern (seven items, $\alpha = .90$) and Perspective Taking (seven items, $\alpha = .90$) subscales were included from Davis's (1983) Interpersonal Reactivity Index. These scales measure how well a set of empathic traits describes the individual on a 5-point scale (e.g., "I often have tender, concerned feelings for people less fortunate than me"; 1 = *does not describe me well* to 5 = *describes me very well*).

[4] Political conservatism was not included as a control variable in the regressions for Studies 2 and 3. Because political conservatism is known to be highly correlated with the "binding" moral foundations, it was identified as a potential covariate. This allowed for a cleaner interpretation of the predictive strength of the MES relative to moral foundations. However, the inclusion of political conservatism does not change the conclusions drawn from Studies 2 and 3.

Table 3
Hierarchical Regression Predicting Human and Nonhuman Moral Concern Judgments, Study 2

	Human moral concern						Nonhuman moral concern					
Predictor measures	Step 1		Step 2		Step 3		Step 1		Step 2		Step 3	
ΔR^2	.00		.32***		.08***		.04		.21**		.08**	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Age	−.02	[−.21, .16]	−.01	[−.17, .16]	−.05	[−.20, .11]	−.02	[−.20, .17]	.01	[−.17, .19]	−.03	[−.19, .14]
Gender	.01	[−.19, .21]	−.01	[−.19, .17]	−.02	[−.19, .15]	−.19†	[−.01, .38]	.10	[−.09, .28]	.08	[−.09, .26]
Religiosity	−.06	[−.26, .14]	.30**	[.09, .50]	.24*	[.05, .44]	−.16	[−.35, .04]	−.08	[−.29, .14]	−.13	[−.34, .08]
Moral foundations												
Care/harm	—	—	−.00	[−.23, .22]	−.07	[−.28, .15]	—	—	.14	[−.10, .38]	.08	[−.15, .31]
Fairness/cheating	—	—	−.03	[−.25, .19]	.02	[−.19, .23]	—	—	−.17	[−.40, .06]	−.12	[−.34, .10]
Loyalty/betrayal	—	—	.11	[−.12, .34]	.19†	[−.03, .41]	—	—	−.07	[−.31, .17]	.01	[−.22, .24]
Authority/subversion	—	—	−.43**	[−.73, −.13]	−.43**	[−.71, −.15]	—	—	−.36*	[−.67, −.05]	−.36*	[−.66, −.06]
Purity/degradation	—	—	−.29*	[−.54, −.05]	−.22†	[−.46, .01]	–	—	.12	[−.13, .38]	.19	[−.06, .44]
Moral identity												
Internalization	—	—	−.23*	[−.41, −.05]	−.23*	[−.40, −.05]	—	—	−.05	[−.24, .14]	−.04	[−.23, .14]
Symbolization	—	—	.12	[−.07, .31]	.10	[−.08, .27]	—	—	.20*	[.00, .40]	.18†	[−.01, .37]
Universalism values	—	—	.08	[−.12, .28]	−.00	[−.20, .19]	—	—	.21†	[.00, .42]	.13	[−.08, .33]
MES	—	—	—	—	.34***	[.16, .51]	—	—	—	—	.33**	[.14, .51]

Note. CI = confidence interval; MES = Moral Expansiveness Scale.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Connectedness to nature. Mayer and Frantz's (2004) Connectedness to Nature Scale (α = .90) comprises 14 items assessing trait levels of feeling emotionally connected to the natural world. An example item is "I often feel a sense of oneness with the natural world around me" (1 = *strongly disagree* to 5 = *strongly agree*).

Identification with all humanity. The Identification with All Humanity Scale (McFarland et al., 2012) consists of nine items that capture feelings of identification and concern toward three groups of people: "the local community," "Americans," and "all humans everywhere" (α = .89). An example item is "How much do you identify with (feel a part of, feel love toward, have concern for) each of the following?" (1 = *not at all close* to 5 = *very close*).

Criterion measure: Willingness to self-sacrifice. To assess willingness to self-sacrifice, participants were presented with the following scenario:

> Imagine your powerful country is ruled by a ruthless dictator. This dictator has ultimate power and is notorious for taking violent action for unknown reasons, though he is always true to his word. This dictator has recently passed a set of laws that has put a range of

Table 4
Hierarchical Regression Predicting Kidney and Financial Donation Judgments, Study 2

	Kidney donation (human)						Financial donation (nonhuman)					
Predictor measures	Step 1		Step 2		Step 3		Step 1		Step 2		Step 3	
ΔR^2	.01		.23***		.04*		.03		.26***		.03*	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Age	.04	[−.15, .23]	.06	[−.12, .24]	.03	[−.14, .21]	−.04	[−.22, .15]	−.06	[−.23, .12]	−.08	[−.25, .09]
Gender	.06	[−.14, .25]	.08	[−.11, .27]	.07	[−.12, .25]	.17†	[−.03, .37]	.08	[−.11, .26]	.07	[−.11, .25]
Religiosity	−.01	[−.21, .19]	.15	[−.07, .37]	.11	[−.11, .33]	−.02	[−.21, .18]	.03	[−.18, .24]	−.00	[−.21, .21]
Moral foundations												
Care/harm	—	—	.29*	[.05, .53]	.25*	[.01, .49]	—	—	.38**	[.14, .61]	.33**	[.10, .57]
Fairness/cheating	—	—	−.17	[−.40, .06]	−.14	[−.37, .09]	—	—	−.09	[−.31, .13]	−.06	[−.28, .16]
Loyalty/betrayal	—	—	.15	[−.09, .39]	.20†	[−.04, .44]	—	—	.01	[−.23, .24]	.06	[−.18, .29]
Authority/subversion	—	—	−.01	[−.32, .31]	−.01	[−.32, .31]	—	—	−.13	[−.44, .18]	−.13	[−.43, .17]
Purity/degradation	—	—	−.46**	[−.72, −.20]	−.41**	[−.67, −.16]	—	—	−.03	[−.28, .22]	.02	[−.23, .26]
Moral identity												
Internalization	—	—	−.23*	[−.43, −.04]	−.23*	[−.42, −.04]	—	—	−.24*	[−.42, −.05]	−.24*	[−.42, −.05]
Symbolization	—	—	.22*	[.02, .42]	.21*	[.01, .40]	—	—	.15	[−.04, .34]	.14	[−.05, .33]
Universalism values	—	—	−.17	[−.38, .05]	−.23*	[−.44, −.01]	—	—	.24*	[.03, .44]	.18†	[−.03, .39]
MES	—	—	—	—	.23*	[.04, .43]	—	—	—	—	.21*	[.02, .40]

Note. CI = confidence interval; MES = Moral Expansiveness Scale.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

specific groups and entities at risk of being completely wiped out, and unfortunately, all other world leaders are too afraid to intervene. He has ordered that action against these groups will begin immediately, however he has also decided that if somebody from his own country volunteers to sacrifice themselves instead, the groups will be saved.

Eight entities were presented in random order: "people from your hometown," "people from the African continent," "people with an intellectual disability from your country," "people currently incarcerated in your country," "chimpanzees," "ants," "redwood trees," and "coral reefs." These entities were selected (four human and four nonhuman) as targets that ranged from the center to the peripheries of most people's moral spheres. Participants were asked to consider how many of a particular entity would need to be killed by the dictator for them to sacrifice themselves in their place (e.g., 1 = *1–10*; 2 = *10–100*; 3 = *100–1,000*; 4 = *10%*; 5 = *25%*; 6 = *50%*; 7 = *75%*; 8 = *90%*; 9 = *100%*; 10 = *I would never sacrifice myself*). Each entity was presented individually with the following assumptions made clear: (a) there are no other options and nobody else is going to volunteer, (b) your death would be painless, and (c) sacrificing your life would definitely save the lives of the targets. These targets were analyzed both as individual items and as an overall construct capturing general willingness to self-sacrifice ($\alpha = .87$).

Results and Discussion

Applying the same exclusion criteria as in the previous studies to both the MES and self-sacrifice measure, 27 participants (8.54%) were excluded, leaving a sample of 289.[5] The mean MES score was 44.92 ($SD = 13.12$, range: 13–84).

Convergent validity. Correlations between the MES and the "generalized concern" predictors included in Study 3 are presented in Table 5. As predicted, higher scores on the MES were associated with significantly greater empathic concern and perspective taking. Similarly, higher scores on the MES were positively associated with identification with all humanity and connectedness to nature, indicating that the MES spans both human and nonhuman domains. As with Study 2, these correlations ($rs < .40$) indicate there is some overlap between these constructs and moral expansiveness, but not to the point of redundancy.

Predictive validity. Correlations between all predictor scales and willingness to self-sacrifice—both overall and for each entity—are also found in Table 5. As predicted, there was a significant positive relationship between scores on the MES and overall willingness to self-sacrifice. Across the individual entities, holding more expansive moral boundaries was associated with an increased willingness to self-sacrifice (in one case marginally significant) for all of the eight targets. Further, the MES produced a far more consistent pattern across the entities (both human and nonhuman) than any other predictor. Of note, the Care/harm dimension of moral foundations, empathic concern, perspective taking, identification with all humanity, and the Internalization component of moral identity each produced significant correlations across the human targets. For nonhuman targets, connectedness to nature and universalism values each produced some positive correlations, whereas the Authority/subversion and Purity/degradation dimensions of moral foundations were associated with a reluctance to self-sacrifice.

A single hierarchical regression was performed, collapsing across the targets in order to predict overall willingness to self-sacrifice. This regression consisted of four steps: the demographic and control variables (age, gender, religiosity, belief in the afterlife, and social desirability) at Step 1, morality predictors at Step 2, "generalized concern" predictors at Step 3, and MES at Step 4 (see Table 6). Collinearity diagnostics indicated no problematic multicollinearity (all VIFs <3.0). As can be seen, over and above the demographic and control variables, the Internalization subscale of moral identity was the only traditional morality construct to significantly predict willingness to self-sacrifice at Step 2. When the "generalized concern" predictors were included at Step 3, identification with all humanity and connectedness to nature became the only significant predictors. However, entering the MES at Step 4 explained a significant amount of extra variance over and above these 17 predictors, with higher moral expansiveness associated with an increased overall willingness to self-sacrifice across the targets ($\beta = .16$, $p = .015$, 95% CI [0.03, 0.29]).

In sum, Study 3 provides strong additional evidence for the relationship between moral expansiveness and a willingness to overcome self-interest in the extension of moral concern. These results move beyond the findings of Study 2 (e.g., in-group vs. out-group policy decisions), because moral expansiveness was found to be a powerful predictor of a willingness to protect others while making the ultimate sacrifice—one's life. Further, the MES made a unique contribution not just over established "morality" predictors but also over and above a set of "generalized concern" constructs that have been empirically linked to moral concern. Of all these relevant constructs, the MES produced the most consistent correlations across the self-sacrifice target entities. Although certain constructs (e.g., identification with all humanity, connectedness to nature) were associated with a willingness to sacrifice one's life for other human or nonhuman entities, the MES was the only construct to consistently predict variance across both human and nonhuman targets. Further, moral expansiveness was a unique predictor of the overall willingness to self-sacrifice even after the explanatory contribution of these constructs had been accounted for.

Study 4: Moral Expansiveness and Moral Patiency

In Study 4, we tested the relationship between moral expansiveness and an established predictor of moral rights attribution—moral patiency. Unlike previous morality constructs examined in Studies 2 and 3, the extent to which individual entities are perceived to hold moral patiency (e.g., the capacity to experience suffering) has been directly linked with their deservingness of moral rights (H. M. Gray et al., 2007). The mind survey (H. M. Gray et al., 2007) splits perceptions of minds along two independent dimensions: Agency and Experience. Perceptions of agency

[5] Participants were deemed to be not engaging with the self-sacrifice criterion task when reported willingness to sacrifice themselves to save people in prison was greater than people from their hometown. An additional case was removed prior to analysis outside of previous exclusion criteria, as this participant indicated that their responses, particularly to the key criterion measure, were strongly influenced by their current personal circumstances (i.e., currently experiencing self-harming thoughts), making their responses unreliable.

Table 5
Correlations Among Measures, Study 3

Predictor measures	MES	Overall SS	Home town	African population	Intellectual disability	Prisoners	Chimps	Ants	Coral reefs	Redwood trees
MES	—	.25***	.17**	.24***	.18**	.20**	.18**	.11†	.23***	.17**
Moral foundations										
Care/harm	.28***	.17**	.18**	.17**	.14*	.15*	.15*	.01	.09	.01
Fairness/cheating	.19**	.08	.10	.13*	.09	.09	.09	−.08	.00	−.09
Loyalty/betrayal	−.10†	−.04	.06	−.04	.00	−.06	−.05	−.06	−.08	−.13*
Authority/subversion	−.22***	−.11†	.00	−.11†	−.04	−.09	−.12*	−.11†	−.14*	−.17**
Purity/degradation	−.13*	−.09	.01	−.07	−.05	−.06	−.14*	−.06	−.13*	−.14*
Moral identity										
Internalization	.26***	.21***	.24***	.28***	.26***	.13*	.12*	−.08	.02	−.02
Symbolization	.06	.11†	.18**	.12*	.13*	.01	.04	.06	.04	.01
Universalism values	.38***	.16**	.08	.14*	.06	.10	.24***	.08	.21***	.13*
Empathic concern	.24***	.28***	.29***	.33***	.29***	.25***	.17**	−.02	.05	.01
Perspective taking	.22***	.20**	.22***	.25***	.19**	.17**	.08	−.03	.07	.05
Identification with all humanity	.39***	.28***	.25***	.32***	.25***	.29***	.16**	.07	.09	.08
Connectedness to nature	.39***	.06	−.04	−.01	−.02	−.04	.17**	.10†	.20**	.13*

Note. MES = Moral Expansiveness Scale; SS = Self-sacrifice.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

(self-control, judgment, communication, thought, and memory) predict attributions of moral responsibility, and perceptions of experience (hunger, fear, pain, pleasure and consciousness) predict attributions of moral rights. Therefore, given the central role of the Experience dimension in predicting perceptions of moral rights, we sought to further examine the convergent and predictive validity of moral expansiveness against this construct. Overall, we predicted a moderate to strong relationship between holding more expansive moral boundaries and perceptions of entity experience.

Method

Ninety-six U.S. participants (51.00% female; M_{age} = 36.06, SD = 11.91) were sourced through Amazon's Mechanical Turk.

Table 6
Hierarchical Regression Predicting Overall Willingness to Self-Sacrifice, Study 3

Predictor measures	Overall willingness to self-sacrifice							
	Step 1		Step 2		Step 3		Step 4	
ΔR^2	.02		.07**		.06***		.02*	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Age	−.06	[−.18, .06]	−.05	[−.17, .08]	−.02	[−.14, .11]	−.02	[−.14, .10]
Gender	.05	[−.07, .17]	−.02	[−.14, .10]	−.03	[−.15, .09]	−.03	[−.15, .08]
Religiosity	−.05	[−.21, .11]	−.05	[−.21, .12]	−.10	[−.26, .06]	−.10	[−.26, .06]
Afterlife	.06	[−.10, .22]	.07	[−.09, .23]	.07	[−.08, .23]	.07	[−.08, .23]
Social desirability	.10	[−.02, .22]	.05	[−.07, .17]	.04	[−.09, .16]	.04	[−.09, .17]
Moral foundations								
Care/harm	—	—	.12	[−.04, .28]	.08	[−.08, .24]	.06	[−.10, .22]
Fairness/cheating	—	—	−.07	[−.24, .09]	−.12	[−.28, .04]	−.10	[−.26, .05]
Loyalty/betrayal	—	—	.04	[−.13, .20]	−.01	[−.18, .16]	−.02	[−.18, .15]
Authority/subversion	—	—	−.10	[−.29, .09]	−.14	[−.33, .05]	−.10	[−.29, .09]
Purity/degradation	—	—	−.11	[−.27, .06]	−.03	[−.20, .13]	−.04	[−.20, .13]
Moral identity								
Internalization	—	—	.15*	[.02, .28]	.09	[−.05, .22]	.06	[−.08, .20]
Symbolization	—	—	.09	[−.04, .22]	.08	[−.05, .21]	.09	[−.04, .22]
Universalism values	—	—	.06	[−.09, .21]	.05	[−.13, .23]	.03	[−.15,.20]
Empathic concern	—	—	—	—	.15†	[−.03, .34]	.18†	[−.01, .36]
Perspective taking	—	—	—	—	−.01	[−.16, .14]	−.01	[−.16, .14]
Identification with all humanity	—	—	—	—	.21**	[.06, .35]	.16*	[.01, .31]
Connectedness to nature	—	—	—	—	−.15*	[−.30, −.00]	−.18*	[−.33, −.03]
MES	—	—	—	—	—	—	.16*	[.03, .29]

Note. CI = confidence interval; MES = Moral Expansiveness Scale.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

They completed an online questionnaire that included the MES, the willingness to self-sacrifice measure, and controls (social desirability and belief in the afterlife) from Study 3. In addition to these measures, perceived experience was captured based on ratings of two metal capacities (H. M. Gray et al., 2007). Participants rated each of the 30 entities contained in the MES individually on their ability to feel fear (e.g., "How capable of feeling fear are the following targets?"; 0 = *not at all*, to 6 = *very much*) and pain (e.g., "How capable of feeling pain are the following targets?"). The mean fear and pain ratings across all targets were then averaged to create an overall experience scale ($\alpha = .81$).

Results and Discussion

Applying the existing exclusion criteria, five participants (5.21%) were excluded, leaving a sample of 91 for analysis. The mean MES score was 44.12 ($SD = 14.41$, range: 18–87).

Convergent validity. As predicted, greater moral expansiveness was associated with increased perceptions of entities' capacity for experience (averaging across entities; $r = .30$, $p = .004$). Consistent with previous studies, these data indicate some overlap between experience and moral expansiveness, but not to the point of redundancy.

Predictive validity. Consistent with Study 3, the MES was significantly associated with overall willingness to self-sacrifice ($r = .27$, $p = .011$). However, the association between willingness to self-sacrifice and perceptions of experience was nonsignificant ($r = .06$, $p = .58$). As with previous studies, a hierarchical regression was performed to predict an overall willingness to self-sacrifice. The demographic and control variables were entered at Step 1 (age, gender, religiosity, belief in the afterlife, and social desirability), experience at Step 2, and the MES at Step 3. Collinearity diagnostics indicated no multicollinearity concerns (all VIFs <2.3). As can be seen in Table 7, the control variables at Step 1 and experience at Step 2 did not account for unique variance in willingness to self-sacrifice. However, the MES at Step 3 was again a significant predictor, with higher moral expansiveness associated with an increased willingness to self-sacrifice ($\beta = .24$, $p = .019$, 95% CI [0.02, 0.47]). The results of Study 4 provide additional evidence for the convergent validity and unique predictive contribution of the MES, this time against an established determinant of moral rights. Consistent with Study 3, moral expansiveness was again a unique predictor of moral decision making via the willingness to protect others from harm at personal cost.

Study 5: Moral Expansiveness, Warmth and Personal Responsibility

In Study 5, we examined the MES against another established measure of moral rights—warmth. The stereotype content model (Fiske, Cuddy, Glick, & Xu, 2002) proposes two primary dimensions along which out-group members (e.g., gender, ethnicity) are judged: Warmth and Competence. The position of social groups along these dimensions can predict perceptions of status and associated prejudice. For example, those perceived as high in competence but low in warmth may be high in status but viewed as cold and inhuman (e.g., rich people). In contrast, those low in competence but high in warmth can be perceived as low status but sweet and harmless (e.g., housewives). Importantly, perceptions of warmth can predict the moral standing of individuals and social groups (Fiske et al., 2002). Therefore, to further highlight the contribution of moral expansiveness, we examined the predictive power of the MES against perceptions of target warmth.

We also aimed to show that the predictive power of moral expansiveness could not simply be reduced to a general sense of personal/social responsibility (Penner, 2002; Penner, Fritzsche, Craiger, & Freifeld, 1995). We have shown that moral expansiveness predicts willingness to assume personal responsibility through willingness to sacrifice for others. However, it is important to show that this reflects more than just being willing to take on responsibility in *any* situation. Thus, we examined whether the predictive validity of the MES went beyond a general sense of personal/social responsibility.

Method

Ninety-seven U.S. participants (53.60% male; $M_{age} = 35.65$, $SD = 12.57$) were sourced through Amazon's Mechanical Turk. They completed an online questionnaire that included the MES, the Willingness to Self-Sacrifice scale (Study 3), and control

Table 7
Hierarchical Regression Predicting Overall Willingness to Self-Sacrifice, Study 4

Predictor measures	Overall willingness to self-sacrifice					
	Step 1		Step 2		Step 3	
ΔR^2	.07		.01		.05*	
	β	95% CI	β	95% CI	β	95% CI
Age	.07	[−.16, .29]	.06	[−.17, .28]	.06	[−.16, .28]
Gender	−.05	[−.26, .17]	−.05	[−.27, .16]	−.05	[−.26, .16]
Religiosity	.18	[−.14, .49]	.18	[−.14, .50]	.19	[−.12, .50]
Afterlife	−.28†	[−.59, .02]	−.28†	[−.59, .02]	−.27†	[−.57, .03]
Social desirability	.14	[−.08, .36]	.14	[−.08, .36]	.08	[−.14, .31]
Experience	—	—	.07	[−.15, .28]	−.01	[−.23, .21]
MES	—	—	—	—	.24*	[.02, .47]

Note. CI = confidence interval; MES = Moral Expansiveness Scale.
† $p < .10$. * $p < .05$.

measures (social desirability and belief in the afterlife). Applying the Fiske et al. (2002) approach, participants then rated the 30 MES entities on perceptions of warmth ("As viewed by society, how warm—i.e., sincere, friendly—are the following targets?"; 1 = *not at all* to 5 = *very much*; $\alpha = .92$). In addition, participants completed the seven-item Social Responsibility subscale of the prosocial personality battery (Penner, 2002; e.g., "No matter what a person has done to us, there is no excuse for taking advantage of them"; 1 = *strongly disagree* to 5 = *strongly agree*; $\alpha = .67$).

Results and Discussion

Applying the existing exclusion criteria, 10 participants (10.31%) were excluded, leaving a sample of 87 for analysis. The mean MES score was 46.40 ($SD = 13.48$, range: 9–86).

Convergent validity. As expected, holding more expansive moral boundaries was associated with significantly greater perceptions of warmth across the 30 target entities (averaging across entities; $r = .33$, $p = .002$). The MES held a positive but nonsignificant relationship with trait levels of social responsibility ($r = .16$, $p = .13$). Again, these relationships do not indicate redundancy between moral expansiveness and existing measures.

Predictive validity. Consistent with previous studies, the MES was significantly related to overall willingness to self-sacrifice ($r = .23$, $p = .03$), whereas perceptions of warmth ($r = .16$, $p = .14$) and social responsibility ($r = .11$, $p = .32$) produced positive yet nonsignificant trends. In examining the predictive relationships, a hierarchical regression was performed on overall willingness to self-sacrifice. Control variables were again entered at Step 1 (age, gender, religiosity, belief in the afterlife, and social desirability), perceptions of warmth and social responsibility at Step 2, and the MES at Step 3 (see Table 8). Collinearity diagnostics indicated no multicollinearity concerns (all VIFs <2.9). Following the control variables at Step 1, perceptions of warmth did not make a unique contribution, and social responsibility was marginally significant. However, the MES entered at Step 3 was again a significant predictor of willingness to sacrifice ($\beta = .23$, $p = .047$, 95% CI [0.003, 0.453]). These results lend further support to the unique contribution of moral expansiveness. The MES is able to predict moral decision making over and above an established proxy of moral standing, and the contribution of moral expansiveness cannot be explained by a general sense of personal/social responsibility.

Study 6: Moral Expansiveness and Behavior

In Studies 2 to 5, the utility of the MES in predicting moral decision making has been demonstrated across various prosocial and sacrificial scenarios spanning both the human and nonhuman domains. In Study 6, we examined the power of moral expansiveness in predicting actual behavior—sacrificing one's time in aid of a cause. As we have highlighted, there is an intuitive link between expanding moral boundaries and a willingness to make personal sacrifices for those perceived as holding moral standing. Further, others have argued the moral inclusion of entities often involves potential resource costs (e.g., time; Opotow, 2011; Pinker, 2011; Singer, 1981). Consequently, we predicted that those with more expansive moral boundaries will be more willing to donate their free time to defend the moral standing of a nonhuman entity.

Method

Ninety-nine (79.80% female; $M_{age} = 19.66$, $SD = 3.00$) first-year psychology students from a large Australian university completed the study in exchange for course credit. Participants arrived at the laboratory to complete a computer based questionnaire that included the MES, demographics, and additional predictor measures. These additional measures were selected as the most effective predictors of moral decision making from Studies 2 to 5: the Care/harm dimension of moral foundations, moral identity (Internalization), universalism values, empathic concern, and connectedness to nature.[6] While participants were completing the survey, they were each handed a piece of paper which contained the following information:

> Before you leave today I would like to give you the opportunity to join an important cause that has motivated the current research. The Non-human Rights Project (NhRP) is a civil rights organization working towards achieving actual legal rights for members of species other than our own (e.g., chimpanzees). A campaign in support of this initiative is currently underway, and I am going to provide you with an opportunity to take part upon completion of this survey.

Following the completion of the survey participants were thanked for their involvement and then asked if they would like to view the NhRP campaign (*yes/no*). Participants that declined were then free to leave the lab following their debriefing. Those that decided to view the campaign were directed to a new page on which they were asked to join a letter writing campaign in support of Tommy the chimpanzee (currently owned by a research institution) being granted legal personhood status—a case that was soon to be heard before the U.S. Supreme Court ("Lawyer and Animal Activist Steve Wise," 2015). Participants were instructed that the aim of the cause was to narrow the gulf between human beings and our closest living relatives, and specifically to grant Tommy the fundamental rights of bodily integrity and liberty. In addition, in order to emphasize the costs of endorsing the NhRP campaign, participants were informed of the potential for negative human consequences (e.g., disrupting animal-based farming practices, drawing into question the legal rights of animals used for human consumption).

Following this information, participants were informed that if they wanted to join the campaign (those that did not were again free to leave) they could do so by writing their "opinions, endorsement, or general thoughts in support of the campaign" in a space provided, and that responses would be forwarded on to the NhRP. Participants received no additional credit for joining the letter writing campaign. Participants that joined the campaign, as reported in the results, were those who provided a written response in support after confirming they would like to join (dummy coded; join campaign = 1, decline = 0).

Results and Discussion

Nine participants (9.09%) were excluded from analysis based on the criteria used in earlier studies. One additional participant was excluded, as the methodological protocol was not followed (i.e., the

[6] The identification with the All Humanity scale was not selected in Study 6 because the behavioral criterion focused on nonhumans.

Table 8
Hierarchical Regression Predicting Overall Willingness to Self-Sacrifice, Study 5

	Overall willingness to self-sacrifice					
Predictor measures	Step 1		Step 2		Step 3	
ΔR^2	.07		.06		.04*	
	β	95% CI	β	95% CI	β	95% CI
Age	−.27*	[−.49, −.05]	−.30**	[−.52, −.08]	−.32**	[−.53, −.10]
Gender	−.03	[−.27, .21]	−.05	[−.28, .18]	−.10	[−.33, .14]
Religiosity	.18	[−.16, .52]	.16	[−.17, .49]	.19	[−.15, .51]
Afterlife	−.10	[−.45, .26]	−.13	[−.47, .22]	−.12	[−.46, .22]
Social desirability	.03	[−.19, .24]	.04	[−.27, .19]	−.02	[−.25, .20]
Warmth	—	—	.15	[−.06, .36]	.07	[−.15, .29]
Social responsibility	—	—	.22†	[−.02, .45]	.18	[−.05, .41]
MES	—	—	—	—	.23*	[.003, .45]

Note. CI = confidence interval; MES = Moral Expansiveness Scale.
† $p < .10$. * $p < .05$. ** $p < .01$.

participant was not provided with the handout containing information about the NhRP campaign), resulting in 89 participants for analysis. The mean MES score was 48.20 (SD = 11.55, range: 18–75).

As predicted, there was a significantly positive relationship between moral expansiveness and willingness to join the letter writing campaign (r_{pb} = .29, p = .007). A hierarchical logistic regression was performed predicting whether or not participants joined the campaign. Age, gender, and religiosity were entered as demographic controls in Step 1; Care/harm, moral identity (Internalization), universalism values, empathic concern, and connectedness to nature were entered at Step 2; and the MES was entered at Step 3 (see Table 9). The control variables entered at Step 1 did not produce a significant overall model. When the established predictors were entered at Step 2, there was a significant increase in variance accounted for; however, there were no significant predictors. As in previous studies, when the MES was entered at the final step, it produced a significant change over and above the established predictors. Specifically, every one-unit increase in moral expansiveness increased the likelihood of joining the letter writing campaign by 6%, Exp(B) = 1.06, p = .041, 95% CI [1.00, 1.11].

These findings provide an important empirical leap in terms of the predictive utility of moral expansiveness. Study 6 showed that the extent to which people are expansive in their moral concern can predict actual behavioral responses relating to moral decision making and concern for the well-being of other entities. Specifically, over and above the strongest predictors of moral decision making from Studies 2 to 5, moral expansiveness was the only unique predictor of whether or not individuals were willing to sacrifice their time to join a letter writing campaign to uphold the moral rights of other entities. These findings provide additional evidence for moral expansiveness as a unique factor in moral decision making and as a construct tapping into a new dimension of moral cognition.

General Discussion

The current research demonstrates that moral expansiveness is an important element of moral cognition, and provides empirical

Table 9
Hierarchical Logistic Regression Predicting Joining the Letter Writing Campaign, Study 6

	Joining the NhRP letter writing campaign					
Predictor measures	Step 1		Step 2		Step 3	
ΔR^2	.00		.20*		.07*	
	Exp(B)	95% CI	Exp(B)	95% CI	Exp(B)	95% CI
Age	.99	[.84, 1.15]	1.01	[.85, 1.20]	1.00	[.84, 1.20]
Gender	.81	[.23, 2.82]	1.07	[.26, 4.43]	1.24	[.30, 5.17]
Religiosity	.94	[.66, 1.33]	.87	[.59, 1.26]	.85	[.57, 1.27]
Moral foundations – Harm	—	—	2.22	[.80, 6.15]	2.35	[.82, 6.73]
Moral identity – Internalization	—	—	1.69	[.41, 6.91]	1.62	[.38, 6.94]
Universalism values	—	—	3.98†	[.83, 19.17]	3.55	[.67, 18.98]
Empathic concern	—	—	1.93	[.54, 6.98]	1.55	[.42, 5.71]
Connectedness to nature	—	—	.34	[.08, 1.48]	.27	[.06, 1.27]
MES	—	—	—	—	1.06*	[1.00, 1.11]

Note. NhRP = Non-human Rights Project; CI = confidence interval; MES = Moral Expansiveness Scale.
† $p < .10$. * $p < .05$.

support for the MES as a valid and reliable measure of the extent to which people extend their moral boundaries. Crucially, these findings show that variation in the tendency to extend moral boundaries is a key predictor of moral decision making and behavior across both human and nonhuman domains. The MES predicts willingness to prioritize humanitarian and environmental concerns over personal and national self-interest, willingness to donate a kidney to a range of nonkin human targets, and willingness to make a financial contribution to a range of animal and environmental causes (Study 2). Moral expansiveness also predicts willingness to sacrifice one's life to protect human and nonhuman others (e.g., in-group and out-group members, animals, and environmental entities; Studies 3 to 5). Lastly, the MES predicts willingness to sacrifice one's time to support a campaign to protect the moral standing of nonhuman entities (Study 6).

Demonstrating the distinct contribution of moral expansiveness in predicting moral decision making, the MES explained unique variance in these tendencies and behaviors even after controlling for a range of established morality and related "generalized concern" constructs. Collectively, these studies have shown that moral expansiveness, as measured by the MES, goes beyond a capacity for empathic concern and perspective taking, is more than extended identification and connection with others, and is different from moral intuitions, moral identity, moral patiency, endorsement of universalism values, or social/personal responsibility.

Implications

Overall, these findings provide further evidence that the depth and breadth of people's moral boundaries hold important implications for decision making. Existing theories of moral decision making and action have focused on the role of emotion versus rational deliberation (Batson, 1987; Haidt, 2001; Turiel, 1983), the divergent nature of our moral intuitions (Haidt, 2012), the importance of morality in our self-conception (Aquino & Reed, 2002), and the dyadic nature of morality and mind perception (K. Gray & Wegner, 2011). Moral expansiveness shows that, in addition to these factors, the extent to which we are expansive in granting moral rights is uniquely influential.

The current research draws attention to altruistic aspects of moral inclusivity. Although the self-sacrificing commitments of moral inclusion have been proposed (Opotow, 2011; Pinker, 2011; Singer, 1981), the current research establishes a robust link between holding more expansive moral boundaries and a willingness to uphold the moral rights of others even when it comes at a cost to oneself and one's in-group. Although it could be argued that reciprocity for such actions could still come in the form of enhanced reputation (i.e., indirect reciprocity and sexual selection; Fehr & Fischbacher, 2003; Trivers, 1971), these mechanisms struggle to account for the occurrence of anonymous altruism or the recent documented shifts in the expansion of moral concern (Bloom, 2010; Pinker, 2011). Therefore, moral expansiveness may contribute to our understanding of altruism extending beyond predictable limits.

Equally, these findings have substantial implications for real-world prosociality, and global humanitarian and environmental issues (e.g., foreign aid at the expense of in-group causes or environmental protection at the expense of economic growth). Being morally expansive in a world of finite resources (i.e., time, money, and non-renewable resources) often requires self-sacrifice, which can create tensions between one's own needs and the needs of others (Bastian & Crimston, in press). For example, an individual morally concerned for the welfare of animals may oppose factory farming, but to do so must accept paying higher food prices. Moral expansiveness captures a greater tendency and willingness to uphold such convictions, even when doing so incurs personal cost.

Exploring Moral Expansiveness

Our data provide insight into factors that are related to a morally expansive orientation to the world. Factors associated with moral expansiveness include empathy, perceptions of the capacity for others to experience suffering, a sense of self as both moral and expansive in terms of belonging to superordinate identities, an inclusive value system, and moral intuitions that are not limited by a motivation to protect in-group interests. To this extent, it appears that moral expansiveness may be associated with how we view the self, our values, and our ability to put ourselves in others' shoes. However, moral expansiveness is not reducible to these constructs, leaving room for additional explanations for the variations and origins of moral expansiveness.

One possibility worthy of further exploration is whether the origins of moral expansiveness may be found in our cognitive and social development. There is recent evidence to suggest we possess instinctual moral abilities essential for moral rights decision making; these include the ability to identify kindness from cruelty, the ability to convey empathy and compassion, and a preference for fairness (Bloom, 2013; Hamlin, 2014; Hamlin, Wynn, & Bloom, 2007). Early in development, these instincts operate within a more egocentric orientation; however, this tends to give way to an increasing recognition of the rights and needs of others in line with an expanding social circle (Bloom, 2004, 2010). Such a process may start with a simple recognition of fairness and reciprocity within interpersonal interactions, but can quickly extend to the emergence of care and concern for others more distant. Illustrating this point, children as young as 6 have been shown to struggle with their personal consumption of meat for moral reasons—acknowledging the "other entity" suffering that is relevant to this judgment (Hussar & Harris, 2010).

Therefore, it is possible that which entities we deem worthy of this expanded moral concern are largely socially and culturally determined. As Hirschfeld (1995) has demonstrated, preschool children see occupation to be as important as race in distinguishing between people, but in the absence of social support, abandon this idea. In addition, race preference does not appear to be evident at birth, but instead develops as a result of learning and exposure (Kelly et al., 2005). It is possible that young children differentiate between specific categories in terms of moral judgments and value as a result of the moral distinctions made within their particular cultural environment. This also suggests that insights into moral expansiveness may be gained through cross-cultural comparisons of both children and adults.

Beyond the expanded application of our rudimentary moral instincts, some have argued that creativity, cognitive flexibility, perspective taking, self-control, a desire for moral consistency, and reason are largely responsible for variation in the expansion of moral consideration and the concomitant reduction in violence

across time (Bloom, 2010; Pinker, 2011; Pizarro et al., 2006; Singer, 1981). For example, Singer (1981) suggested that our ability to reason could take us to a position of impartial morality, a vantage point from which we are able to identify that our own interests are no more important than the interests of others. Akin to this is the notion that applying moral standards consistently and indiscriminately is critical to expanding one's moral world (Singer, 1981). Whether the emergence of moral expansiveness can be traced to the development of these capacities would provide critical evidence for these claims.

A consideration that is central to the preceding questions is what factors may moderate the extent of an individual's moral concern. One possibility is that moral expansiveness is evident in cases for which people's basic needs have been met, allowing them to turn their attention and resources to more distant entities. In line with Maslow's (1954) hierarchy of needs, it may be that moral expansiveness can be understood as fulfilling the need for self-actualization. A further implication is that when more primary needs are not being met, our moral worlds shrink. In line with this possibility, out-group members are more likely to be seen as exploitable and underserving when resources are scarce (Opotow, 1990, 2011; Tajfel, Billig, Bundy, & Flament, 1971), and meat-eaters have been shown to lower their attributions of moral value to a cow when they are about to consume beef (Bastian, Loughnan, Haslam, & Radke, 2012b). This suggestion is supported by the association between postmaterialism and values, with materialists more likely to prioritize nationalistic social values (e.g., national strength) and postmaterialists prioritizing universal values (e.g., equality; Braithwaite, Makkai, & Pittelkow, 1996). When our basic needs are fulfilled, our moral worlds may transform in ways that allow us to efficiently and effectively fulfill the needs of distant others. Based on the potentially moderating impact of needs fulfilment and cultural level materialism, moral expansiveness may be linearly associated with gross domestic product in large cross-cultural samples.

In our studies, there was a relatively consistent order of moral priority: family, friends, and in-group members were seen as relatively central, whereas out-group members and nonhuman targets were seen as relatively distal. This need not mean that people move along this continuum of moral concern in a uniform manner, and some individuals may give particularly high concern to some normatively distant entities, such as granting greater moral concern to the environment than to out-group members. Thus, an expansive moral world could take multiple forms, and there may be particular patterns held by different sections of the community (e.g., as a result of cultural differences, dogs may vary from anthropomorphized companions to a food source). We expect that nuances in moral priority may produce additional insights in terms of the predictive utility of the MES (e.g., human vs. nonhuman decision making).

Finally, future research might further explore the relationship between moral expansiveness and the dyadic approach to mind perception and morality (H. M. Gray et al., 2007). Here, we have examined the relationship between moral expansiveness and experience, establishing a moderate association between the two constructs. However, in combination with experience, the perceived agency of various entity groups may also contribute to their placing within the moral world. For example, "villains" are consistently placed outside the moral boundary: Is this low moral standing a result of these targets being denied experience or, alternatively, are they perceived to be deserving of punishment for violating their moral responsibility? Further exploring these relationships will no doubt form a compelling avenue for future research.

Summary

The extent to which people are expansive in their moral concern is a critical issue. Based on the findings of the current research and the questions still to be explored, moral expansiveness can make a unique theoretical and practical contribution to the field of moral psychology. We hope that this research will develop a new psychological understanding of our boundaries of morality and the consequences of moral inclusion. On a practical level, our work provides a clearer picture of the factors that influence global humanitarian concern and action, and greater care and protection for nonhuman animals and the environment. At a time when these matters are increasingly at the forefront of the social and political landscape, understanding moral expansiveness may be integral to addressing diverse social and moral issues.

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Appendix A

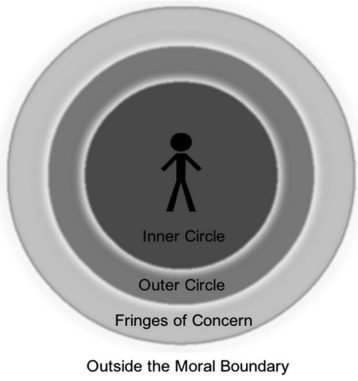
The Moral Expansiveness Scale (MES)

Inner Circle of Moral Concern: These entities deserve the **highest level of moral concern and standing.** You have a moral obligation to ensure their welfare and feel a sense of personal responsibility for their treatment.

Outer Circle of Moral Concern: These entities deserve **moderate moral concern and standing.** You are concerned about their moral treatment; however, your sense of obligation and personal responsibility is greatly reduced.

Fringes of Moral Concern: These entities deserve **minimal moral concern and standing**, but you are not morally obligated or personally responsible for their moral treatment.

Outside the Moral Boundary: These entities deserve **no moral concern or standing.** Feeling concern or personal responsibility for their moral treatment is extreme or nonsensical.



(*Appendices continue*)

Appendix B

MES Entity Lists

MES Entity List (United States)	MES Entity List (Australian)
Family/Friends	Family/Friends
Family member	Family member
Close friend	Close friend
Partner/spouse	Partner/spouse
In-group	In-group
American citizen	Australian citizen
Somebody from your neighborhood	Somebody from your neighborhood
Co-worker	Co-worker
Out-group	Out-group
Foreign citizen	Foreign citizen
Member of opposing political party	Member of opposing political party
Somebody with different religious beliefs	Somebody with different religious beliefs
Revered	Revered
U.S. President (position not specific individual)	Prime Minister of Australia (position not specific individual)
U.S. Soldier	Australian Soldier
Charity worker	Charity worker
Stigmatized	Stigmatized
Homosexual	Homosexual
Mentally challenged individual	Mentally challenged individual
Refugee	Refugee
Villains	Villains
Murderer	Murderer
Terrorist	Terrorist
Child molester	Child molester
Animals high-sentient	Animals high-sentient
Chimpanzee	Chimpanzee
Dolphin	Dolphin
Cow	Cow
Animals low-sentient	Animals low-sentient
Chicken	Chicken
Fish	Fish
Bee	Bee
Plants	Plants
Redwood tree	Redwood tree
Apple tree	Apple tree
Rose bush	Rose bush
Environment	Environment
Coral reef	Coral reef
Old-growth forest	Old-growth forest
Grand Canyon National Park	Uluru (Ayers Rock)

Note. MES = Moral Expansiveness Scale.

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