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Children's Ideas about the Moral Standing and Social Welfare of Non-human Species

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Moral and social welfare issues related to humane treatment of animals confront children and continue to be important societal issues through adulthood. Despite this, children's moral reasoning about animals has been largely ignored. This paper addresses six questions concerning how children reason morally about non-human animals: (1) How do children think about the moral claims of animals? Is there a developmental progression in such reasoning? (2) How does moral reasoning about animals differ from moral reasoning about other life forms—plants and ecological systems? (3) What is the relation, if any, between children's moral reasoning about non-human animals and their moral reasoning about other humans? (4) How do child characteristics and environmental factors contribute to individual differences in children's moral reasoning about animals? (5) What is the relation between moral reasoning about animals and children's behaviors toward animals? (6) What is known about children's kindness toward and nurturing of animals—examples of prosocial reasoning and behavior?

Key words: animals, non-human species, children, moral standing, social welfare

No contemporary issue is more pressing than human treatment of other species and the natural world that they all share. Animal (henceforth, this term refers to non-human animal species) mistreatment, species endangerment and habitat threat demand our attention. The ecology of animal life is under siege from environmental degradation, global warming, and biodiversity depletion. These issues command headlines but remain recalcitrant problems resistant to real change. This is not surprising, given the complexity of such problems, requiring consideration of economic, demographic, structural, and sociological factors, among others. However,

increasingly, both scholars and public opinion are recognizing that an important influence on human behavior toward other species and the environment lies in human thinking about moral and social welfare issues. Human stances toward other living beings and environments flow from the moral claims (or lack thereof) they make. Therefore, it is important that we understand moral reasoning about other species, their ecological niches, and the environment that sustains them as well as humans.

According to Piaget (1965), Kohlberg (1976), Gilligan (1982), and Hoffman (2000), reasoning about the moral claims of others develops most rapidly during childhood, and once reaching its "mature" level, becomes relatively more stable. Until recently, these "others" have meant humans, reflecting a bias within the study of child development that has neglected children's connections with non-humans (Melson, 2001). Moral reasoning about human–human relationships may not generalize to human engagement with animals, plants, or nature. Knowledge concerning the development of moral reasoning about other humans remains sparse. Despite important contributions (Kahn, 1999; Kellert, 1997), the study of the "development of eco-morality" would benefit from further theoretically derived structure and empirically derived detail. ("Eco-morality" refers to moral reasoning related to non-human life forms and their ecological niches.) Therefore, this paper focuses on children's ideas about the moral and social welfare claims of animals as well as plants, animal habitats, ecology, and environmental issues.

Children's moral reasoning about animals is emphasized, for the following reasons: (1) From an early age, children view animals as other subjectivities, rather than objects, relating to them as living actors who have autonomy, intentionality, and feeling (Myers, 1998). As Myers and Saunders (2002) note, these characteristics, shared with humans, make animals potential targets of children's moral reasoning and behavior, eliciting expressions of just treatment, caring and concern. (2) Companion animals share most children's homes as "family members" (Melson, 2001). (3) Children's attachment to their animals is well documented, with links to emotional support (Bryant, 1985), empathy (Melson, Peet, & Sparks, 1992), and nurturing others (Melson & Fogel, 1996). (4) Despite

urbanization and environmental degradation, children everywhere have contact with wild animals, not only in zoos, aquariums and nature parks, but also in backyards, streets and around their homes (Melson, in press). (5) Animal symbols abound in children's media, stories, imagination and play, making animals important carriers of meaning, including moral meaning.

There are additional reasons to study moral reasoning as it relates to animals: (1) Adult views about animal welfare, animal rights, endangered species, and habitat protection may have roots in childhood. British university students who had companion animals growing up were more concerned about animal welfare as adults than were their peers without a animal-keeping history (Paul, & Serpell , 1993). (2) Children encounter debates about vegetarianism, use of animals in medical and non-medical research, animal rescue efforts and related animal moral dilemmas, as well as issues of environmental damage and species protection. Some evidence suggests that children are making complex judgments about environmental issues. In one study, 2nd and 4th grade children of farm workers judged pesticide exposure as morally wrong but nonetheless accepted it as a financial necessity for their families (Severson & Kahn, 2010).

Specifically, we explore the following questions: (1) How does children's moral reasoning about animals develop? (2) How does children's moral reasoning about animals differ from their moral reasoning about other life forms, such as plants, and about environmental and ecological issues, such as pollution, habitat protection and global warming? (3) What is the relation, if any, between children's moral reasoning about non-human life forms and other people? Do children generalize from their understanding of ways to treat other humans to the treatment of animals, for example? Or, does thinking about animal rights and welfare prompt moral concern about other humans? Another possibility is that moral reasoning may be compartmentalized, with no consistent relation between thinking about animals and thinking about people. (4) What accounts for developmental change in moral reasoning about animals? Stage theories of attitudes toward animals (Kellert, 1985), values concerning nature (Kellert, 2002), and reasoning about ecological issues, such as pollution (Kahn, 1999, 2002) must

explain the mechanisms of developmental change, whereby children "advance" from one stage to another. (5) What is the relation between children's moral reasoning about and behavior toward animals? Developing a moral stance toward human relations with animals requires navigating a thorny, often contradictory terrain. Animals as "pets" are loved and cared for as "family members," but other animals are eliminated as pests, consumed for food and clothing, and used as workers, aides, and research subjects. Some (Braithwaite & Braithwaite, 1982; Herzog & McGee, 1983) suggest that societal attitudes toward animals are inherently diverse, contradictory, and irrational. What then might predispose children to engage in behaviors consistent with, or at variance with, their moral reasoning about animals? This has obvious implications for children's behaviors related to animal welfare, conservation, and species protection. (6) What is the relation between children's moral and pro-social reasoning about animals? Children's thinking about good, kind, and exemplary treatment of animals, tapping ideas about generosity, altruism, and helping, addresses prosocial reasoning (Eisenberg & Fabes, 1998) about other species. This type of reasoning, termed "discretionary moral judgment" by Kahn (1999), refers to worthy or virtuous actions that while not required, are praiseworthy. Since, as we noted above, behaviors toward animals are so complex and variously justified, distinctions between obligatory and discretionary moral judgments may be challenging. For example, is it praiseworthy but not obligatory to be a vegetarian, eating no animal products? On the other hand, is vegetarian eating a moral obligation (Turiel, 1998)? Pro-social reasoning about animals is at the heart of debates about species protection, conservation, and environmental protection.

Descriptions of Children's Moral Reasoning about Animals

Do children view animals as having moral claims? Adults would distinguish among living dogs, a stuffed dog, and a picture of a dog in assessing moral standing. Actions that might be morally wrong—damaging, discarding—with respect to the living dog would not be viewed in the same way toward a

stuffed dog or picture of a dog. There is convergent evidence that children do view living animals—pets, domestic animals and wild animals—as having moral standing. Moreover, like adults, children distinguish living animals from non-living analogues, such as robotic animals, in assessing moral claims (Melson et al., 2009). However, the developmental progression of such views is unclear.

Myers' (1998) observations and interviews with preschoolers concluded that they accorded a variety of animals status as living subjects with intentions and emotions. These views of animals led children as young as three years of age to be concerned about the animals' well-being and to feel they deserved just and fair treatment, the "should" of moral standing. However, in another study, when preschoolers were directly asked about the moral standing of a stuffed dog and a robotic dog, most children accorded them moral claims as well (Kahn, Friedman, Perez-Granados, & Freier, 2006). For example, 69% of preschoolers said it was "not OK" to hit a stuffed dog, and 73% said it was "not OK" to hit a robotic dog. However, in this study, children were not asked about a living dog. When Melson et al. (2009b) directly compared seven- to fifteen-year old children's views of the moral standing of a living dog with that of a robotic dog, the former was significantly more likely to be viewed as having moral standing. Among these children, 85% said it was "not OK" to hit the living dog, while 78% said it was "not OK" to hit the robotic dog. While fewer children endorsed moral claims for the robotic dog, a relatively high percentage of children accorded the robotic dog moral standing in this question.

Other scholars suggest that moral reasoning about animals remains egocentric until adolescence. Kellert (1985), in his studies of attitudes toward animals, finds that a "moralistic" attitude emerges only in the teen years. Dunlap (1989) used Kohlberg's stage theory to assess adolescent boys' reasoning about moral dilemmas involving animal treatment. She found that 12–14-year-olds used less advanced moral reasoning than 16–18-year-olds, lending support to the hypothesis that moral reasoning about animals continues to develop through adolescence. Most boys in the 12–14-year-old group reasoned at stages two and three, while those in the 16–18-year-old group

were more likely to reason at stages three and four. (Stage two, "individualism and instrumental exchange," focuses on acting to meet one's own interests but also letting others do the same, in a fair or equal exchange. Stage three, "mutual interpersonal relations," emphasizes concern for those close to you and maintaining trusting and loving relationships with them. Stage four, "social system and conscience," focuses on upholding social order and contributing to society.)

Kahn's work on moral reasoning about environmental issues (1999) may help us integrate these divergent results. In a series of cross-cultural studies, with children ranging from 1st grade to college age, Kahn assessed whether or not certain environmentally damaging behaviors, such as water and air pollution, which also harm animals, were viewed by children as morally wrong. While he found that most children at all ages viewed polluting as morally wrong, children's reasoning about *why* it was morally wrong showed a developmental progression. With advancing age, children were more likely to use what Kahn calls "biocentric" reasoning, defined as the view that nature (including animals) has intrinsic value and moral standing apart from human needs. However, such biocentric reasoning occurred only in a minority of children, even among adolescents. Most children justified environmental protection based on human needs, a view Kahn terms "anthropocentric." This distinction between judgments of moral standing and reasons for morally obligatory behaviors may help us understand developmental differences in moral reasoning about animals.

In one study (Melson et al., 2009b) of children's reasoning about an unfamiliar friendly dog, Canis, with whom each child had a short play session, 7–15-year-olds strongly endorsed the moral standing of Canis. Each child was asked six questions about treatment of Canis (see Table 1). Questions 1 through 5 posed a series of increasingly harmful actions (from ignoring a distress signal to destroying the animal), while Question 6 asked about hitting the dog. For each question, the child was asked if it was "OK" or "not OK" to engage in the harmful action. Following each question, the interviewer prompted the child with "Why?" "How come?" in order to elicit the child's reasons or justifications for his or her answer ("OK," or "not OK").

Table 1. Questions and justification examples related to moral standing of Canis, an unfamiliar dog (Melson et al., 2009b)

Moral standing questions

If Canis were whimpering, would it be OK or not OK to ignore Canis?

If Canis' leg breaks, is it OK or not OK not to fix it right away?

If you decided you did not like Canis anymore, is it OK or not OK to give Canis away?

If you decided you did not like Canis anymore, is it OK or not OK to throw Canis in the garbage?

If you decided you did not like Canis anymore, is it OK or not OK to destroy Canis?

Is it OK or not OK to hit Canis?

Justifications

Anthropocentric: Reasoning from impact on child's own feelings or well being.
Example: *"It's not OK to hit Canis, because I would feel bad."*

Biocentric: Needs of animal apart from human needs.
Example: *"It's not OK to hit Canis, because that would hurt him."*

Biocentric—isomorphic: Reasoning from similarity to humans.
Example: *"It's not OK to hit Canis, because it's just like hitting a person."*

Biocentric—transmorphic: Acknowledging similarities and differences between animals and humans and despite differences, according animal moral standing.
Example: *"It's not OK to hit Canis, because although he is a dog and not a person, it still would not be right."*

Assessing children's moral reasoning required taking into account both their "OK; not OK" answers as well as their justifications. The initial "OK" or "not OK" answers indicated whether or not the child considered Canis as having moral standing. The follow-up justifications revealed the basis for that moral standing. Would children argue for moral treatment of Canis because of their own needs (an anthropocentric argument), or would they argue in terms of Canis' rights apart from human needs (a biocentric argument)?

On average, over the six questions, children affirmed the

dog's moral standing (by stating it was "not OK" to harm the animal in ways shown in Table 1) 86% of the time (SD = 12%), with no significant variation by age group or gender. When justifications were analyzed, all but one child mentioned a moral obligation toward the dog at least once. The median number of times appeals to moral obligation occurred was six, with a range from once to 11 times, in the course of an individual interview. Both anthropocentric and biocentric reasoning occurred across all ages.

Examples of each type of reasoning help illustrate these categories. As an example of anthropocentric reasoning, one child felt it was "not OK" to hit Canis, because "then Canis wouldn't want to play with me." Another child also answered: "not OK" to this question, and then explained: "Because Canis would feel bad." This response focused on the dog's needs and its right to be free from harm for its own welfare. A third child, after indicating it was "not OK" to hit Canis, insisted, "It's *wrong* to hit a dog" (child emphasis), indicating that hitting this dog would violate a moral injunction against hitting any dog.

In summary, Kahn's (1999) categories for moral reasoning regarding the environment map easily onto moral reasoning about a living animal such as a dog. However, we should be cautious about generalizing from these responses. Canis was a friendly calm dog, with whom children had an opportunity to interact. Moreover, all the children in this study (Melson et al., 2009a) had companion animals at home, and most had (or had had in the past) a dog. Within that context, viewing possible harm to Canis as a moral issue might not seem surprising. However, research shows that wild animals are also viewed through a moral lens. Kahn's (1999) interviews with children (from 1st grade to college age) in varied cultures (Portugal, Houston, and Brazil) found that overwhelming majorities cared about harm to wild animals such as birds and fish (as caused by environmental actions such as polluting waterways) and interpreted such actions as morally wrong. In fact, when specific biocentric reasons for not polluting were examined, the intrinsic value of wild animals was the most common.

Nonetheless, there is reason to believe that moral reasoning may differ depending on the specific species under consideration. Studies of adults' attitudes toward human uses of

animals (e.g., hunting, medical research) find that attitudes vary by species (Knight, Nunkoosing, Vrij, & Cherryman, 2003; Plous, 1993). Adults consider a species' similarity to humans, its capacity to suffer pain and its physical attractiveness in making decisions about animal welfare issues. In addition, an evolutionary perspective suggests that certain wild animals, such as spiders and snakes, as well as large predators, would elicit children's fears, since such animals posed a threat in the environment of evolutionary adaptiveness (Heerwagen & Orians, 2002). Studies of children's fears support this hypothesis (King, Hamilton, & Ollendick, 1998). Species that elicit fear and avoidance may be less likely to be accorded moral standing. Even when they are, children may be less likely (than with dogs, for example) to reason biocentrically about them. Another species difference that may be salient for moral reasoning is the degree of emotional or phylogenetic closeness to humans. Dunlap (1989) tested this hypothesis in examining moral reasoning about a dog (emotional closeness), a chimpanzee (phylogenetic closeness), and a farm turkey (neither emotional nor phylogenetic closeness). She found, as predicted, that moral reasoning about the dog and chimp was more advanced than reasoning about the turkey.

Historical studies of attitudes toward wild animals (Oswald, 1995; Varga, 2009) provide further evidence that species differences affect moral reasoning. In Europe and North America, the nineteenth century view was that wild animals, particularly wolves and bears, were savage threats to humans, had no rights and could be mistreated, killed, indeed wiped out with impunity. Books and toys for children celebrated hunting, the extermination of species such as wolves, and "animaltainment," such as bear pits and organ grinder monkeys. By the mid twentieth century, however, the threatening bear had become the loveable teddy, and children's books depicted wild animals now as hapless victims of savage humans (Melson, in press). Thus, a historical perspective shows that some species may become singled out as deserving special moral regard and protection—pandas, whales, and dolphins come to mind in contemporary discourse. Other species may become viewed as threats to humans and placed outside the realm of moral standing. We currently lack empirical evidence concerning the degree to which children absorb these historical and cultural moral messages and reflect them in childhood reasoning.

Moral Reasoning about Animals in the Context of Reasoning about Plants and Ecological Systems

Plants. Children's moral reasoning about animals may differ from that toward plants and toward ecology or nature. Underlying the judgment of moral standing are children's judgments that a being is alive, autonomous, sentient, intentional and feeling. Studies of children's attributions of aliveness or animacy document that by age four children attribute aliveness to people and animals but not to vehicles or other inanimate objects. Young children group plants with inanimate objects as "not alive" (Richards & Siegler, 1984). Only by age eight do children understand that plants too are alive (Coley, Solomon, & Shafto, 2002). This later understanding may occur because: (1) Plants lack autonomous movement, a salient feature of aliveness for young children; (2) Children reason from humans to animals in understanding biology (Carey, 1985); and (3) Culturally, plants and trees occupy uncertain moral terrain. Although some plant life—giant redwoods, for example—may be seen as worthy of moral protection, most plants are viewed as outside the domain of moral regard, at least in contemporary Western cultures.

Ecological systems. Moral reasoning about ecological systems or issues may be more challenging than reasoning about animals or even plants. Children's biological knowledge about ecological systems lags behind their knowledge about individual animals (Leach, Driver, Scott, & Wood-Robinson, 1996; Munson, 1994). Myers, Saunders, & Garrett (2004) found developmental trends in children's understanding of the ecological and conservation needs of wild animals. Children readily understood animals' basic biological needs, such as food and water. With increasing age, however, children were more likely to recognize that animals needed appropriate habitat, space, and shelter (ecological needs) as well as unpolluted air and water, a protected area, and prohibitions against being hunted or disturbed (conservation needs). Understanding the needs of animals is likely to underlie moral reasoning about meeting those needs. Taken together, these findings suggest that moral reasoning about the ecological systems within which animals are embedded is likely to be more difficult than reasoning about individual animals. Reasoning at the level of a network

of interrelated individuals and environments—ecology— should be more cognitively challenging than reasoning at the level of an individual.

Children's Moral Reasoning about Animals and about Humans

While there are few direct comparisons of children's human-directed and animal-directed moral reasoning, evidence suggests both differences and similarities. With respect to differences, when Dunlap (1989) compared adolescent boys' moral reasoning about parallel dilemmas involving other humans versus animals (dog, chimp and turkey), she found that, on average, boys reasoned at higher levels, using Kohlberg's stages, when considering a moral dilemma involving another human. Similarly, Fonseca et al. (2011) found that school children in science classes reported a hierarchy of moral claims, with humans more important morally than animals. Another line of research has found that human-directed empathy and animal-directed empathy are not related (McPhedran, 2009; Patterson-Kane & Piper, 2009). Since empathy underlies both moral reasoning and behavior, these findings lend support to a "difference" argument.

At the same time, there is evidence that children draw on their understanding of human relationships when they reason about animals. As noted earlier, children generalize their biological understanding about humans to animals (Carey, 1985). Kahn (1999) identified two types of biocentric moral reasoning—*isomorphic* and *transmorphic*—about environmental problems, such as air and water pollution. In isomorphic biocentric reasoning, the child identifies a correspondence between humans and other natural entities, and uses that similarity to justify moral treatment. In transmorphic biocentric reasoning, the child recognizes both similarities and differences between humans and other biological entities, but holds that despite such differences, these non-humans deserve moral treatment. Thus, in both isomorphic and transmorphic biocentric reasoning, the child takes account of human needs and rights, but does so in order to justify the same moral rights for the non-human.

In the Melson et al. (2009b) study discussed earlier, examples of isomorphic and transmorphic reasoning were found,

showing that children used their understanding of the moral standing of humans in thinking about that of an animal, such as the dog Canis. As an example of isomorphic biocentric reasoning, consider the answer of the following child to the question about hitting Canis: "It's not OK to hit Canis, because ... well, how would you like it, if someone hit you?" Here, the child is explicitly drawing an analogy between human and dog reactions to being hit. If it is morally wrong to hit the interviewer, then by analogy, it is morally wrong to hit Canis. Across the sample of 72 children, 411 instances of such analogical reasoning (Gentner, 2005; Goswami, 2001) were identified. All but two children used analogical reasoning, drawing similarities between the animal and humans, at least once during the interview. The number of instances ranged from one to 16, with a median of five (Melson et al., 2009b). Transmorphic reasoning occurred infrequently, but the following provides an example, in response to the question: "If you didn't like Canis anymore, would it be OK or not OK to give Canis away?" Child: "Yes, it's OK." Interviewer: "Why? How come?" Child: "Because, well it's not like a person, you could give a dog away, but only if you could find a better home, and Canis would be happier." Here, the child recognizes that while there are differences between the animal and a person, the dog's welfare deserves paramount consideration.

The connection, if any, between humans and animals as targets of moral reasoning has important educational and policy implications. Humane education efforts, focused on the treatment of animals, are frequently justified, with little empirical evidence, as also enhancing empathy toward peers (Daly & Suggs, 2010) or reducing school violence (Favor, 2010). Historically, the animal welfare and child welfare movements were intertwined, with the assumption that advocacy of one would promote the other (Melson, 2001).

Influences on Change in Moral Reasoning

As noted above, age differences in moral reasoning have been found in a number of studies. If moral reasoning about animals reflects general features of thinking about relationships, developmental change should be expected. Kohlberg (1976) documented an age-related progression in stages of

moral reasoning about human dilemmas, and Kahn's and Kellert's examinations of environmental moral reasoning also found age-related stages. These changes reflect both underlying cognitive maturation and age-related social experiences.

Among the more important social experiences may be the child's relationship with family animals. Elementary school-age children in the U. S. with strong attachment to their animals score higher on measures of empathy toward peers (Daly & Morton, 2006; Melson, Peet, & Sparks, 1992), while a study of Chinese school children found that pet attachment was positively associated with willingness to take care of others (Zhou, Zheng, & Fu, 2007). These studies did not directly measure moral reasoning about animals, however. Empathy and willingness to care for others are related to, but not the same as, moral reasoning. One study that directly measured moral reasoning about treatment of an animal (Melson et al., 2009a) found that a child's attachment to his or her companion animal at home predicted moral reasoning about an unfamiliar dog, Canis. Children more attached to their pets accorded Canis more moral standing, viewing, just, fair and caring treatment of Canis as morally obligatory.

It is at present unclear why attachment to one's companion animal would be linked with greater empathy and more advanced moral reasoning about animals. One possible mechanism might be the role that animals play in family interactions, including discussions about moral issues. Tannen (2004) noted instances of parents using family dogs as "conversational resources" (speaking as, to, or about the dog) when teaching children about values. In addition, family animals provide many instances of "teachable" moments for parents. Robert Coles (1997), reflecting on how experiences with animals can build a child's moral intelligence, recounted how he had intervened to prevent his young son from playing too roughly with their dog:

> The dog in his own way was a teacher, one who had helped all of us come to terms with the meaning of understanding, to put oneself in another's shoes, to see and feel things as he, she, or it does. (p. 84)

The importance of animals as part of the dynamics of family systems is further underscored in studies of animal abuse: children of animal-abusing parents are more likely themselves to exhibit behavior problems and be at risk for harming animals (Melson, 2001). Another pathway by which a companion animal may help promote moral reasoning about animals is through an animal's distinctive appearance, behaviors and emotions. Relating appropriately to an animal requires attending to, and understanding a perspective very different from that of the child. This may promote empathy and role-taking ability, both of which underlie moral reasoning and behavior (Melson, 2001). Several retrospective studies have linked childhood history of petkeeping and experiences with animals with young adults' concern for animal welfare (Miura, Bradshaw, & Tanida, 2002; Paul & Serpell, 1993). While the limits of retrospective data are well known, these findings support the hypothesis that childhood experiences with animals also may be predictive of later adult moral reasoning.

Another social experience that may impact moral reasoning is discussion about moral dilemmas. Kohlberg (1976) emphasized that movement from lower to high stages could be facilitated when children had guided peer discussions about situations involving just and fair treatment of others. In addition to peers, parents influence moral reasoning. Parents who discuss real-life moral situations, such as those involving honesty and cheating, using questions, warm emotional support and higher level reasoning have children who, two years later, reason about moral dilemmas at a higher level (Walker & Taylor, 1991). Would such social experiences influence children to reason morally about animals and animal welfare? Many humane education efforts assume that adults, and to a lesser extent, peers, can help children reason morally about animal welfare issues. Humane education curricula that explicitly teach respect for all living things (thereby linking humans and other animals) may prompt children to develop more mature moral reasoning regarding treatment of animals. However, there have been few tests of this hypothesis. A notable exception is Ascione's (1992, 1997) year-long evaluation of the People and Animals humane education curriculum developed by the National Association of Humane and Environmental Education (NAHEE). Elementary school age children who

participated in the program scored higher in empathy (largely toward humans, although two questions asked about animals) than did similar children in a control group. In addition, first- and fourth graders in the program (as compared to their controls) also reported more humane attitudes—for example, answering no to questions like: "Should you spank a cat to teach it to mind?" and "Do you think it's fun to break up a spider's web?" A year after the program's end, fourth-graders continued to express more humane attitudes, according moral standing to animals, than did the control group. However, measurable changes in humane attitudes failed to materialize for second- and fifth-graders.

It is unclear what components of a humane education program might stimulate moral reasoning about animals. Kohlberg (1976) argued that discussion that promotes "disequilibration" of moral stage thinking is most effective in helping a child reach a higher level of moral reasoning. By this he meant that discussion of a moral dilemma should challenge the child's current level of moral reasoning and thereby prompt the child to consider new perspectives and arguments. Such "disequilibration" might naturally occur when children have an opportunity to interact with living animals as part of a humane education program. An evaluation of such a program for first graders (Nicoll, Trifone, & Samuels, 2008) found that when children were encouraged to role-play and do imaginative exercises with living animals, they scored higher on measures of animal-directed empathy (as compared to peers who had a print-based curriculum with no animal visits). More fine-grained evaluation of humane education programs might help us identify such elements and provide a test of Kohlberg's theory as applied to moral reasoning about animals.

Moral Reasoning and Moral Behavior

Very little is known about children's moral reasoning about animals in relation to their behaviors. Research and theory related to children's moral development with respect to human relationships may be useful for hypothesis generation. Rest (1986) argues that moral judgments about other humans are not enough to predict moral actions. One must add recognition of how one's actions affect others—what Rest (1986) calls "moral sensitivity,"—the desire to take action, ("moral

motivation"), and enduring predispositions to moral behavior, ("moral character"). In general, children must go beyond moral judgments, and in applying them to a specific situation, the child must also: (1) recognize that this is a moral situation; (2) feel that it is important relative to other considerations; (3) feel moral emotions, such as empathy; and (4) feel competent to act effectively (Jordan, 2007).

Many factors influence these intermediate steps between judgment and action. Some of these variables tap individual differences among children, while others address children's environments. Among those child factors that appear to mediate the link between moral reasoning and moral behavior are: (1) temperament; (2) behavioral problems; and (3) processing of interpersonal and socio-emotional information. Specifically, children who are temperamentally inhibited (shy) are less likely than uninhibited children to violate a moral injunction, such as cheating, that they had previously agreed was morally wrong (Malti, Gummerum, Keller, & Buchmann, 2009). Highly aggressive, "hard-to-manage" preschoolers are more likely than their non-aggressive peers to reason egocentrically about moral situations involving harm to other children (Dunn & Hughes, 2001). Children with lower moral motives are more likely to violate a moral prohibition against cheating that they previously endorsed (Malti et al., 2009). (As an example of a low moral motive, consider the child who states it is wrong to steal, but who feels that a thief, after stealing, would feel good.)

When one considers environmental factors that may mediate moral reasoning and moral behavior, the nature of the moral dilemma may be important. Many studies examining the link between moral reasoning and moral behavior toward humans compare children's responses to general hypothetical moral dilemmas (to assess moral reasoning) with children's behaviors in specific real-life situations, often involving a temptation to violate a moral injunction, such as one against stealing, hitting, cheating, etc. In such studies, there is generally a weak or non-existent link between reasoning and behavior. However, when children's reasoning and behavior are assessed about the same real-life situation, there is greater consistency between reasoning and behavior (Xu, Bao, Fu, Talwar, & Lee, 2010). Thus, when children see how a general moral principle

applies in a concrete situation, they are more likely to behave morally. Parents and peers also are important. A parenting style that encourages empathy (Spinrad et al., 1999) as well as challenging peer discussions (Walker, Henning, & Krettenauer, 2000) can promote both more advanced moral reasoning and moral behavior. In a rare study of family predictors of children's humane attitudes (Bryant, 1990), eight-to-thirteen year olds who felt that their parents were emotionally available and responsive also endorsed more humane attitudes toward animals.

In summary, we may predict that consistency between reasoning and behavior is enhanced when: (1) child temperament is relatively low on aggression and high on behavioral inhibition and impulse control; (2) measures of reasoning and behavior are aligned; and (3) parents and peers encourage empathic understanding and use "disequilibration" in their discussions about animals.

Pro-social Reasoning and Behavior toward Animals

Many social issues involving human treatment of animals are framed as pro-social, rather than moral. This is exemplified in humane education materials, such as *Kind News*, a "for kids" newspaper distributed by the National Association for Humane and Environmental Education. Rather than presenting proper pet care, species protection and animal welfare as moral imperatives, *Kind News* exhorts children to "be a friend to pets," reminding children that "good pet owners care for their pets as if they were people." Similarly, *Kind News* urges protection of wild animals and environmental resources as behaviors that good and responsible people do. Environmental educators, advancing "biophilic education," stress both the interconnections of humans, animals and environment, as well as an orientation of "bonding, caring and sharing," (Cajete, 1999) designed to foster in children a stewardship identity toward all living things. Surveys of teachers in elementary school classrooms find that educators believe the presence of live animals in the classroom helps to promote empathy (Daly & Suggs, 2010).

Despite this emphasis on treatment of animals as pro-socially desirable and praiseworthy (rather than morally imperative), research on children's pro-social reasoning and behavior

toward animals is lacking. Here too, research related to pro-
sociality toward humans (sharing, helping, donating, kindness
and nurturing) may guide hypotheses applicable to relation-
ships with animals. Kindness and nurturing are especially
relevant for understanding pro-sociality toward animals, for a
couple of reasons: (1) humane education emphasizes caring for
animals in terms of kindness; (2) The needs of distinct species
and their dependence upon humans make nurturing a more
relevant prosocial behavior than sharing or donating.

  Reasoning about kindness and nurturing. As with moral rea-
soning, there is a developmental trajectory in the understand-
ing of kindness. Kindergarten age children believe that any act
that benefits another—for example, a taller child getting down
a toy from a high shelf that a shorter child is unable to reach—
is kind, even if the act is unintentional, accidental, coerced or
rewarded. Only gradually with advancing age do children dif-
ferentiate acts by motives, and consider only those acts moti-
vated by a desire to benefit another to be truly kind (Baldwin
& Baldwin, 1970). This gradual understanding of kindness
is consistent with other evidence that pro-social reasoning is
largely learned through acquiring social norms, although some
young children show an early predisposition to pro-sociality
(Eisenberg & Mussen, 1989). Because of this, various interven-
tions have been developed to encourage kindness in children
to others (i.e., other humans). For example, Zeece (2009) ad-
vocates picture books with kindness themes (interestingly,
many with animal characters), while the Kindness Intentions
Program for preschool classrooms focuses on giving children
recognition for spontaneous acts of kindness they perform
toward their classmates and also observe in other children
(Tannock, 2009). However, evaluation of such interventions is
currently lacking.

  Predictors of pro-social and nurturing behavior. Any program
designed to teach pro-social norms and behaviors must take
into account that influences on kindness and nurturing are
complex. As with moral action, pro-social behavior may be pre-
dicted from both child and environmental factors. Consistent
gender differences have been found, with girls more likely
than boys to show sympathy, compassion, and help toward
others (humans) (Spivak & Howes, 2011). Children are more
likely to help or care for others when they understand the

need to do so, feel competent that they can help, and are not distressed themselves at witnessing the distress or needs of another (Trommsdorff, Friedmeier, & Mayer, 2007). Children who are socially competent with peers—preschoolers skilled at social pretend play, for example—spontaneously engage in more acts of sharing, cooperation, kindness, and empathy toward peers than do less socially skilled classmates (Spivak & Howes, 2011).

Among the environmental factors predicting pro-social behaviors, parenting style and modeling have been identified. Parents who emphasize nurturing and caregiving, involving their older children in the care of younger ones, are more likely to have children who display more empathy and concern for others as well as more motivation and skill in caregiving (Whiting & Edwards, 1988). Indeed, in cross-cultural studies that observe children's everyday social behaviors toward humans across multiple contexts—family, kin network, neighborhood—and not just in classrooms of peers, pro-social behaviors of caring and helping are most often directed toward younger children, especially infants and toddlers (deGuzman, Carlo, & Edwards, 2008).

Although information on nurturing and caregiving toward animals—usually companion animals—is sparse, it appears that when animals are present in a home, children do engage in caregiving toward them. Moreover, since opportunities for and encouragement of nurturing others are rare in childhood, at least in Western industrialized societies, nurturing animals makes up a large proportion of childhood caregiving experiences. For example, analysis of daily activity records of a nationally representative sample of U. S. animal-owning families with children finds that, on average, children who have younger siblings spend about 10 minutes daily caring for pets, but only about 2 minutes caring for a younger sibling (Melson, 2001). Similarly, in a sample of German 8- to 10-year olds with animals at home, 25% reported sole responsibility for companion animal care, while 50% shared animal care with other family members (Rost & Hartmann, 1994).

In addition, gender differences in nurturing other humans make animal-directed nurture more important. From about age five, children view nurturing and caregiving of young, dependent humans as feminine, and hence, at about the same

time, girls show more motivation to nurture human young, and in fact, engage in more nurturing behaviors toward them (Melson, Fogel, & Toda, 1986). By contrast, there are no gender differences in ideas about nurturing companion animals (Melson & Fogel, 1989); boys and girls view companion animal care as "gender-neutral," not associated with either the feminine or masculine sex role. Moreover, there are no consistent gender differences in observed nurturing behaviors toward such animals (Fogel, Melson, & Mistry, 1986). Thus, both the widespread presence of animals in homes with children, combined with frequent caregiving open equally to boys and girls, make companion animal care a potentially important "training ground" for developing nurturing motivations, skills, and experiences. Unfortunately, prospective longitudinal studies designed to test this hypothesis are lacking.

Conclusion: Understanding the Moral Terrain of Human–Animal Relationships

This examination of children's moral reasoning toward animals leads to some tentative conclusions: (1) From an early age, children accord animals moral standing and reason about them in terms of moral and social welfare issues; (2) There is developmental change in moral reasoning about animals, but the nature and "drivers" of that change are not well understood; (3) Among many influences, relationships with companion animals appear to play an important role in how children think about moral issues related to animals; (4) Links between moral and pro-social reasoning about animals, on the one hand, and corresponding behaviors, on the other, are complex, with both individual child characteristics and social factors playing a role.

What might future theory and research on children's moral reasoning about animals look like? The following suggestions are offered in the spirit of encouraging integration of issues of morality and social welfare about non-human species into mainstream discourse about morality in human-human relationships.

(1) Develop studies that directly assess moral reasoning

about animals in the context of reasoning about other life forms, such as plants, other humans, and ecological systems. Direct comparisons within the same study, using parallel measures, are most useful in determining both similarities and differences. The study by Dunlap (1989) stands out as a model of this approach.

(2) Use fine-grained measures of moral reasoning that distinguish recognition of moral standing from underlying reasoning about the basis for that moral standing. Studies by Kahn, Melson and their colleagues, discussed earlier, can provide the basis for further development of such measures. Because verbal skills are limited in young children, interview methods should be supplemented with careful observation of children's spontaneous behaviors and remarks, as Myers (1998) has done.

(3) Draw on the extensive literature on the development of moral and pro-social reasoning about humans to test hypotheses concerning a developmental progression with respect to thinking about animals. Too often, scholars of the human-animal bond have worked in relative isolation from social scientists investigating parallel questions within human relationships.

(4) Use theory and research on moral and pro-social reasoning about animals to inform educational interventions aimed at increasing animal welfare. For example, humane education programs can be designed to directly test predictions, based on Kohlberg's theory, that challenging discussions among peers would stimulate moral reasoning to more mature levels. As another suggestion, research on the importance of parents as "drivers" of moral reasoning and behavior (with respect to both other humans and animals) might lead to more home-based, parent-centered curricula or educational materials.

In general, children are part of the world of animals, and that world is full of moral and ethical questions. How children answer those questions will affect how all life forms on the planet will fare in the future.

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