



Short communication

The effect of categorization as food on the perceived moral standing of animals[☆]Boyka Bratanova^{a,*}, Steve Loughnan^{b,*}, Brock Bastian^c^a Department of Psychology, University of Surrey^b Centre for Research on Social Climate, School of Psychology, University of Kent, Kent CT27NZ, UK^c Australian Centre for Peace and Conflict Studies, Institute for Social Science Research & School of Psychology, University of Queensland

ARTICLE INFO

Article history:

Received 15 April 2011

Received in revised form 19 April 2011

Accepted 23 April 2011

Available online 4 May 2011

Keywords:

Meat

Animals

Moral concern

Categorization

ABSTRACT

Most people love animals and love eating meat. One way of reducing this conflict is to deny that animals suffer and have moral rights. We suggest that the act of categorizing an animal as 'food' may diminish their perceived capacity to suffer, which in turn dampens our moral concern. Participants were asked to read about an animal in a distant nation and we manipulated whether the animal was categorized as food, whether it was killed, and human responsibility for its death. The results demonstrate that categorization as food – but not killing or human responsibility – was sufficient to reduce the animal's perceived capacity to suffer, which in turn restricted moral concern. People may be able to love animals and love meat because animals categorized as food are seen as insensitive to pain and unworthy of moral consideration.

© 2011 Elsevier Ltd. All rights reserved.

Meat is an increasingly important part of most people's diet. The average American consumes 124 kg of meat a year, one third more than in 1960 (USDA, 2007; WRI, 2010). This rate of meat consumption requires the annual slaughter of nine billion land animals in the U.S. alone (Joy, 2010). These figures may suggest that we live in a culture which does not value animal's lives, ignores their suffering, and denies them moral standing. However, pet ownership has never been more widespread. Over a third of U.S. households own a dog (39%) or a cat (33%), and owners spend a combined \$43 billion per year on their companion animals (APPA, 2009). Our treatment of animals is contradictory. On one hand people eat animals and participate in their wholesale slaughter. On the other, they love animals and consider them part of the family. This dilemma forms the 'meat paradox'; people both love animals and love eating animals (Loughnan, Haslam, & Bastian, 2010).

Scholarly attempts to understand how people can eat meat despite caring about animals have focused on the role of motivations. It has been suggested that people who eat meat experience cognitive dissonance. According to cognitive dissonance theory (Festinger, 1957; Harmon-Jones & Harmon-Jones, 2007), people are motivated to resolve discrepancies between their beliefs and actions. This resolution can be achieved by changing either what one thinks or what one does. In the case of meat, people may feel an uncomfortable tension between their moral beliefs

(I should not hurt animals) and their behavior (I eat meat). This tension is unpleasant and people are motivated to resolve it.

One resolution available to meat-eaters is to change their behavior. Moral vegetarians experience no tension between their diet and their beliefs about animal rights (Allen, Wilson, Ng, & Dunne, 2000; Fessler, Arguello, Mekdara, & Macias, 2003; Rozin, Markwith, & Stoess, 1997). Likewise, ethical omnivores care about the environment and the treatment of animals, and this motivates them to reduce or change their meat consumption (Berndsen & van der Pligt, 2004). Both cases are demonstration of how when faced with the meat paradox some people change their behavior.

Many people, however, do not change their behavior and instead continue eating meat. If most people are not changing their behavior, it seems likely that they are changing their perception of meat animals. Being able to suffer is the characteristic on which people base judgments of moral concern (Bastian, Laham, Wilson, Haslam, & Koval, in press; Bentham & Browning, 1843; Gray, Gray, & Wegner, 2007). As the perceived capacity to suffer decreases, so too does our moral concern. Concluding that meat animals do not suffer brings peoples moral beliefs (animals should not be hurt) into line with their behavior (I eat meat). Indirect empirical evidence for cognitive dissonance has abounded in recent years. We (Loughnan et al., 2010) asked participants to eat either beef jerky or cashew nuts and then measured their beliefs about the moral standing of animals. This revealed that moral concern for cows was decreased after consuming beef, indicating that people constrict moral concern for animals when eating meat. In a similar vein, we (Bastian, Loughnan, Haslam, & Radke, 2011) asked participants to concentrate on either the origins of meat or the origins of vegetables and then measured moral concern for meat

[☆] We would like to thank Prof. Paul Rozin for his helpful comments on an earlier version of this manuscript.

* Corresponding authors.

E-mail addresses: s1322@kent.ac.uk, s.loughnan@kent.ac.uk, loughnan@kent.ac.uk (S. Loughnan).

animals. We found that reminding participants of the origins of meat actively reduced their moral concern for meat animals. This finding suggests that people are motivated to avoid the conclusion that they are involved in the harm of a morally worthy animal. Finally, *Bilewicz, Imhoff, and Drogosz (2011)* asked vegetarians and omnivores to report their beliefs about the mental qualities and emotional range possessed by meat animals. They found that compared to vegetarians, omnivores attributed significantly restricted mental and emotional lives to meat animals. They inferred that omnivores feel uncomfortable about contributing to the deaths of animals and therefore restrict the mental lives of those animals to alleviate this discomfort.

Previous work on understanding the ethics of meat consumption has focused heavily on the role of motivation. While motivations are clearly important, we suggest that a more basic, non-motivational, cognitive process might contribute to the resolution of the meat paradox. Specifically, categorizing an animal as 'food' may directly alter how we think about that animal. The act of categorization may shift our focus away from morally relevant attributes (i.e., the capacity to suffer), and therefore change our perception of the moral worth of the meat animal.

Categorization plays a critical role in what is considered food and whether an animal falls in this category (or not) is socially defined (*Rozin, 2003, 2007; Rozin & Fallon, 1986; Tambiah, 1969*). Different societies categorize specific animals as food or non-food. For instance, dogs are considered food in parts of Korea and China, some insect species are eaten in Asia and Oceania. Animals have also moved from the category food over time. For instance, amongst Western Europeans whales and seals were once eaten, but few people consider these animals food today (*Mawer, 2000*). Likewise horse meat was once widely consumed by Western Europeans; whereas today consumption is markedly reduced (*Anthony, 2007*). We suggest that the category 'food animal' may act as a conceptual frame or schema (e.g., *Barsalou, 1990; Yamauchi & Markman, 2000*). Once an animal is categorized as 'food', food relevant attributes should become more salient (e.g., tastiness, tenderness, flavor) and food-irrelevant attributes less salient. Importantly, because suffering is unlikely to be considered food relevant, thinking of the animal as food may reduce its perceived capacity to suffer.

Previous work has confounded the motivation to avoid discomfort with basic categorization (e.g., *Bastian et al., 2011; Bilewicz et al., 2011; Loughnan et al., 2010*). This conflation of categorization and motivation is understandable; in everyday life these two factors typically co-vary. For example, many people eat beef. This involves both categorizing cattle as food (categorization) and may evoke feelings of discomfort associated with animal suffering, which we are keen to avoid (motivation). However, categorization and motivation do not necessarily co-vary. Animals may be categorized as food without being eaten by the individual. By separating categorization from personal consumption, the effect of categorizing an animal as food can be observed independently of the motivation to avoid the discomfort associated with ones' responsibility for its suffering.

To examine the effect of food categorization on the moral standing of animals we manipulated categorization and measured moral concern. To avoid cognitive dissonance, we deliberately selected a situation where people would not feel discomfort due to conflict between their morals and their behavior. We manipulated the categorization of a foreign animal in a distant nation by indigenous people. Specifically, we presented people with Bennett's Tree Kangaroo in Papua New Guinea. If the denial of moral concern to meat animals is solely caused by people feeling tension between values (e.g., to care for animals) and actions (e.g., eating meat), then the consumption of an animal by a distant outgroup should not elicit any change in moral concern. By

contrast, if merely categorizing an animal as food alters that animal's perceived capacity to suffer which in turn changes moral concern, this should occur independent of personal responsibility.

Categorizing an animal as food often co-occurs with people killing the animal. These two factors – animal death and human responsibility – introduce two alternative explanations for reduced moral concern. Previous work has shown that people deny mental states to other humans who are suffering (*Kozak, Marsh, & Wegner, 2006*). By analogy, they may deny food animal's the mental states necessary to suffer simply because they are killed. Likewise, when people think that their group has caused suffering to others, they deny the victims complex mental states (*Castano & Giner-Sorolla, 2006*). Similarly, if we hear that members of our group (i.e., other humans) have caused suffering to animals, we may deny them complex mental states associated with moral concern. These alternative explanations should be eliminated before a basic categorization account is adopted. In sum, we investigated whether the act of considering an animal as food reduces moral concern for that animal.

Method

Eighty people (46 female, mean age = 35.51, SD = 10.97) participated in a study on "Distant Nations" in exchange for payment. Participants were recruited to complete the study online using a job website (i.e., Amazon MechanicalTurk). All participants reported their nationality as American and no participant reported having been to Papua New Guinea (PNG).

Participants were told that they would be presented with information about PNG and asked to perform a rating task. Following this introduction, participants were randomly assigned to one of four conditions. In all conditions, participants were presented with Bennett's Tree Kangaroo. They were told that the tree kangaroo is unique to PNG, that the population is large and steady, and that the animal has never been threatened by extinction. Prior to this information, participants were presented with a frame to guide categorization. In the 'Animal' condition, participants were told that the tree kangaroo is unique to PNG, its population is large and steady, and that it has a fast reproduction rate. This served to frame the tree kangaroo as an animal. In the 'Accidental-Death' condition, participants were provided the same information with an important change. They were told that the tree kangaroo often dies as a result of being knocked out of trees during storms. This frame cast the tree kangaroo as an animal but included reference to its death. In addition to the information about the tree kangaroo given in the 'Animal' condition, participants in the 'Hunted-Meat' condition were informed that the tree kangaroo is one animal commonly eaten by the locals. Further, they were told about some traditional cooking practices in PNG used to preserve the tenderness and flavor of the cooked meat. This served to frame the tree kangaroo as a food animal hunted by humans. In the 'Collected-Meat' condition, participants were presented with the same information as the 'Hunted-Meat' condition with an important alteration. They were told that Papua New Guineans do not hunt the tree kangaroo, but rather collect dead kangaroos that are knocked out of trees. This served to frame the tree kangaroo as food but removed human responsibility for killing. Altogether, the 4 conditions of the current design allow us to examine the effect of food categorization independent of both death and human responsibility (see Table 1).

This approach parallels the design of *Nemeroff and Rozin (1989)*. They investigated the transfer of animal characteristics as a function of consumption (e.g., people who eat boar flesh become more aggressive). In order to control for the possibility that meat acquisition is confounded with meat consumption, they compared consumption of the meat with killing but not consuming the

Table 1
Summary of experimental design.

Condition	Framing	Killed	Humans responsibility
Animal	Animal	No	No
Accidental-Death	Animal	Yes	No
Collected-Meat	Food	Yes	No
Hunted-Meat	Food	Yes	Yes

animal. For example, people who kill boars for their tusks but do not eat them should not show transfer effects. In the current design we separate categorization of the tree kangaroo as food from responsibility for killing and animal death.

After reading this information, participants were asked to complete a set of five sentences to examine what characteristics of the tree kangaroo were most salient to them. These were open ended items (e.g., ‘The tree kangaroo is...’; ‘The tree kangaroo has...’ ‘I would like to ... the tree kangaroo if I had the opportunity.’) to which participant’s freely generated responses. After completing these sentences participants were asked to rate the tree kangaroo on two measures adapted from previous work (Bastian et al., 2011; Loughnan et al., 2010). They were asked how much the tree kangaroo would suffer if harmed (1 = not at all; 10 = a great deal) and how much the tree kangaroo deserved moral treatment (1 = not at all deserving; 10 = very deserving). Participants were then thanked and debriefed.

Results

Participants were randomly assigned to either the Animal ($n = 21$), Accidental-Death ($n = 19$), Collected-Meat ($n = 19$), or Hunted-Meat ($n = 21$) conditions. To establish whether the categorization of the tree kangaroo as food made food-related characteristics more salient, we coded participants’ responses to the sentence completion task. Specifically, we counted the number of times the participant referred to the tree kangaroo as food (e.g., as edible, tender, tasty, etc.). Scores ranged from 0 to 5. A univariate ANOVA with condition as a between-subjects variable revealed a significant effect, $F(3,76) = 22.11, p < 0.001$. The effect of condition was decomposed using weighted planned contrasts. Consistent with expectations, when the animal was presented as food (hunted, collected) people reported more food related features than when the animal was presented as a natural being (Animal, Accidental-Death), $M^{\text{food}} = 1.65$ vs. $M^{\text{animal}} = 0.03, t(78) = 7.66, p < 0.001$.

To investigate whether being classified as food alters an animal’s perceived capacity to suffer, we asked people to rate how much the tree kangaroo would suffer if harmed. A univariate ANOVA revealed a significant effect of condition, $F(3,76) = 17.74, p = 0.003$. This effect was decomposed using planned contrasts. Consistent with a basic categorization effect, the tree kangaroo was attributed more capacity to suffer in the Animal condition compared with the Hunted-Meat and Collected-Meat conditions, $t_s(40/38) > 2.8, p_s < 0.01$. However, there was no significant difference between the Animal and Accidental-Death conditions ($t(38) = 0.31, p = 0.761$) nor between the Hunted-Meat and Collected-Meat conditions ($t(38) = 0.20, p = 0.844$). These results indicate that animals classified as food are seen as less able to suffer regardless of whether they are deliberately killed by humans. Further, death alone cannot account for these findings as tree kangaroos which were killed but were not eaten were not attributed less capacity to suffer (Fig. 1). These findings suggest that the act of categorizing an animal as food makes its capacity to suffer less salient, independent of the animal’s death and human responsibility.

Given that categorization as food reduces the animal’s perceived capacity to suffer – the ability which underlies moral concern – we examined whether food categorization reduces

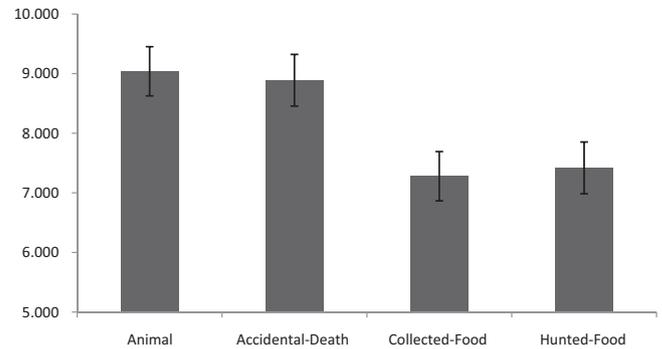


Fig. 1. Capacity to suffer as a function of condition.

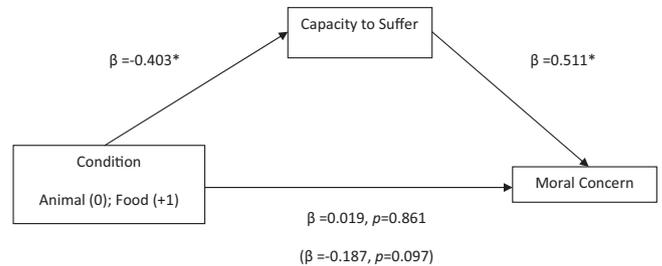


Fig. 2. Mediation model for the effect of food categorization on moral concern via perceived capacity to suffer. * $p < 0.001$.

moral concern via reduced suffering. To test this we employed a mediation analysis. First, we collapsed across the animal (Animal, Accidental-Death) and food (Hunted-Meat, Collected-Meat) conditions and regressed moral concern onto the now dichotomous independent variable (Animal = 0; Food = +1). This revealed a marginally significant direct effect, $\beta = -0.187, p = 0.097$. Note that this first step is not required to be significant for mediation to occur (Preacher & Hayes, 2004). Next, we regressed condition onto capacity to suffer, revealing a significant relationship, $\beta = -0.403, p < 0.001$. We then entered both capacity to suffer and condition as predictors of moral concern. This revealed that while suffering was a significant predictor ($\beta = 0.511, p < 0.001$), condition was not ($\beta = 0.019, p = 0.861$). Following the recommendations of Preacher and Hayes (2004), we conducted a bootstrapped mediation analysis. This revealed that capacity to suffer significantly mediated the reduction in moral concern in the food condition as evidenced by a confidence interval which does not include zero ($-1.68, -0.40$). This model is summarized below (Fig. 2). The significant mediation indicates that categorizing an animal as food reduces moral concern via undermining the animal’s perceived capacity to suffer.

Discussion

The findings of this study support the role of food categorization in resolving the meat paradox. People presented with a scenario where the tree kangaroo is being cooked and used as food attributed it significantly less capacity to suffer. As expected, this reduction in turn leads to diminished moral concern. Importantly, this occurred regardless of whether humans were responsible for killing the animal. Even when people do not actively contribute to the death of the animal, categorizing it as food leads to a reduction in capacity to suffer and subsequent moral standing. Further, although people reduce the mental lives of other humans who are suffering (Kozak et al., 2006), the suffering of the tree kangaroo did not explain the reduction associated with food categorization. When the animal was suffering but not considered food (i.e., when it was accidentally killed), perception did not deviate from a simple

description of the animal. In sum, seeing an animal as food is sufficient to diminish their perceived capacity to suffer and dampen our moral concern.

The current study deliberately imposed conditions aimed at minimizing the influence of motivational processes. By selecting the actions of people in a distant and dissimilar nation, it precluded the conditions that usually lead to feelings of cognitive dissonance: choice, personal action, and immediate consequences (Festinger, 1957; Harmon-Jones & Mills, 1999). Although this approach effectively decouples motivation and categorization, these two factors typically co-occur. It is likely that the association between meat eating and reduction of animals' moral standing documented in previous research (e.g., Bastian et al., 2011; Bilewicz et al., 2011; Loughnan et al., 2010; Rozin et al., 1997) captures both motivation and categorization. In the case of suffering, motivation may play a particularly important role. Categorizing an animal as food should shift attention away from any food irrelevant qualities (e.g., fur color), not just those associated with moral concern. However, undermining morally relevant capacities is clearly useful for avoiding discomfort. At times categorization and motivation may work in concert to facilitate meat consumption.

The current findings speak to the importance of food categorization in resolving the meat paradox. However, there are numerous categories into which an animal may be placed (e.g., food, entertainment, equipment, companion, pest), each highlighting certain attributes of the animal while deemphasizing those irrelevant to the category. Also, different people may place the same animal in different categories. For instance, a dog may be considered a companion by their owner, a piece of equipment by a farmer, and food by a chef. These cases of multiple categorization – when an animal is placed in multiple categories by different people – may be helpful in understanding reactions to novel and foreign food. For instance, a European discovering that grasshoppers are considered food in Mexico may be disgusted because they categorize the animal as a pest and therefore associate it with contamination (Rozin, 1996; Rozin & Fallon, 1986). Likewise, a Japanese or Norwegian diner may not fully appreciate condemnation of whale meat consumption because they categorize the animal as food, rather than wildlife. Future research on food and categorization seem promising for uncovering the cognitive elements of reactions to novel food, foreign food, and food aversion.

As a first step in this line of research, the current study showed that categorization shapes the ways in which meat animals are perceived. People generally care about animals, however, when an animal is considered food its capacity to suffer is reduced, diminishing our moral concern.

References

- Allen, M., Wilson, M., Ng, S., & Dunne, M. (2000). Values and beliefs of vegetarians and omnivores. *Journal of Social Psychology, 140*, 405–422.
- Anthony, D. (2007). *The horse, the wheel, and language*. Princeton, New Jersey: Princeton University Press.
- APPA. (2009). U.S. pet ownership statistics—American Pet Products Association. Retrieved 5.10.2010, from <http://www.americanpetproducts.org/>.
- Barsalou, L. W. (1990). Access and inference in categorization. *Bulletin of the Psychonomic Society, 28*, 268–271.
- Bastian, B., Laham, S., Wilson, S., Haslam, N., & Koval, P. (in press). Blaming, praising, and protecting our humanity: the implications of everyday dehumanization for judgements of moral status. *British Journal of Social Psychology*.
- Bastian, B., Loughnan, S., Haslam, N., & Radke, H. (2011). *Don't mind meat? The dematerialization of animals used for human consumption*, under review.
- Bentham, J., & Browning, J. (1843). *The works of Jeremy Bentham*. London: Simpkin Marshall & Co.
- Berndsen, M., & van der Pligt, J. (2004). Ambivalence towards meat. *Appetite, 42*, 71–78.
- Bilewicz, M., Imhoff, R., & Drogosz, M. (2011). The humanity of what we eat: conceptions of human uniqueness amongst vegetarians and omnivores. *European Journal of Social Psychology, 41*, 201–209.
- Castano, E., & Giner-Sorolla, R. (2006). Not quite human: infra-humanization in response to collective responsibility for intergroup killing. *Journal of Personality and Social Psychology, 90*, 804–818.
- Fessler, D., Arguello, A., Mekdara, J., & Macias, R. (2003). Disgust sensitivity and meat consumption: a test of an emotivist account of moral vegetarianism. *Appetite, 41*, 31–41.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Gray, H., Gray, K., & Wegner, D. (2007). Dimensions of mind perception. *Science, 315*(5812), 619–621.
- Harmon-Jones, E., & Harmon-Jones, C. (2007). Cognitive dissonance theory after 50 years of development. *Zeitschrift für Sozialpsychologie, 38*, 7–16.
- Harmon-Jones, E., & Mills, J. (1999). *Cognitive dissonance: progress on a pivotal theory in social psychology*. Washington, DC: American Psychological Association.
- Joy, M. (2010). *Why we love dogs, eat pigs, and wear cows: an introduction to carnism*. San Francisco, CA: Conari Press.
- Kozak, M., Marsh, A., & Wegner, D. (2006). What do I think you're doing? Action identification and mind attribution. *Journal of Personality and Social Psychology, 90*, 543–555.
- Loughnan, S., Haslam, N., & Bastian, B. (2010). The role of meat consumption in the denial of moral status and mind to meat animals. *Appetite, 55*, 156–159.
- Mawer, G. A. (2000). *Ahab's Trade: the sage of south seas whaling*. Palgrave MacMillan.
- Nemeroff, C., & Rozin, P. (1989). "You are what you eat:" applying a demand-free "impressions" technique to an unacknowledged belief. *Ethos: The Journal of Psychological Anthropology, 17*, 50–69.
- Preacher, K., & Hayes, A. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers, 36*, 717–731.
- Rozin, P. (1996). Towards a psychology of food and eating: from motivation to module to model to marker, morality, meaning, and metaphor. *Current Directions in Psychological Science, 5*, 18–24.
- Rozin, P. (2003). Meat. In S. Katz (Ed.), *Encyclopedia of food and culture, vol. 2* (pp. 466–471). New York: Tomson Gale.
- Rozin, P. (2007). Food and eating. In S. Kitayama & D. Cohen (Eds.), *The handbook of cultural psychology* (pp. 391–416). New York, NY: The Guilford Press.
- Rozin, P., & Fallon, A. (1986). The acquisition of likes and dislikes for food. In K. Isselbacher (Ed.), *What is America eating?* (pp. 58–71). Washington, DC: National Academy Press.
- Rozin, P., Markwith, M., & Stoess, C. (1997). Moralization and becoming a vegetarian: the transformation of preferences into values and the recruitment of disgust. *Psychological Science, 8*, 67–73.
- Tambiah, S. (1969). Animals are good to think and good to prohibit. *Ethnology, 8*, 423–459.
- USDA (2007). United States Department A Agricultural Projections to 2016. Retrieved 5.10.2010, from <http://www.ers.usda.gov/publications/oce071/>.
- WRI (2010). Per capita meat consumption by nation—World Resources Institute. Retrieved 5.10.2010, from <http://www.wri.org/>.
- Yamauchi, T., & Markman, A. B. (2000). Inference using categories. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 26*, 776–795.