When Meat Gets Personal, Animals' Minds Matter Less:

Motivated Use of Intelligence Information in Judgments of Moral Standing

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Abstract

Why are many Westerners outraged by dog meat, but comfortable with pork? This is particularly puzzling given strong evidence that both species are highly intelligent. We suggest that although people consider intelligence a key factor in determining animals' moral status, they disregard this information when it is self-relevant. In Study 1 we show that intelligence plays a major role in the moral concern afforded to animals in the abstract. In Study 2, we manipulated the intelligence of three animals – pigs, tapirs, and a fictional animal – and find that only for pigs does this information not influence moral standing. Finally, in Study 3 we show that people believe that learning about pig intelligence will lead to high levels of moral concern, yet when they themselves learn about pig intelligence, moral concern remains low. These findings demonstrate an important, predictable inconsistency in how people think about minds and moral concern.

Keywords: animals; morality; moral standing; moral judgment; mind attribution; motivated cognition

"The only consistency in the way humans think about animals is inconsistency."

Andrew Rowan, Center for Animals and Public Policy, Tufts University

Introduction

The annual Yulin dog meat festival in China evoked widespread outrage in June 2015, particularly among Westerners, and China's dog leather trade evokes further anger (PETA, 2014). Yet many people who are offended by the killing of dogs for meat and leather goods are omnivores who eat beef, pork, and lamb, and buy leather products. Vegans are quick to point out the hypocrisy of this (Francione & Charlton, 2013; Joy, 2010), since pigs in particular equal and sometimes exceed dogs on cognitive ability. Still, even when acknowledging comparable levels of intelligence between dogs and pigs, many omnivores appear to respond to such criticisms by insisting on the unique moral status of dogs (Piazza, 2015). How can people dismiss the morally relevant qualities of animals that are killed and used as consumer products in their own culture, while freely endorsing these qualities in animals used for consumption in other cultures?

We suggest that this is a case of motivated cognition. People *disregard* relevant information (e.g., intelligence) when it applies to an animal that they consume, and thus avoid a potential moral dilemma. This is different, we argue, from actively *denying* that a certain animal is intelligent. While some protesters might insist that dogs have greater claim to moral status than, say, pigs due to their superior intelligence, we argue that even if perceivers understand the intelligence of an animal, they still manage to disregard this information when forming a judgment of the animal's moral standing, as if the information was irrelevant to the judgment.

In the present set of studies, we show that people utilize information about animal intelligence in a flexible, motivated manner. While everyone is influenced by intelligence information in the abstract—for example, when contemplating the moral standing of a novel animal (Study 1)—people tend to disregard such relevant information when consumption of the animal has implications for the individual, either because the animal is used as food in one's culture (Study 2) or the person themselves consumes the animal (Study 3). We first situate our perspective within previous literature on animal minds and motivated cognition.

Attributing Mind to Animals and Judgments of Moral Standing

Animals with "moral standing" are those animals perceived to deserve our moral concern and it would be wrong to harm (Singer, 1975/2009). Past work by Piazza, Landy, and Goodwin (2014) has shown that when people judge animals' moral standing they tend to utilize two basic dimensions: (1) how much "mind" an animal possesses, which involves two highly correlated aspects: experiential states (e.g., capacity to suffer and experience pleasure) and cognitive ability or intelligence (see also Bastian, Loughnan, Haslam, & Radke, 2012; cf. Gray, Gray, & Wegner, 2007; Sytsma & Machery, 2012), and, separately, (2) how harmful or dangerous the animal is. In the present studies, we focus on one aspect of mind perception, intelligence.

Several studies have examined the flexible manner in which people attribute mind to animals (Bastian et al., 2012; Bilewicz, Inhoff, & Drogosz, 2011; Epley, Waytz, Akalis, & Cacioppo, 2008; Loughnan, Bastian, & Haslam, 2010; Rothgerber, 2014). This past work has shown that people *alter* their judgments of animal intelligence to be in line with their actions, for example, when they are made aware that eating animals is inconsistent with the animal's moral standing (Bastian et al.,

2012; Loughnan et al., 2010). Thus, research has firmly established that when people are concerned about how their behavior toward an animal might be inconsistent with the endorsement of its standing, they adjust their mind attribution accordingly (Loughnan, Bastian, & Haslam, 2014). This leads to an interesting prospect: providing strong or incontrovertible evidence for the minds of animals may reduce people's willingness to harm or eat them. Yet we are skeptical about the efficacy of such a strategy. We suspect, rather, that "animal-mind" interventions are often likely to fail due to the motivated way in which people *(dis)regard* intelligence information even when it is readily available.

Motivated Cognition

We anticipate that people will actively disregard intelligence information when considering the moral standing of certain animals that pose a moral challenge to the consumer. That is, while evidence for an animal's mind is generally persuasive, it is not compelling when a person is motivated to defend their use of the animal as food. Our skepticism derives from the wealth of past research in social psychology, which reveals the flexible ways people use information to maintain a positive view of the self (Dunning, 1999; Kunda, 1990). For instance, this work has shown that: people tend to affirm the utility of traits that they think they possess, and underrate the utility of traits they think they lack (Dunning, Perie, & Story, 1991); people criticize the moral actions of others if they reflect poorly on themselves (Monin, Sawyer, & Marquez, 2008); people modify their attributions of others to support their desired beliefs about them (Klein & Kunda, 1992; Murray, 1999); people willfully avoid information about their consumer decisions that could potentially influence their purchasing behavior (Ehrich & Irwin, 2005); and people endorse beliefs about meat that fit with their dietary practices (Piazza, Ruby, Loughnan, et al., 2015). Together,

studies like these show that people utilize information in a flexible way in order to reach the conclusion they would like, particularly when the judgment has implications for how they view themselves, especially how they view themselves morally.

In the present set of studies we apply a motivated social cognition perspective to better understand why people are inconsistent in the way they use information that, in the abstract, people believe to be relevant to the moral consideration of animals. We hypothesize that people are motivated to use (or ignore) intelligence information strategically to avoid the moral implications of how certain animals are treated, in particular, when they are used as food.

Overview of Studies

In Study 1, we first sought to establish that most people, independent of diet, utilize intelligence information in their moral standing judgments when the animal creates no moral dilemma for the perceiver. We accomplished this by presenting participants with a novel, fictional (alien) species, which they had no prior relationship with, while manipulating the species' level of intelligence. In Study 2 we varied the moral relevance of the animal for the individual, by manipulating whether the target was an animal used as food in the participants' society, while independently manipulating the intelligence of the animal target. Finally, in Study 3, we manipulated the intelligence of the animal, while, independently, manipulating whether meat consumers considered the moral standing of the animal from their own perspective or someone else's.

Study 1 – Alien Animals

Method[1]

[1] All materials for all studies are available from the Open Science Framework (osf.io/e3fx2/?view_only=abb6734bf74a464ba73c2d2cfa7ef54a). For all studies we report all conditions and dependent measures for which data was collected.

Participants and design. We recruited 59 participants (38 male, 21 female) via Amazon's Mechanical Turk (www.mturk.com; see Paolacci & Chandler, 2014). Recruitment was limited to workers located in the U.S., who were paid $0.50. Our aim in each study was to recruit n=30 per cell with power=.80 to detect an estimated medium-to-large effect (*d*=0.65; two-tailed). One participant failed to complete the study in the allotted timeframe; inclusion of this person does not change the results. We used a single variable, between-subjects design and randomly assigned people to the High intelligence (n=31) or Low intelligence (n=28) condition.

Materials and procedures. We used a novel animal paradigm, similar to Piazza et al. (2014, Study 2). Participants were asked to imagine that in the distant future scientists went on an expedition to another planet and discovered a new species called the "trablans." The scientists spent several months studying the behavior of the trablans and found that they had certain characteristics. All participants read that the trablans possessed some "filler" characteristics (i.e., group living, herbivores). Next, they read that the trablans possessed additional traits, which constituted our between-subjects manipulation of intelligence:

> *High intelligence*: The trablans are intelligent and inquisitive. They display sophisticated problem solving abilities, including tool use. Trablans can learn simple rules and memorize pattern sequences to get food.

> *Low intelligence*: The trablans are neither intelligent nor inquisitive. They do not display even basic problem-solving abilities, like the use of basic tools. Trablans often fail to learn even simple rules and cannot memorize pattern sequences to get food.

We assessed participants' comprehension of the materials: "To what extent do the trablans seem intelligent?" assessed on a 1 (*Not at all intelligent*) to 7 (*Very intelligent*) scale. Participants then read that after several months of studying the trablans, one of the scientists suggests that they consider hunting, cooking, and eating the trablans. The scientists have enough food, but this individual points out that their supplies can last even longer if they supplement them by eating the trablans. The trablans were additionally described as edible (made of protein and fat, non-poisonous).

Participants then responded to five moral standing questions (α=.95), rated on a scale 1=*Not at all*, 7=*Very much so*: "Is it OK to start eating the trablans?"; "Is it morally questionable to start eating the trablans?"; "Is it morally wrong to start eating the trablans?"; "Would you eat the trablans if you were in the same situation?"; "Would you protect the trablans by not eating them if you were in the same situation?" Items were scored so that higher scores represented greater attributions of moral standing. Separately, participants were also asked to imagine that they were one of the scientists and voted on whether the outpost should start hunting trablans: "Yes – hunt them" or "No – leave them be."

At the end of the study participants' dietary practices were assessed on the following scale: 1="Meat-lover: I prefer to eat meat"; 2="Omnivore: I eat meat and vegetables"; 3="Restricted omnivore: I eat meat, but not very much"; 4="Fish only omnivore: I eat fish, but no other meat"; 5="Vegetarian: I do not eat any meat"; 6="Vegan: I do not eat any meat or animal products."

Results

The manipulation of intelligence was successful. Participants in the High Intelligence condition rated the trablans as more intelligent (M=5.71, SD=0.82) than those in the Low Intelligence condition (M=2.11, SD=1.50), $t(57)=11.58$, $p<.001$, $\eta^2_p=.702$.

We first examined the dichotomous measure of moral standing using a Chi-square test. There was a significant effect of Intelligence on the frequency of "Don't hunt" responses, $\chi^2(1)=9.23$, $p=.002$, $\varphi=.396$. In the High intelligence condition, 93.5% of participants voted against hunting the trablans. In the Low intelligence condition, 60.7% voted against hunting the trablans.

Next, we ran a one-way ANOVA on Intelligence with our continuous measure of moral standing. When trablans were described as having high intelligence they were afforded more moral standing (M=5.17, SD=1.54) than when they were described as having low intelligence (M=3.73, SD=1.89), $F(1,57)=9.68$, $p=.003$, $d=.84$, 95% confidence interval (CI)=[2.98, 4.23]. Diet did not play a large part in participants' moral standing judgments: diet (measured continuously from meat-lovers to vegans) was weakly and non-significantly related to moral standing judgments, $r(58)=.16$, $p=.21$.

Discussion

As predicted, when there is no prior relationship with the animal, participants, largely independent of diet, tended to utilize intelligence information in their judgments of an animal's moral standing. Furthermore, in a follow-up study where we manipulated the perceived need[2] for using trablans as a source of food, we replicated the findings regarding the use of intelligence, independent of perceived need,

[2] The scientists were described as running out of supplies at different levels of urgency, ranging from having rations to spare (very little need) to running very low on rations (extreme need).

$F(1,84)=26.50$, $p<.001$, $\eta^2_p=.240$. Thus, the findings are not limited to situations in which people think it is unnecessary to use the animal because alternative food sources are available.

Study 2 – Who's eating the Animal? Us vs. Them

In Study 2, we sought to test the hypothesis that intelligence information matters differently for animals eaten in one's own culture versus animals in another culture. We sought to show this using two different contrasts: comparing a real animal used for food in one's own culture (pigs) with a real animal not used for food in one's own culture but eaten in another culture (tapir), and comparing pigs with a fictitious animal hypothetically used for food in another culture (trablans). Across the three targets, we experimentally manipulated the animal's intelligence (high vs. low) in an identical manner. We also controlled for whether the animal was described as being used as food. We did this to rule out the possibility that any differences may be explained by the participants' categorization of pigs as "food" and the other targets as "not food," since past research has found reductions in moral standing when people thought of animals as a food source (Bratanova, Loughnan, & Bastian, 2011). Here we wished to examine whether it is the self-relevance of using the animal for food, rather than the conceptualization of animals as food, which leads to reductions in moral status.

In a preliminary study we found that participants rated pigs as having significantly lower moral standing than both tapirs and trablans when equating for the animal's intelligence.[3] In the main study, we manipulated intelligence and predicted

[3] Participants (N=89 MTurkers) in this study were presented only the High intelligence information of Study 2. Despite equating intelligence across the three targets, participants judged the moral standing of pigs (M=48.81, SD=31.17) to be less than tapirs (M=77.80, SD=19.09), $p<.001$, d=1.12, 95% CI=[-45.31, -12.68], and less than trablans (M=73.64, SD=29.27), p=.002, d=.82, 95% CI=[-41.74, -7.93]. The

that intelligence would affect the moral standing of other-relevant animals (tapirs and trablans), but not self-relevant ones (pigs).

Method

Participants and design. We recruited 178 participants located in the UK via Prolific Academic. Participants were paid £1.00 and randomly assigned to condition. Sixteen participants reported not eating pork, ham or bacon, and thus were removed from the analysis. An additional nine participants failed to complete either the manipulation check (n=1) or at least 3 of the 5 moral standing questions (n=8), and thus were removed from the analysis.[4] The final sample was comprised of 70 males, 73 females (M_{age}=34.25 years, *SD*=11.56). We used a 2 (High vs. Low intelligence) x 3 (Pigs, Tapirs, Trablans) between-subjects design.

Materials and procedures. Participants were presented with high or low intelligence information about the animal target they were assigned to (materials can be found here: osf.io/e3fx2/?view_only=abb6734bf74a464ba73c2d2cfa7ef54a). Within each intelligence condition, the only piece of information that varied between targets was the animal label. In the High intelligence condition the target animal was described as being quite smart in comparison to dogs. In the Low intelligence condition the target animal was described as being intellectual inferior to dogs. The information, originally written about pigs, was taken from the Humane Society's website [www.humanesociety.org/animals/pigs/pigs_more.html?credit=web_id86167507]. Although this might be considered a weakness of the design – the information may better suit pigs – we note that this works against our hypothesis. After reading the

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moral standing of tapirs and trablans was rated equally high, *p*=.83, *d*=.17, 95% CI=[-21.06, 12.74].

[4] The results were not at all affected by leaving these nine participants in the sample (see also Footnote 5).

information, participants wrote a few sentences about what they had read and rated the intelligence of the target animal on a 1 (*Not at all intelligent*) to 7 (*Extremely intelligent*) scale.

On a new page, participants responded to five moral standing questions rated on 0-100 scales. First, they were presented a short paragraph describing that people eat pigs in the West, that people eat tapirs in Asia and South America, and that settlers on the distant planet eat trablans. All participants learned that the animal was originally hunted in the wild, but is increasingly farmed for human consumption. After reading this they rated how bad and, separately, how guilty they would feel about eating the animal (0=*Not at all bad [guilty]*; 100=*Extremely bad [guilty]*). Next, they learned about the abusive treatment of the animal in their society (pigs), in Asia/South America, or the distant planet (e.g., "tapirs slaughtered for their meat are kept in solitary confinement their whole lives with hardly enough space to turn around, and often times are abused by industrial farmers—for example, they are kicked, beaten, castrated, and have their tails cut off"). This information was the same for all conditions. After reading this participants rated how bad and, separately, how guilty they feel about how the animal is treated. Lastly, they reported how wrong it is to eat the animal (0=*Completely OK to eat*; 100=*Extremely wrong to eat*). The five items had high internal reliability (α =.88) and thus were averaged into a single moral-standing index. At the end participants provided demographic and dietary information.

Results

Looking first at intelligence ratings, the manipulation was effective for all three targets: pigs, η^2_p=.590, tapirs, η^2_p=.779, and trablans, η^2_p=.733. In the High intelligence condition, there was no difference in the perceived intelligence of the animal target, $F(2,65)=.23$, $p=.794$, $\eta^2_p=.007$ ($M_{pigs}=5.55$, $SD=1.01$; $M_{tapirs}=5.62$,

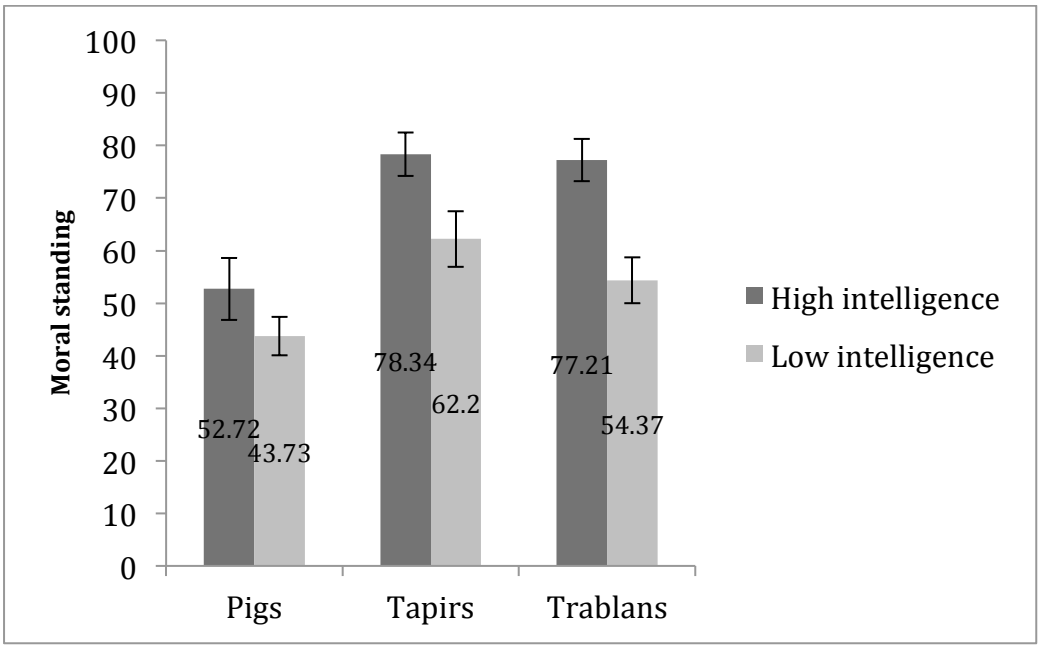
SD= 0.86; $M_{trablans}$=5.44, *SD*=0.82). In the Low intelligence condition, there was a significant effect of animal target, $F(2,72)=3.61$, $p=.032$, $\eta^2_p=.091$, with pigs rated more intelligent (M=2.83, SD=1.27) than trablans (M=1.96, SD=1.26), $p=.028$, but pigs and tapirs (M=2.21, SD=0.98), $p=.166$, and tapirs and trablans, $p=.740$, rated equally intelligent.

We conducted a 2x3 ANOVA on the moral standing index with intelligence and animal target as the independent variables. Both main effects were significant: intelligence, $F(1,137)=17.89$, $p<.001$, $\eta^2_p=.116$; animal, $F(1,137)=12.31$, $p<.001$, $\eta^2_p=.152$. The interaction was not significant, $F(1,137)=1.15$, $p=.319$, $\eta^2_p=.017$. To test our prediction, we conducted follow-up contrasts (Tukey's HSD). At both levels of intelligence pigs were afforded the lowest levels of moral standing (see Figure 1). Consistent with our preliminary study, when the targets were presented as highly intelligent, participants judged the moral standing of pigs to be less than tapirs, $p=.001$, d=1.08, 95% CI=[-42.14, -9.10], and less than trablans, $p=.001$, d=1.01, 95% CI=[-40.32, -8.65]. The moral standing of intelligent tapirs and trablans was rated equally high, $p=.984$, d=.06, 95% CI=[-17.16, 14.89]. When the targets were presented as having low intelligence, pigs were afforded less standing than tapirs, $p=.016$, d=.83, 95% CI=[-33.99, -2.94], though not significantly less than trablans, $p=.217$, d=.52, 95% CI=[-25.72, 4.45], and tapirs and trablans did not differ, $p=.433$, d=.32, 95% CI=[-7.25, 22.92]. Most importantly, confirming our prediction, intelligence had no impact on moral-standing judgments for pigs, $p=.196$, d =.38, 95% CI=[-22.77, 4.79], but it did have an impact on the moral standing of tapirs,

p=.023, d =.71, 95% CI=[-29.95, -2.33], and trablans, p<.001, d =1.06, 95% CI=[-34.87, -10.80], in the predicted direction (Figure 1).[5]

Figure 1

Moral standing means and standard errors (± 1 S.E.) from Study 2 by intelligence and animal condition.



Consistent with our predictions, enhancing the intelligence of pigs (an animal used as food in the participants' culture) had little effect on its moral standing. By contrast, enhancing the intelligence of other-relevant animals (tapirs, trablans) led to marked increases in their moral standing.

Study 3 – Who's eating the Animal? Self vs. Other

In Study 3, we sought to obtain convergent evidence for our motivational hypothesis by showing that intelligence information is utilized differently for the same animal target (pigs) when a person takes the perspective of another person

[5] When these within-target contrasts were conducted including the nine exclusions, the effect sizes (η^2_p) were .01, .12, .23, respectively.

versus themselves. We expected intelligence information to influence moral standing judgments when a person adopts another person's perspective (how others will think and feel), but such information should have little effect on judgments when a person uses their own perspective (how do I think and feel).

Method

Participants. We recruited a new sample of 127 participants located in the U.K. via Prolific Academic for £0.50 payment. We were only interested in the responses of participants who personally eat pig meat ("pork, ham, or bacon") or who correctly reported that John eats pig meat. Ten participants reported they or John did not eat pig meat, and were omitted from analysis (they were still paid), leaving a total of 117 participants (50 male, 67 female; M_{age}=31.50 years, SD=10.54).

Design. We used a 2 (*perspective*: self vs. other) x 2 (*intelligence*: high vs. low) fully between-subjects design with random assignment.

Materials. All participants were given information about the mental capacities of pigs. However, in the *other perspective* condition, participants were asked to imagine that another person, 'John', was working on a project when he discovered information about pigs' intelligence. Participants in this condition also learned that John owns a pet dog and eats pigs "with bacon being his favorite food." We included an attention check, "Does John eat pigs (pork, ham, or bacon)?", which all participants passed. In the *self perspective* condition, participants simply answered from their own perspective.

In the *high intelligence* condition, participants read information about the superior cognitive abilities of pigs, relative to dogs. The information was fairly similar to that used in Study 2. In the *low intelligence* condition, participants read the same information only the labels "pigs" and "dogs" were switched, thus,

communicating that dogs possess superior cognitive abilities relative to pigs. The information was originally written about pigs, not dogs. This deception was revealed to all participants at the end of the study. Again, any effect of information fit would work against our hypothesis.

After reading the intelligence information, participants wrote briefly about what they read and rated the intelligence of pigs on a scale 1 (*Not at all intelligent*) to 7 (*Very intelligent*), responded to the pig-eating probe, and then responded to five moral-standing items, on 0-100 scales, similar to Study 2. First, two items assessed how guilty/bad they or John felt about eating pigs. Next participants read a brief passage about how pigs are treated in American society similar to the passage used in Study 2, followed by two questions gauging how guilty/bad they feel or John would feel about how society treats pigs, and one question assessing how wrong they think or John thinks it is to eat pigs. The five moral-standing items were internally reliable (α =.93) and were averaged together. Lastly, participants completed demographics as in Study 2.

Results and Discussion

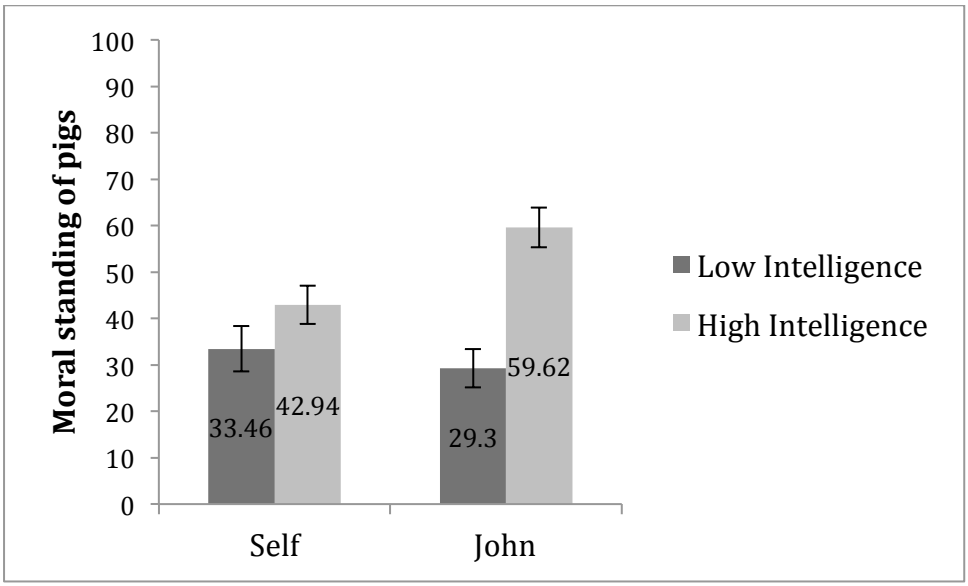
The intelligence manipulation was highly effective (M_{high}=5.75, *SD*=1.02; M_{low}=3.14, *SD*=1.45), $t(115)=11.27$, $p<.001$, $d=2.08$. As predicted, there was a significant interaction between intelligence and perspective on moral standing, $F(1,113)=5.73$, $p=.018$, $\eta^2_p=.048$ (Figure 2). There was also a main effect of intelligence, $F(1,113)=20.90$, $p<.001$, $\eta^2_p=.156$, but no main effect of perspective, $F(1,113)=2.06$, $p=.15$, $\eta^2_p=.018$.[6] Simple-effects tests were conducted to decompose

[6] We replicated the results of Study 3 in another study that combined datasets from two earlier MTurk studies, one using the 'self' condition and another using the 'John' condition to recreate the 2x2 design (*N*=168); intelligence x perspective, $F(1,164)=9.76$, $p=.002$, $\eta^2_p=.056$, intelligence, $F(1,164)=17.56$, $p<.001$, $\eta^2_p=.097$,

the interaction. When high intelligence information was presented, this information influenced moral standing judgments more when participants adopted John's perspective than when adopting their own perspective, $t(58)=2.80$, $p=.007$, $d=.72$, 95% CI=[-28.58, -4.77]. When low intelligence information was presented, this information did not influence judgments irrespective of perspective, $t(55)=.65$, $p=.52$, $d=.17$, 95% CI=[-8.60, 16.93]. Critically, when participants adopted John's perspective, the intelligence information influenced moral standing judgments in the predicted direction, $t(60)=5.08$, $p<.001$, $d=1.29$, 95% CI=[-42.26, -18.38] (Figure 2). But when participants adopted their own perspective, intelligence information did not significantly influence their judgments, $t(53)=1.49$, $p=.14$, $d=.40$, 95% CI=[-22.18, 3.22].

Figure 2

Moral standing of pigs, means and standard errors (± 1 S.E.) from Study 3 as a function of intelligence and perspective.



perspective, $F(1,164)=0.43$, $p=.51$, $\eta^2_p=.003$. The simple effects were very similar to those in Study 3.

Thus, as predicted, participants expected John to feel bad and change his judgment when reading about how intelligent pigs were, but when presented with the same information, the effect on their feelings and judgment was muted.

Looking across the three studies, we can see a striking pattern of results (see Table 1). When the treatment of an animal has no relevance for the self (or one's group), or the animal is not being used for its meat, intelligence is consequential for the moral standing of the animal. In a lone deviant cell (shaded grey), when meat gets personal, then intelligence loses relevance.

Table 1

When intelligence matters: Summary of effects across all three studies.

	Non-Meat Animal (Tapirs, Trablans)	Meat Animal (Pigs)
Self-relevant (Me)	Intelligence Matters (Studies 1-2)	Intelligence does Not Matter (Studies 2-3)
Not Self-relevant (Scientists, John)	Intelligence Matters (Studies 1-2)	Intelligence Matters (Studies 2-3)

General Discussion

Across three studies, we found that people use intelligence information strategically when judging the moral standing of animals. Virtually everyone is affected by intelligence information when reasoning about an animal for which they have no prior knowledge (Study 1). However, our omnivore participants seemed relatively impervious to information about the intelligence of animals currently being used as food within their own culture (Study 2) and failed to use intelligence information when considering from their own perspective the moral standing of an

animal they consume (Study 3). Together these studies highlight the flexible way people utilize the characteristics relevant to the moral status of animals.

The present studies may be understood through the lens of motivated cognition (Dunning, 1999; Kunda, 1990), and extends past research into the psychological processes underlying judgments of animals. Past findings have shown that omnivores will at times reduce their attribution of mind to animals to accommodate their behavior (e.g., eating meat), perhaps to reduce cognitive dissonance (Bastian et al., 2012; Loughnan et al., 2010). Here we have shown that people also *disregard* intelligence information that is available to them when forming moral standing judgments of animals that have high self-relevance. Additionally, past research has shown that categorizing animals as food, as opposed to living beings, reduces perceptions of the animal's moral standing (Bratanova et al., 2011). Here we have shown that categorizing an animal as food leads to declinations in an animal's moral status particularly when the animal has relevance for the self.

Limitations, Future Directions, and Implications

While we see our motivational perspective applying beyond the treatment of food animals, for example, to animals used in medical research, product testing, or subject to culling programs, we cannot at this time draw firm conclusions. However, our perspective offers clear, testable predictions about the contexts in which we should expect reasoning to be motivationally biased—namely, when the questionable treatment of the animal implicates the perceiver (Table 1).

The present perspective offers a number of directions for future research. Research should examine whether people actively *avoid* intelligence information about animals that are potentially morally problematic. In one unpublished study (n=120) we found a negative correlation of r=-.28 between a person's commitment to

eating meat and their interest in reading scientific articles about the cognitive abilities of pigs, but nearly no correlation (-.01) between meat commitment and interest in reading scientific articles about dog intelligence (an animal not eaten in the participants' culture). This preliminary study suggests that people may not simply disregard problematic information; they may at times actively avoid it as well. Such a process, if it exists, would be consistent with the notion of "willful ignorance," which has been documented with regards to other consumer choices where information about a product (e.g., its ethical attributes), if requested or made known, might conflict with the motivation to use it (Ehrich & Irwin, 2005). Furthermore, investigations should widen the scope of morally relevant information employed, and the choice of animal targets. Finally, our findings cannot rule between whether omnivores were motivated by a desire to preserve the cultural tradition of eating pork or to avoid feeling guilty about eating pork themselves. Indeed, feeling guilty about how one's society treats pigs correlated strongly with feeling guilty about eating them. Nonetheless, future studies should attempt to tease apart these motivations.

Our findings have implications for animal-welfare campaigns, such as those run by PETA and Humane Society, which showcase animal intelligence as a means of persuading consumers to refrain from buying and consuming animal products. Our findings suggest that such campaigns face a difficult obstacle in the form of motivated disregard of relevant information that has implications for the consumer. Informing people about the cognitive abilities of animals may not be an effective strategy to change moral attitudes, at least not on its own, as it fails to address the underlying motivational forces operating (of course, many campaigns use a variety of strategies). Nonetheless, in cases where the mistreatment of an animal does not implicate the consumer, for example, because the person does not wittingly consume products from

the animal or the animal is valued and protected in one's culture, such mind-enhancing campaigns may prove more effective (e.g., Western campaigns petitioning China's dog leather trade or Japan's whaling fleets).

Conclusion

A number of theorists have noted how notoriously inconsistent people are in their thinking about animals. Here we have pointed to one such inconsistency; people appear to use intelligence information in a motivated fashion. In the abstract, when presented with foreign or fictitious animals eaten by distant or non-existent people, we see intelligent animals as worthy of our moral concern. When those animals are closer to home and we are the eaters, intelligence becomes conveniently irrelevant. Smart animals deserve our moral concern, unless, of course, we want to eat them.

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