



HAL
open science

Utilitarianism and the Moral Status of Animals: A Psychological Perspective

François Jaquet, Manon Delphine Gouiran, Florian Cova

► **To cite this version:**

François Jaquet, Manon Delphine Gouiran, Florian Cova. Utilitarianism and the Moral Status of Animals: A Psychological Perspective. Ethical Theory and Moral Practice, 2022, 10.1007/s10677-022-10322-8 . hal-03918052

HAL Id: hal-03918052

<https://hal.science/hal-03918052>

Submitted on 2 May 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Please cite the published version: Jaquet, F., Gouiran, M. & Cova, F. (2022). Utilitarianism and the Moral Status of Animals: A Psychological Perspective, *Ethical Theory and Moral Practice*. <https://doi.org/10.1007/s10677-022-10322-8>

Utilitarianism and the Moral Status of Animals: A Psychological Perspective

François Jaquet, Manon Gouiran, Florian Cova

Abstract

Recent years have seen a growing interest among psychologists for debates in moral philosophy. Moral psychologists have investigated the causal origins of the opposition between utilitarianism and deontology and the psychological underpinnings of people's beliefs about the moral status of animals. One issue that remains underexplored in this research area is the relationship between people's disposition to engage in utilitarian thinking and their attitudes towards animals. This gap is unfortunate considering the tight philosophical connection between utilitarianism and the claim that animals have the same moral status as humans. Indeed, the principle of utility leads naturally enough to the view that animals count every bit as much as human beings. In this paper, we report two empirical studies dedicated to bridging this gap. In Study 1, we looked at the relationship between attitudes towards animals and utilitarian judgment in the context of sacrificial dilemmas. In Study 2, we bypassed the problems raised by the use of such dilemmas as a measure of utilitarianism by relying on other types of thought experiments. Overall, our results suggest no strong correlation between utilitarianism and attitudes towards animals. Rather, the existence of a correlation between utilitarianism and attitudes towards animals very much depends on how both are measured.

1. Introduction

Since utilitarianism emerged as a distinct moral theory, most of its proponents have granted animals not only moral standing but a moral status equal to that of human beings. Animals count, and they count every bit as much as we do. As the founding father of utilitarianism put it in a famous passage, "The question is not, Can they reason?, nor Can they talk? but, Can they suffer?" (Bentham, 1789). Many animals can suffer, so their suffering is on a par with ours from the moral point of view. Two centuries later, it is again a utilitarian philosopher who started the modern animal rights movement. In his book *Animal Liberation* (1975), Peter Singer puts forward an uncompromising critique of animal agriculture and experimentation. In his view, the widespread tendency to treat animals as second-order citizens of the moral realm is a form of speciesism no more justified than racism and sexism.

A deep concern for the fate of non-human animals is thus constant throughout the history of utilitarianism. By contrast, no such consensus exists within other moral theories. While some deontologists defend animals (e.g., Regan, 1983), the leading historical figure of deontology did not care much about them. According to Immanuel Kant's indirect duty view, the duties apparently owed to animals are actually owed to human beings—animals do not

matter in themselves. Likewise, some virtue ethicists aim to account for our duties to non-humans (e.g., Hursthouse, 2006). However, their main inspiration, Aristotle, is known for defending a rather hierarchical conception of the world in which animals are certainly not our moral equals.

This relation between utilitarianism and the defense of animals is no accident. Utilitarians accept a view sometimes called “welfarism,” according to which welfare is the only bearer of intrinsic goodness. On any plausible account of welfare, humans are not the only beings for whom things can go well or badly; sentient animals have a welfare too. If welfare is all that matters intrinsically, then theirs and ours matter equally and should therefore receive equal consideration. The assignment of equal moral status to animals, and the rejection of speciesism, appears to follow quite directly from this core welfarist element of utilitarianism.

While utilitarianism was the private province of philosophers for quite a while, psychologists have recently started investigating its psychological underpinnings. Most of this research has been inspired by the dual-process model of moral judgment, according to which characteristic utilitarian judgments tend to follow rational and conscious mental processes, whereas typical deontological judgments generally result from automatic emotional reactions (Greene, 2014). Though this model has been the target of many criticisms (e.g., Kahane, 2012), its influence on the psychological study of utilitarianism has been pervasive.

But utilitarianism is not the only philosophical topic that has attracted the attention of psychologists. Another one is the moral status of animals. A growing research field is dedicated to the empirical study of our attitudes towards animals, in which several models have developed. Thus, according to the social dominance model, discrimination against humans and against other animals results from the same general tendency to support hierarchy (Dhont, Hodson, and Leite, 2016). According to cognitive dissonance theory, speciesist beliefs about the moral status of animals are shaped by our reaction to the “meat paradox”. Most people do not want to harm animals and yet do so by eating meat. This practical inconsistency generates a state of dissonance that they try to avoid by denying that animals matter much (Loughnan, Haslam, and Bastian, 2010).

In comparison, the relationship between utilitarian judgments in typical moral dilemmas and our attitudes towards animals has received only little attention.¹ To this day, only one paper discusses this issue (Bègue & Laine, 2017). In a study conducted on a French website, Laurent Bègue and Pierre-Jean Laine asked participants whether they were likely to push the fat man in the footbridge variant of the trolley problem, and to rate their agreement with two sentences about their attitudes towards animals. They found that utilitarian answers to the footbridge dilemma predicted more hostile attitudes towards animals and interpreted these results as support for the surprising claim that utilitarians are less well disposed towards animals than deontologists.

¹ Several studies investigated people’s intuitions about sacrificial dilemmas involving animals (Petrinovich et al., 1993; O’Neill & Petrinovich, 1998; Caviola et al., 2021; Caviola et al., 2022), but they did not investigate the relationship between utilitarianism when it comes to weighing human lives and attitudes towards animals.

Given the long relationship between utilitarian thinking and defense of animals emphasized above, this might seem surprising. However, we think that this conclusion might be premature, as we take Bègue and Laine's study to suffer from two important shortcomings. First, we believe that their measures of attitudes towards animals could be improved. Second, we think that their way of assessing utilitarianism introduces several confounds.

1.1. How (not) to measure attitudes towards animals?

As mentioned, Bègue and Laine's measure of attitudes towards animals contains only two items, namely: "Animals are things, livestock" and "I like animals as if they were beings having a personality." While a participant's position on this scale certainly says something about their attitudes towards animals, these items do not make for an adequate measure of people's views about the moral status of animals. Indeed, thinking that animals are not mere objects of consumption and have a personality is not the same as granting them moral standing, let alone equal consideration.

More sophisticated measures of attitudes towards animals have since been designed. Thus, Lucius Caviola and colleagues (2019) have created and validated a Speciesism Scale that aims to measure people's views about the respective moral status of humans and nonhumans. This scale includes six items, all of which present the advantage of being explicitly phrased in ethical rather than predictive terms--e.g., "It is morally acceptable to trade animals like possessions." While building their speciesism scale, Caviola et al. aimed to avoid what they call "normative confounders": the opposition between deontology and utilitarianism "is a factor that should not be captured by a speciesism scale" (2019: 4), and "it is important that items [in a speciesism scale] do not prompt different responses from deontological and consequentialist antispeciesists" (2019: 5). This is all the more important when it comes to investigating the relation between speciesist beliefs and utilitarian psychology. The worry is that several items in Caviola et al.'s Speciesism Scale are likely to prompt different responses from deontologists and utilitarians. This is especially the case of two items: "It is morally acceptable to keep animals in circuses for human entertainment" and "It is morally acceptable to trade animals like possessions." Whatever one's specific beliefs about the moral status of animals, one is more likely to answer both questions in the affirmative if one believes that an act is right insofar as it maximizes well-being than if one believes that an act is right only if it meets certain deontological constraints.

Another speciesism scale, more recently designed by one of us (Jaquet, 2021), does not raise the same worry as it involves more systematic comparisons between the interests of humans and other animals. Items such as "When human interests conflict with animal interests, human interests should always be given priority" and "The suffering of animals is just as important as the suffering of humans" should not trigger different responses from deontologists and utilitarians.

1.2. How (not) to measure utilitarianism?

Bègue and Laine's measure of utilitarianism also suffers from certain limitations. First, participants were asked to indicate how likely they were to sacrifice one person to save five. This does not constitute an appropriate measure of utilitarianism: while utilitarians are committed to the view that sacrificing the person on the footbridge is the right thing to do, they need not think they would be able to muster the strength and the resolve to do it. The relevant question is not predictive but normative. It isn't "Would you be likely to sacrifice a person for the greater good?" but "Is sacrificing this person the right thing to do?" Past research has highlighted the need to distinguish between the two kinds of questions, as they can lead to different conclusions (Cova, Boudesseul & Lantian, 2019; Tassy et al., 2013).

Second, utilitarian tendencies were measured by interrogating participants about a typical case of "sacrificial dilemmas"—that is, thought experiments in which one can either sacrifice k individuals or let n individuals die (where $k < n$). One problem, however, is that it has been argued that willingness to sacrifice one person for the greater good in such dilemmas might not necessarily reflect engagement in utilitarian reasoning. Indeed, it has been suggested that seemingly "utilitarian" answers in such dilemmas might sometimes reflect a lack of concern for the well-being of others. For example, it has been shown that "utilitarian" answers in sacrificial dilemmas are linked to higher psychopathic tendencies (Bartels & Pizarro, 2011) and do not necessarily reflect an impartial concern for the greater good (Kahane et al., 2015). Moreover, participants who gave more utilitarian answers to sacrificial dilemmas were also more "tolerant" of moral violations in non-dilemmatic contexts (Kahane et al., 2015; Gouiran, 2021). Thus, it isn't clear that responses to sacrificial dilemmas offer a satisfactory measure of utilitarian attitudes; they might instead be measuring insensitivity to the suffering of others. The correlation Bègue and Laine found between utilitarian tendencies and attitudes towards animals might then simply be due to the fact that both constructs are related to a general insensitivity to the suffering of others. As Bègue and Laine put it: "the fact that utilitarianism as measured by the trolley dilemma is related to instrumental attitudes towards animals does not necessarily imply that genuine utilitarianism represents a precursor of such an attitude" (176).

To correct for these shortcomings, we conducted two new studies in which we explored the relationship between participants' attraction towards utilitarianism and their moral concern for animals. First, in addition to Bègue and Laine's original questions, we added two more measures of attitudes towards animals. Second, we used several ways of measuring utilitarianism. In Study 1, we returned to the relationship between attitudes towards animals and utilitarian judgment in the context of moral dilemmas but, in order for our measure to be normative rather than predictive, we asked our participants whether the utilitarian option was (i) appropriate, (ii) the best option, (iii) mandatory, and (iv) permissible. In order to distinguish between authentically utilitarian response from insensitivity to the suffering of others, we also used a process-dissociation method (see Conway & Gawronski, 2013). In Study 2, we investigated the relationship between attitudes towards animals and utilitarian judgment outside of the context of sacrificial dilemmas, to avoid the specific problems raised by the use of sacrificial dilemmas as a measure of utilitarian tendencies. By relying on these various

methods and measures, we think we can paint a more faithful picture of the psychological relationship between utilitarianism and attitudes towards animals.

2. Study 1: intuitions about sacrificial dilemmas and attitudes towards animals

In this first study, we took advantage of a study we were running for another research project on the psychology of utilitarian judgment to add our three measures of attitudes towards animals and investigate the relationship between participants' intuitions about sacrificial dilemmas and their attitudes towards animals.²

The study was pre-registered on OSF (osf.io/96wja). All materials, data and analysis scripts are available at osf.io/r6fz9/

2.1. Materials and methods

In this study, 554 participants (United States residents) were recruited through Prolific Academic. After exclusion based on two attention checks, we were left with 427 participants ($M_{age} = 29.59$, $SD_{age} = 9.54$; 239 women, 178 men, 8 non-binary, 2 others). Participants were presented with 20 moral dilemmas. Dilemmas were taken from Byrd and Conway (2019) and came into 10 pairs: each dilemma existed in a *congruent* and in an *incongruent* version. In the *incongruent* version, one solution was optimal according to utilitarian standards, while the other was optimal according to deontological standards, so that utilitarianism and deontology should lead to different judgments. In the *congruent* version, one solution was optimal according to both utilitarian and deontological standards, while the other was suboptimal on both accounts, so that utilitarianism and deontology should lead to the same judgment. Here is an example:

<p><i>Incongruent Car Accident</i> - You are driving through a busy city street when all of a sudden a young mother carrying a child trips and falls into the path of your vehicle. You are going too fast to brake in time; your only hope is to swerve out of the way. Unfortunately, the only place you can swerve is currently occupied by a little old lady. If you swerve to avoid the young mother and baby, you will seriously injure or kill the old lady. Is it appropriate to swerve and hit the old lady in order to avoid the young mother and child?</p>	<p><i>Congruent Car Accident</i> - You are driving through a busy city street when all of a sudden a young mother carrying a child trips and falls into the path of your vehicle. You are going too fast to brake in time; your only hope is to swerve out of the way. Unfortunately, the only place you can swerve is currently occupied by a group of children on their way to elementary school. If you swerve to avoid the young mother and baby, you will seriously injure or kill several of them. Is it appropriate to swerve and hit the schoolchildren in order to avoid the young mother and child?</p>
--	---

² The original study is described in Gouiran M, Cova F, Moral leniency as a possible mediator for the link between reflective cognitive style and utilitarian moral judgment (unpublished manuscript).

For each dilemma, participants were asked whether it was appropriate to perform the utilitarian or suboptimal action (YES/NO). These answers were then used to compute each participant's *Utilitarian Parameter* (UP) using the following formula:

$$UP = \% \text{ of "inappropriate" answers in congruent dilemmas} - \% \text{ of "inappropriate" answers in incongruent dilemmas}$$

We also computed each participant's *Deontological Parameter* (DP) using the following formula:

$$DP = \% \text{ of "inappropriate" answers in incongruent dilemmas} / (1 - UP)$$

According to Conway and Gawronski (2013), this approach allows to distinguish a genuine utilitarian mindset (that seeks to minimize harm) from a lack of aversion against harm. Indeed, providing an "optimal" (= "appropriate") answer to an incongruent dilemma could be both the result of a desire to minimize harm and of a general lack of concern for others' welfare. Process dissociation is supposed to address this problem by counting as utilitarian only participants who choose the optimal answer to incongruent dilemma but refuse to maximize harm in congruent dilemmas.

However, our design differed from traditional process-dissociation studies to the extent that we did not only ask participants whether it was "appropriate" to perform the target action. For each dilemma, we asked participants the three following questions:

- *Standard Utilitarianism Measure*: Is it appropriate to [target action]? (YES/NO)
- *Scalar Utilitarianism Measure*: Do you think this is the best option available? (YES/NO)
- *Strong Utilitarianism Measure*: Do you think you have the moral duty to act that way? (YES/NO)

As planned in our pre-registration, we looked at data halfway through recruitment to determine whether it was worth continuing to recruit participants. We used this as an opportunity to add a fourth question:

- *Permissibility Measure*: Do you think this is morally permissible? (YES/NO)

In addition to moral dilemmas, participants were presented with a series of measures we included to assess their cognitive style:

- 3 items from the *Cognitive Reflection Test* (CRT; Frederick, 2005),
- 4 items from the *Belief Bias* task (BB; from Baron et al., 2015; original version from De Neys & Franssens, 2009),
- a 4-items Faith in Intuition scale (FI; Garrett & Weeks, 2017),
- a 8-items Actively Open-Minded Thinking scale (AOT; Baron et al., 2015)

For CRT, participants were asked to indicate how many items they were already familiar with. Participants were also presented with Gouiran and Cova's "moral leniency scale": 10 items

depicting minor moral violations and asking participants to rate how wrong these were.³ However, we won't use these results in this paper.

Finally, participants were presented with three different measures of *attitudes towards animals*:

- the 2 items used by Bègue & Laine (2017),
- the 9-items Speciesism scale used by Jaquet (2019),
- the 6-items Speciesism Scale designed by Caviola and collaborators (2019)

The items of all three measures were presented on the same page in random order.

2.2. Results

2.2.1. Attitudes towards animals scales

Pearson correlations between the different Attitudes towards animals scales, as well as their internal consistency, are presented in Table 1. Results of two Principal Component Analyses on the items used to measure Attitudes towards animals can be found in Supplementary Materials.

Table 1

Pearson correlations (and Cronbach's Alpha) for the different measures of attitudes towards animals (Studies 1 and 2).

	Study 1			Study 2		
	B. & L.	Jaquet	Caviola	B. & L.	Jaquet	Caviola
B. & L.	$\alpha = .41$	.64	.70	$\alpha = .55$	.66	.58
Jaquet	-	$\alpha = .86$	.62	-	$\alpha = .89$	.74
Caviola	-	-	$\alpha = .83$	-	-	$\alpha = .79$

2.2.2. Utilitarianism and attitudes towards animals

Pearson correlations between the different measures of moral judgment and the different measures of attitudes towards animals are presented in Table 2. Overall, utilitarianism seems to be linked to more instrumental attitudes towards animals: all three measures of attitudes towards animals are positively correlated with standard, scalar and strong utilitarianism. Permissibility is only significantly correlated with Caviola et al.'s Speciesism scale. Interestingly, correlations between attitudes towards animals and utilitarianism tend to be higher for Caviola et al.'s Speciesism scale. Overall, it seems that Bègue and Laine's results (i) can be replicated, and (ii) can be extended to other measures of attitudes towards animals, and (iii) are still present when people are asked to make more radically utilitarian judgments.

³ Gouiran M, Cova F, Moral leniency as a possible mediator for the link between reflective cognitive style and utilitarian moral judgment.

Table 2

Pearson's correlations and Bootstrapped correlations (BCa) for each measure of Attitudes towards animals and each measure of moral judgment for all participants (Study 1).

	Standard U.	Scalar U.	Strong U.	Permissibility	UP	DP	Congruent Appropriate
Cronbach's alpha	.60	.63	.67	.66			.70
B & L	.21*** [.12, .30]	.25*** [.17, .33]	.17*** [.07, .25]	.07 [-.08, .22]	-.16*** [-.25, -.07]	-.32*** [-.39, -.24]	.34*** [.26, .41]
Jaquet	.22*** [.14, .29]	.18*** [.10, .27]	.11* [.03, .20]	.12° [-.02, .27]	.05 [-.05, .14]	-.23*** [-.29, -.15]	.17*** [.10, .23]
Caviola	.39*** [.31, .47]	.41*** [.32, .48]	.30*** [.22, .39]	.27*** [.14, .39]	-.24*** [-.33, -.15]	-.54*** [-.61, -.48]	.57*** [.51, .63]

Note. ° p < .10, *p < .05, **p < .01, ***p < .001.

However, it might be that this correlation between attitudes towards animals and utilitarianism is due to the fact that both constructs are connected to a more general disregard for others' welfare. Indeed, the rightmost column in Table 2 indicates correlations between participants' attitudes towards animals and the number of times they judged "appropriate" to choose the suboptimal (i.e. more harmful) course of action in congruent dilemmas. As one can

see, the frequency of “acceptable” answers is positively correlated to more instrumental attitudes towards animals, with this correlation being highest for Caviola et al.’s Speciesism scale. Accordingly, when we measure utilitarianism through the Utilitarian Parameter (UP), which takes into account such suboptimal answers, we find that utilitarianism is negatively correlated with instrumental attitudes towards animals, except for Jaquet’ Speciesism scale.

Should we then conclude that, since UP is a better measure of utilitarianism, then utilitarianism is in fact related to less instrumental attitudes towards animals? Not really. First, the Deontological Parameter (DP) is even more strongly negatively correlated to instrumental attitudes towards animals. But, more importantly, it seems that the negative correlation between UP and attitudes towards animals is mainly driven by participants’ tendencies to make suboptimal choices in congruent dilemmas (see the rightmost column) and might have nothing to do with their proneness to make utilitarian choices in incongruent dilemmas. Indeed, one limitation of the UP as a measure of utilitarianism is that it gives participants “utilitarianism points” just for not behaving in a suboptimal way in congruent dilemmas. This means that two participants who never make utilitarian choices in incongruent dilemmas can end with different UP scores depending on their decisions in congruent dilemmas. To put it otherwise: UP does not *only* measure utilitarianism: it measures a blend of sensitiveness to harm and utilitarian decision-making. Thus, it is hard to determine whether the correlation between UP and attitudes towards animals has anything to do with participants’ tendencies to make utilitarian decisions.

However, UP has the advantage of excluding participants who might be too insensitive to the welfare of others. One way to keep this advantage without having the inconvenience of factoring participants’ choices in congruent dilemmas in their utilitarianism scores might simply be to exclude participants who prove *too* insensitive to harm in congruent dilemmas. The average percentage of “appropriate” answers in congruent dilemmas was 0.33 ($SD = 0.22$), with a median at 0.30.⁴ We thus excluded all participants who answered more than 3 times that the action was “appropriate” in congruent dilemmas and re-ran correlational analyses on the remaining 269 participants.⁵ Results are presented in Table 3.

Table 3

Pearson’s correlations and Bootstrapped correlations (BCa) for each measure of Attitudes towards animals and each measure of moral judgment for all participants, after exclusion of participants who gave more than three suboptimal answers to congruent dilemmas (Study 1).

	Standard U.	Scalar U.	Strong U.	Permissibility	UP	DP	“Yes” to Congruent
B & L	.00	.06	.01	-.06	-.02	-.05	.04
	[-.12, .12]	[-.05, .18]	[-.10, .13]	[-.29, .14]	[-.14, .11]	[-.17, .07]	[-.08, .16]

⁴ This is quite a high average, suggesting that the “moral suboptimality” of certain decisions in the congruent dilemmas might not be as obvious as intended.

⁵ This analysis was not pre-registered and was added during the analysis.

Jaquet	.16** [.04, .28]	.10° [-.01, .22]	.06 [-.05, .17]	.15 [-.07, .35]	.11° [-.02, .24]	-.17** [-.29, -.05]	.10° [-.02, .23]
Caviola	.10 [-.02, .21]	.13* [.02, .25]	.09 [-.02, .20]	.13 [-.07, .30]	.03 [-.09, .16]	-.17** [-.28, -.05]	.14* [.01, .26]

Note. ° p < .10, *p < .05, **p < .01, ***p < .001.

As one can see, most correlations between utilitarianism and attitudes towards animals tend to disappear once we exclude participants particularly willing to inflict harm in the congruent cases. This suggests that an important part of this correlation is explained by the fact that utilitarian judgment and attitudes towards animals is due to both constructs being related to a lower reluctance to sacrifice people in general.

2.2.3. Individual differences and attitudes towards animals

Finally, since the study we included our measures of attitudes towards animals in also contained measures of cognitive style, we took this as an opportunity to explore the relationship between cognitive style and attitudes towards animals. Correlations between the different measures of attitudes towards animals and the different measures of cognitive style are presented in Table 4. For CRT and Belief Bias, we also present correlations observed after excluding participants who already knew more than one item, to control for the effect of familiarity (see Byrd, 2022).

Table 4

Pearson's Correlation and Bootstrapped Correlation (BCa) Between Each Measure of Attitudes Towards Animals and Each Measure of Cognitive Style for All Participants.

	Cognitive Style					
	CRT (all)	CRT (1 or less, n = 334)	Belief Bias (all)	Belief Bias (1 or less n = 399)	Faith in Intuition for Facts	Actively Open-minded Thinking
Cronbach's alpha	.74	.72	.75	.75	.81	.67
B & L	.09° [-.01, .19]	.13* [.03, .24]	-.10* [-.19, -.00]	-.12* [-.21, -.03]	.01 [-.09, .11]	-.28*** [-.37, -.19]

Jaquet	.09° [-.00, .18]	.08 [-.02, .19]	.14** [.05, .23]	.14** [.05, .23]	-.16*** [-.26, -.07]	-.06 [-.15, .03]
Caviola	.21*** [.12, .31]	.29*** [.19, .39]	-.19*** [-.27, -.10]	-.18*** [-.27, -.09]	.13** [.04, .22]	-.39*** [-.47, -.30]

Note. ° p < .10, *p < .05, **p < .01, ***p < .001.

As one can see, no straightforward conclusion can be drawn about the relationship between cognitive style and attitudes towards animals. First, conclusions vary depending on the measure of cognitive style. For example, higher scores on Caviola and colleagues' Speciesism scale are associated with higher performance on the CRT, but with lower performance on the Belief Bias scale and lower scores on the Actively Open-Minded Thinking Scale. Second, conclusions also depend on the measure of attitude towards animals one focuses on. For example, higher performance on the Belief Bias task is negatively correlated with instrumental attitudes towards animals for Bègue and Laine and Caviola and colleagues' measures, but positively correlated for Jaquet's measure. Even if we decide to ignore the results for Bègue and Laine's measure, based on its low internal coherence, the only consistent result is the negative correlation between Faith in Intuition and speciesism. Thus, the relationship between cognitive style and attitudes towards animals depends on several factors and no single, take-home message can be extracted from our results.

3. Study 2: Utilitarianism beyond sacrificial dilemmas and attitudes towards animals

In Study 1, we explored the relationship between attitudes towards animals and utilitarianism through the lens of sacrificial dilemmas. We saw that there was a relationship between utilitarianism and a more instrumental attitude towards animals, but that most of this relationship could be explained by a third variable: a lesser sensitivity to harm that leads participants to be both less reluctant to choose the utilitarian option and less concerned about animal welfare. Once we excluded participants who signaled a willingness to harm others, this relationship became weak at best.

One way to bypass this difficulty is to move away from sacrificial dilemmas, in which it is not clear whether the choice of an utilitarian option reflects genuine utilitarian concerns or a more general callousness and insensitivity about others' welfare. Indeed, in the past years, researchers have come to realize that utilitarianism is not just about sacrificing helpless victims for the greater good and that distinct patterns of utilitarian judgment can be found and studied in other contexts (Everett & Kahane, 2020). One first step in this direction was the creation of the Oxford Utilitarianism Scale, which distinguishes two components of utilitarian thinking: the *Instrumental Harm* subscale measures participants willingness to transgress moral rules and inflict harm for the greater good (with items such as "It is morally right to harm an innocent person if harming them is a necessary means to helping several other innocent people"), while the *Impartial Beneficence* subscale measures participants' willingness to sacrifice their own resources when this might contribute to doing more good to others, independently from their own personal relationships to these other persons (with items such as "It is morally wrong to

keep money that one doesn't really need if one can donate it to causes that provide effective help to those who will benefit a great deal") (Kahane et al., 2018).

However, these are not the only two contexts in which utilitarianism and deontology can lead to opposite conclusions. Two of us have identified five contexts in which deontological and utilitarian theories can conflict.⁶ One is, of course, the context of *sacrificial dilemmas*. Another is the context of *demanding ethics* and bears on how much of our resources we have the duty to sacrifice for the welfare of other people. Utilitarian theories typically yield much more demanding conclusions than typical deontological theories (e.g., Singer, 1972). This is close to the Impartial Beneficence subscale of the Oxford Utilitarianism Scale (though see Mihailov, 2022, for the claim that other frameworks converge with utilitarianism on Impartial Beneficence). However, in addition to these two contexts, Jaquet and Cova identify three more contexts:

- *Harmless crimes*: Harmless crimes are behaviors that people tend to morally condemn, even though they involve no harm (and no risk of harm) to other people. To utilitarian theories, such behaviors should not be objects of moral condemnation. However, deontological theories allow for the condemnation of such actions (for example through the notion of "duties towards oneself").
- *Action vs. omission*: All things being equal, people tend to condemn actions more harshly than omissions (Cushman, Young & Hauser, 2006). Though several deontological theories have tried to account for and justify this distinction, it makes no sense from a utilitarian point of view. Indeed, as long as an action and an omission yield the same consequences, there can be no difference between the two from a utilitarian standpoint.
- *Punishment*: Deontological and utilitarian approaches to punishment typically involve different kinds of justification. While utilitarian justifications focus on the positive consequences of punishment (deterrence, rehabilitation and neutralization), deontologists can appeal to additional justifications that are unavailable to utilitarians, such as the idea that wrongdoers simply *deserve* to be punished, and that *desert* implies some kind of proportion between the punishment and the wrongdoing. Such considerations might lead deontological and utilitarian approaches to conflict on which factors should be given priority when determining the nature and severity of punishment.

Jaquet and Cova have thus designed a set of 60 scenarios allowing to explore utilitarian judgment in these five contexts, by pitting deontological and utilitarian judgments against each other. Here, we decided to use a short version (25 items) of their inventory to go beyond the case of sacrificial dilemmas and explore the relationship between utilitarian judgment and attitudes towards animals in a wider array of contexts.

3.1. Materials and Methods

As in Study 1, we took advantage of a study we were running for another research project on the psychology of utilitarian judgment to add our three measures of attitudes towards animals and investigate the relationship between participants' intuitions about sacrificial dilemmas and

⁶ Jaquet F, Cova F, Beyond moral dilemmas: Investigating utilitarian moral judgment on five separate moral issues (unpublished manuscript).

their attitudes towards animals.⁷ The study was pre-registered on OSF (<https://osf.io/tjxfu>). All materials, data and analysis scripts are available at osf.io/e6wc7/

In this study, 259 participants (United States residents) were recruited through Prolific Academic. After exclusion based on two attention checks, we were left with 234 participants ($M_{age} = 30.71$, $SD_{age} = 11.86$; 114 identified as men, 116 as women, 3 as non-binary, and 1 as 'other'). Participants were first presented with 27 moral vignettes. The first two vignettes were anchors presenting one obviously wrong action (murder) and one obviously acceptable action (using brown sugar instead of white sugar). The 25 other vignettes were selected among the vignettes designed by Jaquet and Cova to investigate utilitarian moral judgment across five different contexts.⁸

(1) Five vignettes investigated utilitarian moral judgment in the context of *sacrificial dilemmas*, by asking participants to which extent it is morally wrong for the main character to sacrifice a certain number of persons to save even more.

(2) Five vignettes investigated utilitarian moral judgment in the context of *harmless crimes*, by asking participants to which extent it is morally wrong for the main character to perform an action that is weird and/or disgusting but is not causing harm to anyone else. For example:

Richard is a young university student. Every Thursday night, he and three of his friends download and print the pictures of missing children. Once the pictures are printed, they usually make fun of the children, and rank the children to decide which one is the ugliest. Of course, nobody knows of their hobby, and they have a lot of fun.

How morally wrong is it for Richard to make fun of the missing children?

(3) Five *pairs* of vignettes described two stories with the same outcome but different ways to reach this outcome: while the main character of the first story achieves this outcome by *doing something* (= *action*), the main character of the second story achieves this outcome by *letting things happen* (= *omission*). Participants were asked how morally worse the first character's behavior was compared to the second character's behavior. For example:

(A) Jane's brother and his wife recently died, leaving behind a six-year old orphan, Jane's nephew. Because Jane is the orphan's only remaining relative, it is now her duty to take care of him. Jane's brother was very rich. Thus, if anything should happen to her nephew, Jane would gain a large inheritance. One evening, while the child is taking his bath, Jane sneaks into the bathroom, planning to drown him in it. She does so and arranges things so that it will look like an accident.

(B) Paula's brother and his wife recently died, leaving behind a six-year old orphan, Paula's nephew. Because Paula is the orphan's only remaining relative, it is now her duty to take care of him. Paula's brother was very rich. Thus, if anything should happen to her nephew, Paula would gain a large inheritance. One evening, while the child is taking his bath, Paula sneaks into the bathroom, planning to drown him in it. However, she then sees the child slip, hit his head and fall face down in the water. The child drowns all by himself while Paula watches and does nothing.

⁷ The original study is described in Jaquet F, Cova F, Beyond moral dilemmas.

⁸ Jaquet F, Cova F, Beyond moral dilemmas.

How much morally worse was it for Jane to drown her nephew than for Paula to let her nephew drown?

(4) Five vignettes investigated utilitarian moral judgment in the context of *demanding ethics*, by asking participants to which extent it is morally wrong for the main character to use their resources for their own good while they could have sacrificed these same resources to improve the welfare of others. For example:

One day, Samantha finds an envelope in her mailbox. The letter is from the UNICEF and asks her for a donation. The money would be used to vaccinate innocent children against malaria, in a distant country in which the disease regularly kills thousands of children. If Samantha transfers \$100, thirty children will be vaccinated. If she doesn't, they will contract malaria and die as a result. Samantha knows all that. As she prefers to keep her money, she tosses the envelope into the trash. Because they were not vaccinated, the thirty children die from malaria.

How morally wrong was it for Samantha not to send money to the UNICEF?

For these vignettes, contrary to the others, the utilitarian attitude is to condemn the action as morally wrong.

(5) Five vignettes investigated utilitarian moral judgment in the context of *punishment*, by asking participants (i) whether it is morally wrong for someone to inflict justified punishment when doing so will not contribute to the greater good, or (ii) whether it is morally wrong to inflict different punishment to two convicts who have committed the same crime, based on considerations about the utility of punishment. For example:

Jane is a judge in a small country in which the few existing prisons are already overcrowded. One day, two people, Paul and Jack, are arrested for failing to help a woman who was fatally wounded in a car accident. Because these two persons did not stop to help her, the woman died from her injuries.

In Jane's country, the average jail time for this kind of offense is one year. However, judges have the freedom to extend this time up to three years.

It turns out that Paul is the very famous son of a rich and influential family, while Jack is rich but completely unknown. For this reason, Paul's trial was highly publicized while Jack's trial was completely ignored by the media. Thus, Jane realizes that giving Paul a higher punishment would set an example and would deter further negligence. By contrast, giving Jack a longer sentence punishment would not serve any purpose, as far as deterrence is concerned.

Because Jane wants to maximize deterrence while not overcrowding the few remaining prisons, she decides to give Paul a three-year punishment while giving Jack a one-year punishment.

How morally wrong is it for Jane to give a more severe punishment to Paul?

After that, participants were presented with several questionnaires. Obviously, we included the same three different measures of *attitudes towards animals*:

- the 2 items used by Bègue & Laine (2017),
- the 9-items Speciesism scale used by Jaquet (2021),
- the 6-items Speciesism Scale designed by Caviola and collaborators (2019)

We also included three measures of cognitive style:

- 3 items from a modified version of the *Cognitive Reflection Test* (CRTm; Finucane & Gullion, 2010),
- a 4-items Faith in Intuition scale (FI; Garrett & Weeks, 2017),
- a 8-items Actively Open-Minded Thinking Scale (AOT; Baron et al., 2015)

And two additional measures of individual differences:

- The 30-items version of the Self Report Psychopathy-III (SRP) Scale (used by Bartels & Pizarro, 2011, after Paulhus et al., 2009),
- The “Empathic concern” part of the Interpersonal Reactivity Index (IRI; Davis, 1983)

Prior research has suggested that psychopathic traits and low empathic concern are related both with utilitarian judgment, at least in the case and sacrificial dilemmas (Bartels & Pizarro, 2011; Gleichgerrcht & Young, 2013; Patil & Silani, 2014) and with more instrumental attitudes towards animals (Caviola et al., 2019; Hopwood & Bleidorn, 2021; Kavanagh et al., 2013; Taylor & Signal, 2005). Thus, these traits might be a possible explanation of the apparent relationship between utilitarianism and participants’ attitudes towards animals.

3.2. Results

3.2.1. Correlation between utilitarian judgments across five domains

Before exploring the relationship between our different measures of utilitarian judgment and participants’ attitudes towards animals, we examined correlations between the different measures of utilitarian judgment. Pearson correlations are presented in Table 5.

Table 5

Pearson correlations (and Cronbach’s Alpha) for the different measures of utilitarianism (Study 2).

	SD	HC	AO	DE	P
Sacrificial dilemmas	$\alpha = 0.84$	.14*	-.04	-.03	.34***
Harmless crimes	-	$\alpha = 0.80$	.20**	-.25***	.23***
Action vs. Omission	-	-	$\alpha = 0.87$	-.13*	-.05
Demanding ethics	-	-	-	$\alpha = 0.85$	-.10

Punishment	-	-	-	-	$\alpha = 0.62$
------------	---	---	---	---	-----------------

3.2.2. Utilitarianism and attitudes towards animals

We then looked at the correlations between participants' tendency to make utilitarian judgments and their attitudes towards animals for (a) each of our three measures of attitudes towards animals, and (b) each of our five measures of utilitarian judgment. Results are presented in Table 6.

Table 6

Pearson correlations between each measure of Attitudes towards animals and each measure of Utilitarian judgment (Study 2).

	Utilitarian judgment				
	Sacrificial Dilemmas	Harmless Crimes	Action vs. Omission	Demanding Ethics	Punishment
B & L	.00	.03	.07	-.10	-.11 [°]
Jaquet	.02	.16*	.04	-.14*	.07
Caviola	.01	.20**	.03	-.09	.04

Note. [°] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

As one can see, we failed to replicate the main finding of Study 1: there was no significant correlation between utilitarian judgments in the case of sacrificial dilemmas and participants' attitudes towards animals. This could be due to three main differences with Study 1: (i) we used a different set of sacrificial dilemmas, (ii) we asked for a different type of moral judgment (i.e. we asked participants to judge whether the utilitarian choice was morally wrong rather than appropriate), and (iii) we used a third-person rather than a first-person approach. Again, this suggests that the relationship between utilitarian judgment and attitudes towards animals might be very fragile and context-dependent.

Overall, there were no strong correlations between utilitarian judgment and attitudes towards animals. Utilitarian attitudes concerning the action/omission distinction and the justification for punishment did not display any significant correlation with attitudes towards animals. As for utilitarian attitudes concerning our duties towards others ("Demanding Ethics"), utilitarian judgment tended to be *negatively* correlated with instrumental attitudes towards animals, and this correlation reached significance for Jaquet's Speciesism Scale.

The only measure of utilitarian attitude for which there was more than one significant correlation between utilitarianism and attitudes towards animals was participants' judgments about *harmless crimes*: the more tolerant participants were, the more instrumental their attitudes towards animals, as measured through Jaquet's and Caviola and colleagues' Speciesism scales. One reason might simply be that, out of five harmless crimes vignettes, three involved animals (e.g. having sex with a dead chicken or eating one's dog after it has been hit by a car). To test for this possibility we computed the correlation between utilitarian attitudes in the context of harmless crimes and attitudes towards animals after excluding these three scenarios. There was still a significant correlation with Caviola and colleagues' Speciesism Scale ($r = .20^{**}$), but the correlation with Jaquet's Speciesism Scale was only marginally significant ($r = .11^{\circ}$). This suggests that the correlation between tolerance of harmless crimes and attitudes towards animals was not simply due to the presence of animals in our vignettes.

3.2.3. Attitudes towards animals and individual differences

Additionally, we investigated the relationship between attitudes towards animals and (i) cognitive style (measured through CRT, FI and AOT), and (ii) sensitivity to harm (measured through IRI and SRP). Pearson correlations are presented in Table 6.

Table 7

Pearson's Correlation Between Each Measure of Attitudes Towards Animals and Each Measure of Cognitive Style.

	Cognitive Style				Sensitivity to harm	
	CRTm (all)	CRTm (1 or less)	FI	AOT	IRI	SRP
Cronbach's alpha	.63	.64	.83	.77	.82	.85
B & L	.13*	.13°	-.08	-.10	-.27***	.18**
Jaquet	.11°	.06	-.12°	.01	-.28***	.20**

Caviola	.18**	.14*	-.09	-.01	-.30***	.31***
---------	-------	------	------	------	---------	--------

Note. ° p < .10, *p < .05, **p < .01, ***p < .001. Total N for CRTm (1 or less) = 188.

For cognitive style, we found that higher scores on the CRT tended to correlate positively with more instrumental attitudes towards animals (except for Jaquet's Speciesism Scale). Accordingly, instrumental attitudes towards animals tended to correlate negatively with Faith in Intuition, though correlations did not reach significance. This pattern of answers was coherent with our results in Study 1. However, there was no clear correlation between attitudes towards animals and scores on the Actively Open-Minded Thinking Scale. Again, the relationship between attitudes towards animals and cognitive style is far from clear.

On the contrary, the relationship between participants' attitudes towards animals and their sensitivity to harm was very straightforward: in accordance with prior literature, more instrumental attitudes towards animals was related to lower empathic concern and higher psychopathic tendencies.

4. Conclusion

Through two studies, we explored the psychological relationship between people's disposition to make utilitarian judgments and the moral status they ascribe to animals. This relationship appears to be weak at best. In Study 1, we found that people making more utilitarian judgments in sacrificial dilemmas also had more instrumental attitudes towards animals. However, this relationship disappeared in Study 2 and seems to be mostly due to the fact that certain seemingly "utilitarian" judgments only reflect a willingness to sacrifice people, whether or not this is the optimal decision. In Study 2, we investigated utilitarian judgments beyond sacrificial dilemmas, in four other contexts. Though we found no strong connection between attitudes towards animals and utilitarian thinking across the board, our results suggest that people who are more tolerant about harmless crimes also ascribe lower moral status to animals. However, further research will be needed to confirm the existence of this relationship. Overall, our results suggest that, at a psychological level, there is no strong and robust relationship between the moral status people ascribe to animals and their tendency to engage in utilitarian thinking.

Appendix. Measures of attitudes towards animals

A1. Bègue and Laine (2017)'s two-items measure

- 1) Animals are things, livestock.
- 2) I like animals as if they were beings having a personality. [RC]

A2. Caviola, Everett and Faber (2019)'s Speciesism Scale

- 1) Morally, animals always count for less than humans.
- 2) Humans have the right to use animals however they want to.
- 3) It is morally acceptable to keep animals in circuses for human entertainment.
- 4) It is morally acceptable to trade animals like possessions.
- 5) Chimpanzees should have basic legal rights such as a right to life or a prohibition of torture. [RC]
- 6) It is morally acceptable to perform medical experiments on animals that we would not perform on any human.

A3. Jaquet (2021)'s Speciesism Scale

- 1) We should always elevate human interests over the interests of animals.
- 2) When human interests conflict with animal interests, human interests should always be given priority.
- 3) We should strive to alleviate human suffering before alleviating the suffering of animals.
- 4) The suffering of animals is just as important as the suffering of humans. [RC]
- 5) Having extended basic rights to minorities and women, it is now time to extend them also to animals. [RC]
- 6) Just like discriminating against other races or genders, discriminating against other species is wrong. [RC]
- 7) Too much fuss is made over the welfare of animals these days when there are many human problems that need to be solved.
- 8) Animals should be granted the same rights as humans with comparable mental capacities (such as babies and people with severe mental disabilities). [RC]
- 9) I am as much concerned about pain and suffering in animals as I am about pain and suffering in humans. [RC]

References

- Baron J, Scott S, Fincher K, Metz SE (2015) Why does the Cognitive Reflection Test (sometimes) predict utilitarian moral judgment (and other things)? *Journal of Applied Research in Memory and Cognition* 4(3):265-284. <http://dx.doi.org/10.1016/j.jarmac.2014.09.003>
- Bartels DM, Pizarro DA (2011) The mismeasure of morals: Antisocial personality traits predict utilitarian responses to moral dilemmas. *Cognition* 121(1):154-161. <http://dx.doi.org/10.1016/j.cognition.2011.05.010>
- Bègue L, Laine PJ (2017) Moral utilitarianism and attitudes toward animals. *Ethics & Behavior* 27(3):173-178. <https://dx.doi.org/10.1080/10508422.2016.1162720>
- Bentham J (1789) *An introduction to the principles of morals and legislation*. Methuen, London
- Byrd N (2022) Great minds do not think alike: Philosophers' views predicted by reflection, education, personality, and other demographic differences. *Review of Philosophy and Psychology*. <https://doi.org/10.1007/s13164-022-00628-y>
- Caviola L, Everett JA, Faber NS (2019) The moral standing of animals: Towards a psychology of speciesism. *Journal of Personality and Social Psychology* 116(6):10-1029. <https://doi.org/10.1037/pspp0000182>
- Caviola L, Kahane G, Everett JA, Teperman E, Savulescu J, Faber NS (2021) Utilitarianism for animals, Kantianism for people? Harming animals and humans for the greater good. *Journal of Experimental Psychology: General* 150(5):1008-1039. <https://doi.org/10.1037/xge0000988>

- Caviola L, Schubert S, Kahane G, Faber NS (2022) Humans first: Why people value animals less than humans. *Cognition*, 225:1-18. <https://doi.org/10.1016/j.cognition.2022.105139>
- Conway P, Gawronski B (2013) Deontological and utilitarian inclinations in moral decision making: A process dissociation approach. *Journal of Personality and Social Psychology* 104(2):216-235. <http://dx.doi.org/10.1037/a0031021>
- Cova F, Boudesseul J, Lantian A (2019) “Sounds fine, but no thanks!”: On distinguishing judgments about action and acceptability in attitudes toward cognitive enhancement. *AJOB Neuroscience* 10(1):57-59. <https://doi.org/10.1080/21507740.2019.1595777>
- Cushman F, Young L, Hauser M (2006) The role of conscious reasoning and intuition in moral judgment: Testing three principles of harm. *Psychological Science* 17(12):1082-1089. <https://doi.org/10.1111/j.1467-9280.2006.01834.x>
- Davis MH (1983) Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology* 44(1):113-126. <https://doi.org/10.1037/0022-3514.44.1.113>
- Dhont K, Hodson G, Leite AC (2016) Common ideological roots of speciesism and generalized ethnic prejudice: The social dominance human–animal relations model (SD–HARM). *European Journal of Personality* 30(6):507-522. <https://doi.org/10.1002/per.2069>
- Everett JA, Kahane G (2020) Switching tracks? Towards a multidimensional model of utilitarian psychology. *Trends in Cognitive Sciences* 24(2):124-134. <https://doi.org/10.1016/j.tics.2019.11.012>
- Finucane ML, Gullion CM (2010) Developing a tool for measuring the decision-making competence of older adults. *Psychology of Aging* 25(2):271-288. <https://doi.org/10.1037/a0019106>
- Frederick S (2005) Cognitive reflection and decision making. *J Economic Perspectives* 19(4):25-42. <https://doi.org/10.1257/089533005775196732>
- Garrett RK, Weeks BE (2017) Epistemic beliefs’ role in promoting misperceptions and conspiracist ideation. *PloS one* 12(9):e0184733. <https://doi.org/10.1371/journal.pone.0184733>
- Gleichgerrcht E, Young L (2013) Low levels of empathic concern predict utilitarian moral judgment. *PloS One* 8(4):e60418. <https://doi.org/10.1371/journal.pone.0060418>
- Gouiran M (2021) Le jugement moral utilitariste: véritable utilitarisme ou laxisme moral ? Master thesis, University of Geneva
- Greene JD (2014) Beyond point-and-shoot morality: Why cognitive (neuro)science matters for ethics. *Ethics* 124(4):695-726. <https://doi.org/10.1086/675875>
- Henry B (2004) The relationship between animal cruelty, delinquency, and attitudes toward the treatment of animals. *Society & Animals* 12(3):185-207. <https://doi.org/10.1163/1568530042880677>
- Hopwood CJ, Bleidorn W (2021) Antisocial personality traits transcend species. *Personality Disorders: Theory, Research, and Treatment* 12(5):448-455. <https://doi.org/10.1037/per0000463>
- Hursthouse R (2006) Applying virtue ethics to our treatment of the other animals. In: Welchman J (ed), *The practice of virtue: Classic and contemporary readings in virtue ethics*. Hackett Publishing, Indianapolis, pp. 136-55.
- Jaquet F (2021) A debunking argument against speciesism. *Synthese* 198(2):1011-1027. <https://doi.org/10.1007/s11229-019-02080-5>
- Kahane G (2012) On the wrong track: Process and content in moral psychology. *Mind & Language* 27(5):519-545. <https://doi.org/10.1111/mila.12001>

- Kahane G, Everett JA, Earp BD, Farias M, Savulescu J (2015) "Utilitarian" judgments in sacrificial moral dilemmas do not reflect impartial concern for the greater good. *Cognition* 134:193-209. <https://doi.org/10.1016/j.cognition.2014.10.005>
- Kahane G, Everett JA, Earp BD, Caviola L, Faber NS, Crockett MJ, Savulescu J (2018) Beyond sacrificial harm: A two-dimensional model of utilitarian psychology. *Psychological Review* 125(2):131-164. <https://doi.org/10.1037/rev0000093>
- Kavanagh PS, Signal TD, Taylor N (2013) The Dark Triad and animal cruelty: Dark personalities, dark attitudes, and dark behaviors. *Personality and Individual Differences* 55(6):666-670. <https://doi.org/10.1016/j.paid.2013.05.019>
- 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(1):156-159. <https://doi.org/10.1016/j.appet.2010.05.043>
- Mihailov E (2022) Measuring impartial beneficence: a Kantian perspective on the Oxford Utilitarianism Scale. *Review of Philosophy and Psychology*. <https://doi.org/10.1007/s13164-021-00600-2>
- O'Neill P, Petrinovich L (1998) A preliminary cross-cultural study of moral intuitions. *Evolution and Human Behavior* 19(6):349-367. [https://doi.org/10.1016/S1090-5138\(98\)00030-0](https://doi.org/10.1016/S1090-5138(98)00030-0)
- Patil I, Silani G (2014) Reduced empathic concern leads to utilitarian moral judgments in trait alexithymia. *Frontiers in Psychology* 5:1-12. <https://doi.org/10.3389/fpsyg.2014.00501>
- Paulhus DL, Neumann CS, Hare RD (2009) *Manual for the Hare Self-Report Psychopathy Scale*. Multi-HealthSystems, Toronto
- Petrinovich L, O'Neill P, Jorgensen M (1993) An empirical study of moral intuitions: Toward an evolutionary ethics. *Journal of Personality and Social Psychology* 64(3):467-478. <https://doi.org/10.1037/0022-3514.64.3.467>
- Regan T (1983) *The case for animal rights*. University of California Press, Berkeley
- Singer P (1972) Famine, affluence, and morality. *Philosophy and Public Affairs*, 1(3), 229-243.
- Singer P (1975) *Animal liberation*. Thorsons, London
- Tassy S, Oullier O, Mancini J, Wicker B (2013) Discrepancies between judgment and choice of action in moral dilemmas. *Frontiers in Psychology* 4 :1-8. <https://doi.org/10.3389/fpsyg.2013.00250>
- Taylor N, Signal TD (2005) Empathy and attitudes to animals. *Anthrozoös* 18(1):18–27. <https://doi.org/10.2752/089279305785594342>