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## **Ethics and the Science of Animal Minds**

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### **Abstract**

Ethicists have commonly appealed to science to bolster their arguments for elevating the moral status of nonhuman animals. I describe a framework within which I take many ethicists to be making such appeals. I focus on an apparent gap in this framework between those properties of animals that are part of the scientific consensus, and those to which ethicists typically appeal in their arguments. I will describe two different ways of diminishing the appearance of the gap, and argue that both of them present challenges to ethicists seeking a firm scientific basis for their claims about the moral status of animals. I argue that more clarity about the role of appeals to science by applied ethicists leads to questions about the effectiveness of such appeals, and that these questions might best be pursued empirically.

**Key words:** Ethics, Animal Minds, Cognitive Ethology

## **Ethics and the Science of Animal Minds**

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In the three decades since the publication of Singer's *Animal Liberation*[1], philosophers seeking to elevate the public estimation of animals' moral status have commonly appealed to science to bolster their arguments. Works written in the second and third decades after Singer provided increasingly detailed and sophisticated discussions of the scientific literature on animal behavior and animal minds[2], and at least one philosopher prominent in the animal ethics literature has also contributed to the theoretical foundations of cognitive ethology[3].

These philosophers have cited from a range of sciences to support their views. Generalized appeals to evolutionary biology and Darwinian ideas of mental continuity are *de rigueur* throughout this period (featured, e.g., in the title of Rachels' book[4]). Singer also appealed to contemporary neuroscience, and as the literature on neuroscience has grown so has ethicists' use of it. Rollin[5] provides a detailed discussion of the rise and fall of behaviorism in psychology, which he correlates inversely with willingness to heed the cries of animals as morally significant indicators of suffering. DeGrazia[6] and Varner[7] dive even more deeply into the scientific literature, surveying multiple sources in neuroscience, veterinary medicine, comparative psychology, and cognitive ethology. In the present decade, philosophical discussion of animal ethics continues to be fed by scientific studies which seem to enlarge the boundaries of moral status or subjecthood, such as the recent description of nociceptors and lip-rubbing behavior in fish.[8]

Although not comprehensive, this high level overview of three decades of scholarly activity suggests that increasingly detailed knowledge of the neural, behavioral, and cognitive systems of nonhuman animals has equipped pro-animal ethicists with premises supporting increasingly inclusive arguments for higher moral status for animals. On closer inspection, this appearance may be deceptive. The demise of behavioristic scruples among scientists may have been exaggerated by philosophers with an agenda, and a more detailed look at the current controversies surrounding mental state attributions in animals may, in fact, cause simple faith in Darwinian continuity to falter -- a worry that Jim Rachels expressed to me not long before his untimely death.

In this paper I describe a framework within which I take many applied ethicists concerned with the moral status of animals (both “pro” and “con”) to be making their appeals to science. I focus on an apparent gap in this framework between those properties of animals that are part of the scientific consensus, and those to which ethicists typically appeal in their arguments. I will describe two different ways of diminishing the appearance of the gap, and argue that both of them present challenges to ethicists seeking a firm scientific basis for their claims about the moral status of animals. I argue that more clarity about the role of appeals to science by applied ethicists leads to questions about the effectiveness of such appeals, and that these questions might best be pursued empirically.

### **The structure of appeals to science**

A common structure of arguments for and against moral status in animals is as follows:

- (1) Argue that moral status depends on possession of properties *M*.
- (2) Assess the scientific evidence that nonhuman animals satisfy *M*.

(3) Conclude accordingly for or against moral status for nonhuman animals.

This argumentative structure provides a common framework even among authors who (1) disagree on the list of properties belonging to  $M$ , (2) disagree on what the scientific evidence entails, and (3) come to different conclusions on the issue of according moral status to animals.

Candidates for  $M$  (which may contain one or more members) include the capacity to feel pain, the capacity to suffer, having interests or desires, and being a rational, self-reflective agent capable of social cooperation and deception. I do not intend this to be a complete list, or to enter the debate about what the morally relevant  $M$ -properties are. Nor, therefore, will I be defending any specific view about the moral status of animals or the extent to which it may come in degrees. Instead, I am interested in how some ethicists themselves have employed science in their arguments.

Clearly, the choice of  $M$ -properties in (1) affects approaches to (2). Particularly significant, in this respect, is that the typical candidates for  $M$  -- mental properties such as consciousness, pain, suffering, desires, rationality, self-reflectiveness -- are not typical terms found in scientific descriptions of animals. This sets up a particular hurdle for satisfactorily dealing with (2), to connect what's a matter of scientific consensus to what's morally significant.

Perhaps ethicists should not take this tack[9]. They could instead take the scientifically observable properties as conferring moral status directly. So, for example, instead of seeing complex social living among primates, canids (members of the dog family), or cetaceans (i.e. whales and dolphins), as evidence for some mental property which gives those animals moral status, we could take the social interactions themselves, or the proven capacity to engage in such interac-

tions, to be of moral significance. Such a move would make (2) above much less fraught, as all parties to the debate agree that these animals do participate in complex social arrangements. The cost of simplifying the approach to (2) in this way is, of course, more controversy about (1) for it would have to be argued why such properties confer moral status and thus belong in *M*. But by dodging issues of consciousness (just as biocentric views in environmental ethics do), sacrifices the substantial initial plausibility of “sentientism” -- the view that sentience (the capacity for feelings requiring consciousness) is important because it provides a perspective from which things are valued and thus “matter” to a subject[10].

Arguments turning on the phylogenetic relatedness of humans to great apes face similar difficulties. The close relationship of chimpanzees to humans is a matter of relatively stable scientific consensus, and it features prominently in the animal rights and welfare literature[11]. Yet is generally considered to be only of indirect moral significance, insofar as relatedness underpins continuity claims with respect to appropriate *M*-properties[12]. Although some ethicists are tempted to argue that genetic or phylogenetic relatedness is itself a morally relevant property, such a position faces a barrage of familiar objections from ethical theorists. The use of observable behavioral or social characteristics would not face the same objections, but would face analogous worries about their significance to moral theory.

Regardless of the full range of options open to ethicists, I will stick to discussing the common strategy of choosing *M*-properties that are not directly observable, thus setting up a debate about (2). We recognize, then, that there appears to be an epistemological gap between the unobservable *M*-properties of animals that ethicists usually consider morally significant, typically mental

properties, and the observable properties of animals that are uncontroversially amenable to scientific report. Many scientists are themselves interested in the mental properties of nonhuman animals, and it is, of course, possible to find scientists who take strong stands on both sides. But even those scientists who strongly advocate greater moral status for animals recognize that there are epistemological problems in getting from observations that pass through scientific peer review without raising eyebrows, to mental properties such as consciousness and the like that are considered so important for moral status. The reluctance of many scientists to go from what is scientifically uncontroversial about animal behavior or physiology on the one hand, to the kinds of commonsense judgments about animal sentience and consciousness that frequently drive ethical arguments on the other cannot be entirely dismissed as conceptual confusion on the part of scientists. Neither, for reasons that I describe below, is the controversy among scientists a product of excessive skepticism.

The philosophical literature provides two basic strategies for dealing with the alleged gap. One strategy acknowledges a gap and attempts to bridge it *inferentially*: i.e., the attribution of the relevant mental states is based on an inference from considerations of behavioral and neurological similarity, typically bolstered by claims about evolutionary continuity. This is the strategy of most the authors mentioned so far, and usually the inference is put in terms of an argument by analogy, although sometimes it is cast as an inference to the best explanation. The other approach is *non-inferential*, downplaying the appearance of a gap and arguing that our knowledge of animal minds derives directly from our interactions with animals.[13] As Searle puts it: “I do not infer that my dog is conscious, any more than, when I came into this room, I inferred that the

people present are conscious. I simply respond to them as is appropriate to conscious beings. I just treat them as conscious beings and that is that.”[14]

### **From observation to moral significance: non-inferential approaches**

As an account of the psychology of his response to animals, Searle may be correct. But such an account seems inadequate to the actual demands for justification encountered in scientific contexts, and in legal or ethical contexts where scientists' opinions often carry considerable weight. Searle's point, of course, is that such demands are unwarranted -- signs of a Cartesian mindset, he likes to claim, which regards mental states as hidden (albeit material) causes. But Searle is writing as a philosopher of mind, not an ethicist, so his dialectical situation allows him to challenge scientific dogma. If ethicists are to appeal to science to justify their claims about the moral status of animals, they must do so on the basis of actual science, rather than the future science envisaged by Searle.

Previously, on the basis of a more detailed discussion of the limitations of Searle's approach, I was quite dismissive of non-inferential accounts.[15] I no longer wish to be quite so dismissive. I still don't agree with Searle's version of it, but I find Dale Jamieson's interpretivism to be of greater potential interest in the present context, both because it is offered as an immediately available account of the actual practice of cognitive ethologists, and because Jamieson takes the science, thus conceived, to play an important role in promoting moral progress.

Jamieson is optimistic that there has actually been moral progress in human-animal relations.[16] At the first stage of moral progress he mentions the increasingly wide recognition that there ex-

ists a practice of harmful subordination of animals to human ends and that this subordination is a moral issue. He also sees three further stages of progress in (i) the introduction of some paternalistic protections for subordinated animals, (ii) the introduction of “negative rights” for animals which entitles them to certain kinds of non-interference and freedom from harms caused by humans, and (iii) some partial movement towards “positive rights” for nonhuman animals, i.e., the recognition that some animals may be entitled to specific services or contributions from humans when that would enable them to fulfill their own ends (for instance, this might include a right to health care for elephants if we notice that they are dying of some disease).

Jamieson maintains that despite its sometimes fussy attention to argumentative details, moral philosophy has contributed importantly to real moral progress in the area of human-animal interactions, by bringing into the foreground questions about the internal consistency of our moral practices and views. However, he believes, external challenges to conceptual frameworks that support subordination are sometimes required, and he notes the moral lessons provided by scientific work that brings people to see animals as “complex, intelligent creatures”.

At first glance, the connection seems tight between two major themes of Jamieson's work: the scientific study of animal minds and the morality of our treatment of nonhuman animals. Yet, on closer inspection, the two endeavors can seem rather disjoint, especially given Jamieson's preference for non-inferential approaches to animal mental states. Take, for example, Jamieson's claims about our recognition of the mental states of other animals. Whereas a central issue for the scientific epistemology of animal cognition concerns the basis for inferring cognitive and emotional states from behavior, Jamieson (like Dennett[17]) prefers to think of our understand-

ing of the mental states of others as having more in common with perception and interpretation -- a form of animal hermeneutics (a label he accepts with reluctance). Quite reasonably he makes the point that familiarity with his dog makes him a more sensitive interpreter of her emotional and cognitive states. But if this is true, what has science got to do with it? If this kind of sensitivity to a familiar animal is sufficient (in non-pathological human beings) to motivate ethical behavior towards that animal, what need is there for science?

Jamieson does not merely appeal to cognitive ethology; he has, as I mentioned above, written about its foundations. He is therefore well aware of the scientific skepticism that ethologists face when attributing emotions and complex cognition to nonhuman animals. But in this context the hermeneutical move is singularly ineffective. The scientist expects a particular kind of justification of mental state attributions that is not satisfiable by pointing to how deeply ingrained and conceptually unifying our everyday practices of interpreting animals mentalistically are. Jamieson attempts to dismiss these skeptical responses writing that they should not be “permitted to infect science”.[18] But I disagree: The kind of skepticism that should not be permitted to infect science is the kind that denies any empirical content to the skeptical claims -- Descartes’ evil genius, for instance, is, by hypothesis, empirically undetectable. But the demand for justification of the claim that a tiger pacing in the zoo is bored, or that the hooked fish is in pain is not self-evidently in the same league.

Ethologists know that it often takes a great deal of experience observing animals before they can begin to understand their activities. Konrad Lorenz claimed that ethologists must develop their expertise by engaging in what he called “presuppositionless observation” and he thought only

those who love animals are willing and able to endure the “simply prodigious amount of time, spent in presuppositionless observation” that is a necessary basis for understanding animals.[19] Nowadays, sophisticated as we are about the theory-laden nature of observation, we may smile at the phrase “presuppositionless observation”. Nevertheless, there is a serious claim worth considering here about the role played in ethology of “just watching” animals, outside the context of any experiment.[20] Why might loving animals enough to watch them intensively matter? A suggestion is provided by Darwin when he writes: “It is a significant fact, that the more the habits of any particular animal are studied by a naturalist, the more he attributes to reason, and the less to unlearned instincts.”[21]

I believe that what is being described here is the development of true expertise, but it is not an expertise that is automatically recognized as such by all scientists, many of whom charge cognitive ethologists with being overly anthropomorphic. Even for those scientists who do allow themselves to describe animals in rich cognitive terms, it is an essential part of the mix that they also bring a professionally skeptical attitude that drives them to seek experimental justifications for their hard-won expertise. The interpretive practices of daily life are too prone to wishful thinking, as the number of people who believe that their pets are psychic attests. I would not maintain that scientists differ in kind -- they too are human, prone to wishful thinking, confirmation bias, etc., just like the rest of us. But their professional training and interactions with other scientists bring a scientific brand of skepticism to bear on questions of mental state attributions to animals.

This brand of skepticism should not be confused with the radical philosophical skepticism that I agree has no place in science. But when is a skeptical attitude too radical? By referring to Descartes' evil genius, above, I suggested that radical skepticism is that which is unanswerable by empirical means. By this standard, one cannot tell simply by asking *what* is doubted whether the doubt is scientifically unreasonable. One must also know why something is doubted. Common sense might suggest that it is unreasonable to doubt the existence of conscious pain in many non-human animals, for instance dogs, but if that doubt is based on a theory of consciousness which supplies empirical criteria, then it cannot simply be dismissed as too radically skeptical. Of course, we may examine the theory and find it wanting, or find that the available evidence does favor the view that dogs experience pain consciously. But this is to take the worry seriously, in a way that many ethicists are too impatient to do. (As one of the reviewers of this paper put it: "If there's skepticism that mammals and birds feel pain, that's just sad.") When a scientist does assume that no empirical evidence can be relevant, then philosophers may be in a position to point out the unfortunate consequences of such radical skepticism. But insofar as a skeptical attitude is empirically grounded, it can't be dismissed as quickly as some ethicists would like. This is not to say that philosophers must just accept whatever skeptical claims are made by scientists. Some of them are based on conceptual schemes which philosophers have good grounds for questioning. In other cases, philosophers need to work harder to articulate why they think specific empirical evidence is relevant to the mental state attributions they think should be beyond questioning.

Here, the details matter. We may be talking about *M*-states ranging from feeling pain, to having beliefs and desires about past and future or concerning the minds of self and others. There are different grounds for skepticism about the capacities of nonhuman animals with respect to the

various different kinds of states. In my own work, I have often been concerned with the attribution of basic intentional states that are characterized in terms of their conceptual content. Jamieson objects to my inferential approach to empirically investigating the concepts possessed by animals on the grounds that “it doesn't ... seem very cognitive.” He continues, “Content that is inferred from fairly crude discrimination experiments and concepts that are straightforwardly reducible to neural states all seem rather remote from human cognition.” The problem, he suggests, lies “with the notion of content itself.” Here, Jamieson makes the hermeneutic move again: he writes, “content ascription is part of a practice deployed in order to make ourselves and others intelligible. Within this practice, content ascription is a heuristic that is fundamentally interpretative and interest-relative.” [22]

Jamieson states clearly that the science of cognitive ethology must go beyond the everyday practices of content ascription, and he believes that inferences to mental states have a role to play in the science. But he also argues that the interest-relative nature of content attribution means that there are no determinate facts of the matter about what an animal “really” thinks.[23] I agree that our standards for accepting various content attributions are context-sensitive, and to that extent interest-relative. For some purposes, such as explaining why a monkey moved in a particular direction, it may be enough to attribute to the monkey the belief that there is an aerial predator nearby, but if we have an interest in explaining other features of the same response, such as how quickly it moved, we may need to attribute a belief about the specific type of avian threat. Because we don't always care about the details (and often they get in the way) we will often be satisfied with relatively imprecise characterizations of the conceptual structure of animals.

But I worry that a fallacy is being committed when such “slackness”[24] is used to argue for indeterminacy. Just because we typically don't want or need to know exactly what brand of cereal a person had for breakfast (and we may often lack any means of obtaining the information) it does not follow that there is no fact of the matter about what they ate. Or just because we may not care or know the exact Pantone™ shade of the paint in Jamieson's kitchen, it does not follow that there is no fact of the matter. Whether an animal has a general concept of avian predator or more specific concepts of different predatory hawks is a matter of inference that can only be based upon careful observations of the discriminations that the animal in fact makes under various circumstances. Of course, no singly-observed behavior or crucial experiment clinches the attribution, and in most cases investigations cease while there is still considerable vagueness, when content attributions are only approximate. Crude experiments yield only crude approximations, whether one is talking about concepts or early attempts to measure the speed of light. Yet recent work in cognitive ethology, such as that by Seyfarth & Cheney on baboons' knowledge of their social hierarchy or Slobodchikoff's work on the communicative abilities of prairie dogs[25], has revealed far more about conceptual structure and supports more precise content specification than philosophers might have imagined could be justified on the basis of behavioral observations. The descriptions of baboon and prairie dog concepts are still undoubtedly crude. But the scientific progress in this area has come from refining empirical methods, not by renouncing empiricism in favor of hermeneutics.

### **From observation to moral significance: Inferential approaches**

Among ethicists taking a more standard inferential approach to the attribution of mental states and properties in animals, DeGrazia provides a convenient example[26] given that he derives

much of his approach to understanding animal minds in general, and content and concepts in particular, from the kinds of scientific studies that I also have cited. Unsurprisingly, therefore, I generally agree with his conclusions about the possibility for robust attributions of intentional mental states to nonhuman animals on the basis of inferences drawn from their behavior. But my purposes as a philosopher of science and philosopher of mind have been generally to nudge science in a particular direction rather than to report scientific consensus. This puts me in rather a different dialectical position than the ethicist who seeks to appeal to science to bolster an ethical conclusion.

DeGrazia is careful to provide critical perspective on the claims he makes on behalf of animal minds, but, appropriately for philosophical readers, his critical radar is calibrated mostly to objections arising within philosophy, such as eliminative materialism[27] and higher-order (self-reflective) theories of consciousness[28], and his responses draw from works by partisans of cognitive ethology. Being one of those partisans, I largely agree with his responses to those criticisms, but I think he may overestimate the extent to which the behavioral sciences generally and cognitive ethology in particular provide the kind of scientific consensus that can firmly support the ethical arguments.

I cannot hope to defend fully the broad claim that I have just sketched, but from personal experience I can relate that there is wide skepticism about mentalistic notions among many ethologists true to the ideas of Lorenz and Tinbergen. Even greater skepticism is found among comparative psychologists, particularly those coming from a traditional animal learning and behavior background. These ‘neo-behaviorists’[29] embrace cognitive ideas and methods, but they are far

more cautious about using terms like ‘desire’ or ‘consciousness’ (in its various senses[30]) than the cognitive ethologists who are among the prime exhibits for ethicists seeking scientific support for their attributions of *M*-properties to nonhuman animals. More public evidence of the lack of scientific consensus about issues that matter to ethicists can be seen in the scientific debate about whether fish feel pain.[31] Of course, fish are a taxonomic group that is considered somewhat marginal to the ethical debate, and perhaps there is more consensus about the large mammals and poultry that form the backbone of the meat industry, or about the small mammals that fill the pipeline for drug testing. But even in these cases, there is often more disagreement among scientists than ethicists admit about how to interpret the facts about anatomical, physiological, and behavioral similarities between those animals and humans. (Clive Wynne provides a recent expression of skepticism.[32] The wide range of reviews of Wynne's book, positive to negative, reveals the lack of consensus among scientists.)

It would be unreasonable to expect the ethicist to reason only from scientific certainties -- say only those statements comparable in certainty to the claim that the earth is not at the center of the universe. Appeals to cognitive ethology may be highly suitable for reassuring those already disposed to believe that animals deserve more protection from human interference. Likewise, pointing out neurological similarities may also seem compelling to those who wish to be assured that their common sense judgments about animal experiences can be mapped onto physiological and anatomical similarities between humans and nonhuman animals. But others will want more than this. They might point out, for example, that for any similarities that are described in such reports, there are also dissimilarities. Humans have significantly more neural tissue than rats, dogs, or monkeys, presumably allowing more sophisticated forms of cognitive processing. With-

out a theoretical reason for connecting physiology and behavior to the relevant mental states or *M*-properties, it's hard to say exactly how useful these comparisons are. No matter what one says about the analogies between human and nonhuman physiology, a more detailed description will reveal differences that might be relevant to questions about the *M*-properties.[33] Without knowing more about the intended targets of the arguments, we cannot say whether this kind of skeptical worry will be effective.

### **Practical consequences**

Jamieson believes that regardless of how one thinks mentalistic notions should be understood to operate in cognitive ethology, the science is important to ethics: “How we study animals and what we assert about their minds and behaviour greatly affects how they are treated, as well as our own view of ourselves,” he writes.[34] The demonstration that “the same explanations that apply in one case often apply in the other ... carries deep and profound moral lessons” because of which “some people find this science to be subversive”[35] -- i.e. a challenge to the status quo. But I cannot help wondering just how deep these moral lessons are. I don't, for example, find the cognitive ethologists I know to be any more likely to be vegetarians than academics from other parts of the university. If the very people producing the “subversive science” don't seem to have moved all that far along Jamieson's stages of moral progress, then one might well wonder whether promoting cognitive ethology is the right tack. Or, at the very least, it might be insufficient if not combined with a certain kind of moral education.

There is another worry lurking here -- one that has been expressed by some of the more radical defenders of positive rights for animals -- that cognitive ethology is not subversive at all, but, in

fact, deeply reactionary and an impediment to moral progress. Thus, for example, Francione writes: “Although it appears to be progressive, to indicate that we really are evolving in our moral relationship with other species, the similar-minds approach actually reinforces the very paradigm that has resulted in our excluding non-humans from the moral community. We have historically justified our exploitation of non-humans on the ground that there is a qualitative distinction between humans and other animals: the latter may be sentient, but they are not intelligent, rational, emotional or self-conscious.”[36] Even while cognitive ethologists describe greater similarities than ever between humans and animals, Francione seems concerned that this will only create a privileged class of those species deemed most similar to us. As this argument goes, the science is thus an impediment to moral treatment of animals because it implicitly accepts the assumption that the relevant *M*-properties are the ones which require further research.

Francione does not entirely jettison appeals to science, as when he includes the mandatory appeal to Darwinian continuity, writing that “It is astonishing that 150 years after Darwin, we are still so surprised that other animals may have some of the characteristics thought to be uniquely human.”[37] But his appeal to Darwinism is too crude to capture the actual scientific debate about just what Darwinism implies about mental continuity. On Francione’s view, scientific (and philosophical) fretting about the exact nature of their emotions and cognitive abilities gets in the way of recognizing the simple, morally relevant facts of animal pain and suffering. We don’t need philosophers or scientists to tell us that the video showing animals in Chinese fur factories being skinned alive[38] shows something that is morally wrong. Even worse, from Francione’s point of view, scientific studies of animal cognition lead to all kinds of interference with animals that is detrimental to their liberty and well-being.

Let me be plain that I don't endorse this argument, nor the extreme animal liberationist view of its author. Francione's insinuation that the experiments conducted by cognitive ethologists also directly harm the animals they study is either overblown or draws the boundaries of cognitive ethology too broadly.[39] Nevertheless, there is an important challenge to science-friendly, pro-animal ethicists to explain more carefully why they need more science and to justify the collection of the data they need. The challenge seems particularly pressing for approaches such as Jamieson's that see the attribution of mental states to animals as embedded in social practices that are larger than science, and that don't rest on the narrower kinds of empirical justification that I have argued are part and parcel of the proper amount of scientific skepticism. If Jamieson is right about his understanding of his dog's mental states, then he hardly benefits from having the properly skeptical cognitive ethologist by his side questioning his daily hermeneutics. If attributing concepts and mental content to animals is "as much a matter of marshaling conceptual considerations as empirical ones"[40] -- by which I presume he means as much a matter of deciding what we mean by mentalistic language as it is a matter of deciding what the empirical facts are about animals -- then we need to know whether the moral progress that Jamieson seeks in our treatment of animals is slowed primarily for conceptual or empirical reasons. My guess is that it is the former rather than the latter; Jamieson already understands enough of the facts about animals to make his moral position clear.

But I also don't think that those taking an inferentialist approach, especially those who are inclined to take commonsense attributions of mental states to animals more seriously than most scientists, can appeal so blithely to cognitive ethology or the other branches of science concerned

with animal behavior. There is, at least, an irony in justifying some of the kinds of experiments that will be required if, as seems likely, more detail is needed to raise the scientific consensus to a level needed to support the ethicists' use of scientific premises. This is especially true for highly invasive studies in the neurosciences that provide the information needed to assess the relevance of neurological similarities and differences. Even Searle, who takes the attribution of mental states to his dog as a starting point for epistemology rather than something requiring empirical justification, must face the question of how a scientific account of the material basis of consciousness is to be obtained.

More troubling, however, is my impression that the participants in the ethical debate are generally not as explicit as they need to be about their intended audiences. Arguments are situated, and what is convincing to one audience need not be convincing to others. While members of the general public may find cognitive ethology compelling enough, when the audience is professional scientific organizations whose members are concerned to preserve the right to experiment on live animals (or the legislators who privilege those professionals in their hearings), the arguments must kick into a different gear, and a different set of skeptical responses must be addressed. If the audience is other scholars, yet another set of considerations are relevant.

Many ethicists interested in raising the public's estimation of the moral status of animals share certain practical objectives with activists. These objectives are multiple, ranging from seeking legislative change, to seeking wholesale changes in public attitudes toward eating meat and using animals in scientific research. Ethicists have tended to appeal to the sciences of animal behavior as if they straightforwardly support this agenda. But it is really an empirical question whether

more research into animal cognition, neuroscience, etc., is going to convince the hamburger-eating, medicine-using, zoo-going public (or their elected representatives) to change their moral stance toward the use of animals for human ends. It is also an empirical question whether the effectiveness of any particular science-based argument in shaping public attitudes differs from its effectiveness in shaping legislation. Perhaps moral progress in applied ethics would actually be well-served by investigating such questions empirically, by finding out what actually motivates people in various walks of life to change their moral positions and behavior.

Many participants in the ethical debate about animals take the establishment of empathy for animals to be very important for fostering a more inclusive morality. The theme is present in several of the contributions to the Great Ape Project. By delivering the scientifically endorsed message that we humans are apes, contributors to the Great Ape Project seek to establish a special empathetic bond between ourselves and our primate cousins. Empathy is one of the issues that Jamieson identifies in his essay written for the Great Ape Project, "Great Apes and the Human Resistance to Equality."<sup>[41]</sup> In that essay, Jamieson writes "It is difficult to identify or empathize with creatures who are remote."<sup>[42]</sup> From the armchair, it may seem that research in cognitive ethology can make the handful of species that have actually been studied seem a little less remote. But much the same rationale has been given for placing animals in zoos -- a practice that Jamieson himself has prominently opposed.<sup>[43]</sup>

Spending great amounts of time watching or interacting with animals seems likely to be more effective at establishing empathetic bonds than is reading scientific (or philosophy) papers about their cognitive capacities. (Another empirically investigable question.) But the full extent of the

ethologists' expertise rarely makes it into the journals, and many a scientist has been reluctant to talk about animal emotions for fear of being labeled, like Griffin, as a "sentimental softy"[44]. In their books intended for mass audiences, far more of the scientists' passion for animals tends to shine through. A number of scientists studying animal behavior have also come out in favor of attributing complex emotions to animals in a lavishly produced book intended for the mass market[45]. But these kinds of works do not carry the full weight of peer reviewed science. Because the issues remain controversial, I remain to be convinced about the effectiveness of cognitive ethology or the other sciences of animal behavior as a base for transforming the ethical landscape.

Those ethicists who have political goals need to develop well-documented and contextualized responses to the challenge of saying how their appeals to science function as instruments of persuasion. Such an effort needs to go beyond social scientists' polls assessing public attitudes towards animal use and experimentation, to more basic research on the cognitive effects of unvarnished scientific reports about animals on such attitudes. Lacking evidence of the effectiveness (or subversiveness) of the ethicists' appeals to science, we are left to wonder whether being in the position of a scientific observer of animals (or a reader of the scientific reports) doesn't in fact tend to reinforce human feelings of superiority to them. Just as zoos might be part of the problem rather than part of the solution, so too might cognitive ethology be an impediment to moral progress. Perhaps, in the end, we will need the honesty to recognize that cognitive ethology, like science itself, is for us rather than for the animals. But these are matters to be discussed elsewhere.

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## Notes

1. Peter Singer *Animal Liberation* (New York: Ecco Press Books, 1975).
2. For example: Bernard Rollin, *Animal Rights and Human Morality* (Buffalo: Prometheus Books, 1989); James Rachels *Created from Animals: The moral implications of Darwinism* (New York: Oxford University Press, 1990); David DeGrazia, *Taking Animals Seriously: Mental life and moral status* (New York: Cambridge University Press, 1996); and Gary Varner, *In Nature's Interests? Animal Rights, and Environmental Ethics* (New York: Oxford University Press, 1998).
3. Dale Jamieson and Marc Bekoff, "On aims and methods of cognitive ethology," in M. Forbes, D. Hull and K. Okruhlik (eds.) *PSA 2* (Lansing, Michigan: Philosophy of Science Association, 1992).
4. Rachels, cited in n. 2, above.
5. Rollin, cited in n. 2, above.
6. DeGrazia, cited in n. 2, above.
7. Varner, cited in n. 2, above.
8. Lynne Sneddon, Victoria Braithwaite, & Michale Gentle "Do fish have nociceptors: evidence for the evolution of a vertebrate sensory system." *Proceedings of the Royal Society London B* 270 (2003): 1115-1121.

9. I'm grateful to Lori Gruen for making me consider this.
10. Gary Varner provided this response to Gruen's suggestion.
11. For example, see the contributions to Paola Cavalieri & Peter Singer, (eds.) *The Great Ape Project: Equality beyond humanity* (London: Fourth Estate, 1993).
12. Colin Allen, "Cognitive Relatives and Moral Relations" in Beck, B.B., Stoinski, T.S., Hutchins, M., Maple, T.S., Norton, B., Rowan, A., Stevens, B.F. & Arluke, A. (eds). *Great Apes and Humans: The ethics of coexistence* (Washington, DC: Smithsonian Institute Press, 2001): pp. 261-273.
13. John Searle, "Animal minds " *Etica & Animali* 9 (1998): 37-50. This is a revised edition of essay with same title originally published in *Midwest Studies in Philosophy*, XIX; see also Dale Jamieson, "Science, knowledge, and animal minds," *Proceedings of the Aristotelian Society* 98 (1998): 79-102.
14. Searle, p. 49, cited in n. 13, above.
15. Colin Allen, "Animal Pain," *Noûs* 38 (2004): 617-643.
16. Dale Jamieson, *Morality's Progress* (New York: Oxford University Press, 2002).
17. Daniel Dennett, *The Intentional Stance* (Cambridge, MA: MIT Press, 1987).
18. Jamieson, pp. 68-69, cited in n. 16, above.
19. Konrad Lorenz, *The Foundations of Ethology* (Berlin: Springer-Verlag, 1981).
20. Colin Allen, "Is anyone a cognitive ethologist?" *Biology & Philosophy* 19 (2004): 589-607.
21. Darwin, C. *The Descent of Man and Selection in Relation to Sex*. (New York: Random House (Modern Library), 1936 [1871]).
22. Jamieson, p. 92, cited in n. 16, above; he is commenting on Colin Allen, "Animal concepts revisited," *Erkenntnis* 51 (1999): 537-544.

23. Jamieson, p. 93, cited in n. 16, above.
24. Jamieson's term; p. 93, cited in n. 16, above.
25. Robert Seyfarth & Dorothy Cheney, "The structure of social knowledge in monkeys," and Con Slobodchikoff, "Cognition and communication in prairie dogs," in Marc Bekoff, Colin Allen, & Gordon Burghardt, *The Cognitive Animal: Empirical and theoretical perspectives on animal cognition* (Cambridge, MA: MIT Press, 2002): 379-384 and 257-264 respectively.
26. DeGrazia, cited in n. 2, above.
27. Paul Churchland, "Eliminative materialism and the propositional attitudes," *Journal of Philosophy* 78 (1981): 67-90.
28. Peter Carruthers, *Phenomenal Consciousness* (Cambridge, UK: Cambridge University Press, 2000).
29. For example, Sara Shettleworth, *Cognition, Evolution, and Behavior* (New York: Oxford University Press, 1998).
30. For a discussion of the different senses and the extent to which they are controversial, see Colin Allen, "Animal Consciousness," in Edward N. Zalta (ed.) *The Stanford Encyclopedia of Philosophy* (Winter 2004 Edition), permanent URL = <http://plato.stanford.edu/archives/win2004/entries/consciousness-animal/>.
31. Sneddon, Braithwaite & Gentle, cited in n. 8, above; and James Rose "The neurobehavioral nature of fishes and the question of awareness and pain," *Reviews in Fisheries Science* 10 (2002): 1-38.
32. Clive Wynne, *Do Animals Think?* (Princeton, NJ: Princeton University Press, 2004).
33. See section 2 of Allen, cited in n. 15, above, for a more detailed discussion of the inferential strategy.

34. Dale Jamieson, "Cognitive ethology at the end of neuroscience," in Bekoff, Allen & Burgardt, pp. 69-76, cited in n. 25, above. The essay is reprinted in the book cited in n. 16, above.
35. Jamieson, p. 96, cited in n. 25, above.
36. Gary Francione, "Animals and us: our hypocrisy," *New Scientist* 2502 (2005): 51.
37. Francione, cited in n. 36, above.
38. Those with weak stomachs are not advised to watch the videos at <http://www.furisdead.com/feat/ChineseFurFarms/>; Adam Shriver is responsible for drawing this site to my attention.
39. Allen, cited in n. 20, above, discusses those boundaries.
40. Jamieson, p. 93, cited in n. 16, above.
41. Dale Jamieson "Great apes and the human resistance to equality," in Cavalieri & Singer, cited in n. 11, above, and reprinted in Jamieson, cited in n. 16 above.
42. Jamieson, p. 49, cited in n. 16 above.
43. Jamieson's essays on zoos are also reprinted in his book, cited in n. 16 above.
44. Helena Cronin, *New York Times Book Review*, November 1 (1992): 14; review of Donald Griffin, *Animal Minds* (Chicago: Chicago University Press, 1992).
45. Marc Bekoff, *The Smile of a Dolphin* (New York: Discovery Books, 2002).

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