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ANIMAL MIND AND ANIMAL ETHICS:
AN INTRODUCTION

This issue of *The Journal of Ethics* contains essays by five renowned writers on the topic of mental states in nonhuman animals. While the essays featured here to a large degree focus on animal mentality, each has great significance for the area of animal ethics. In this introduction, I offer a brief preview of the papers that follow. For those with rather limited knowledge of the philosophy of mind, however, I would first like to offer some general remarks on how issues regarding the nature of mind are relevant to questions about animal ethics. Also, since behavior is one of our best sources of evidence for mentality in nonhuman animals, I give examples of how the study of animal behavior (in the field called “cognitive ethology”¹) can be used to support claims about the presence or absence of ethically relevant mental features in other animals.

MINDS, ETHICS, AND ANIMALS

Do nonhuman animals have sentience, awareness, self-consciousness, thoughts, beliefs or desires? Which of the various species have these mental states, and which of these mental states (or others) do they have? The answers to these questions regarding animal mentality have important ethical consequences, assuming, of course, that one’s moral status is at least partly a function of one’s mental status.

¹ Donald R. Griffin, “Prospects for a Cognitive Ethology,” *Behavioral and Brain Sciences* 4 (1978), pp. 527–538.

Perhaps certain non-mental features are relevant to the moral status of an individual; one might even argue that an individual can be an object of moral concern in the complete absence of mentality (e.g., perhaps simply in virtue of being alive). In any case, it does seem that one's mentality is an important, if not the most important, determinant of one's moral characteristics.

Suppose Immanuel Kant is right to think that we have direct moral duties only to *rational* beings.² Or suppose, instead, Jeremy Bentham and Peter Singer³ are correct in believing that the *capacity to suffer* is sufficient for being an object of moral concern. In either case, the mental status of an individual has consequences regarding how we should or should not treat the individual. And in either case, deciding on these ethical consequences requires answering some difficult questions regarding the nature of mind. For one thing, there are different kinds of reasoning – e.g., theoretical, mathematical, practical, induction, causal, and normative. So if we think that being rational, which includes the capacity to reason, is what makes an individual an object of moral concern, then we need to decide which varieties of reasoning are the most ethically important and to what degree, which in turn requires understanding how best to classify the different kinds, what exactly each consists in, and how these different varieties interrelate.

Suppose the capacity to suffer, rather than the capacity to reason, is what makes one an object of moral concern. The relevant questions about the nature of mind are no less daunting. What exactly is it about suffering that makes the phenomenon ethically significant? Is it the *pain sensation* itself, i.e., the phenomenology of the pain? Or is Peter Carruthers⁴ right to think that what morally matters about suffering is not the actual feeling of pain, but the *frustration of desire* (which includes, but is not restricted to, the frustrated desire to avoid pain). If both the sensation of pain and the frustration of desire are ethically

² Immanuel Kant, *Lectures on Ethics*, L. Infield (trans.) (New York: Harper Torchbooks, 1963), pp. 239–240.

³ Jeremy Bentham, *An Introduction to the Principles of Morals and Legislation* (New York: Hafner Press, 1948), pp. 310–311; and Peter Singer, *Animal Liberation*, 2nd Edition (New York: Avon Books, 1990), pp. 7–9.

⁴ Peter Carruthers, "Sympathy and Subjectivity," *Australasian Journal of Philosophy* 77 (1999), pp. 465–482, and "Invertebrate Minds: A Challenge for Ethical Theory," *The Journal of Ethics* 11 (2007).

significant, is either more significant than the other? Also, are both features necessary for the presence of genuine suffering? Is the *belief* that one's desire is frustrated also necessary? And whatever the essential components of suffering happen to be, must all of them, or any of them, be *conscious* mental states? Is it possible for the pain sensation itself to occur non-consciously? The ethicist will need to figure out which mental processes and which of their components matter ethically and to what degree – but, it seems, not without sufficient attention to questions such as those above about the nature of mind.

If the mere feeling of pain makes one a suitable object of moral concern, then it would appear that the range of individuals to whom we potentially have moral obligations is much larger than it would be if the frustration of desire were what matters. After all, thoughts, beliefs, desires, and other “intentional states”⁵ seem to be more complex mental items, and therefore harder to come by, than pain sensations. It is arguable, however, that intentionality is required in the latter case as well. For according to one popular theory of consciousness, a mental state is a *conscious* mental state if and only if it is the object of a suitable *higher-order thought*, a belief to the effect that one has that mental state.⁶ So if some version of the higher-order thought theory is correct, then even if the sensation of pain, i.e., the conscious sensation of pain, were enough to warrant moral concern, being a suitable object of moral concern would still require having intentional states.

With a higher-order thought theory, the requirements for conscious states might be more stringent still. Donald Davidson has argued that having thoughts requires the capacity for language.⁷ While this view is dubious,⁸ Davidson is also famous for supporting

⁵ The term “intentional” indicates the *representational* character, the *about-ness*, of a thought, belief, or desire. Since their content can typically be expressed in the form of a proposition (e.g., the belief *that it will rain*), intentional states are also called “propositional attitudes.”

⁶ See David Rosenthal, “Two Concepts of Consciousness,” *Philosophical Studies* 94 (1986), pp. 329–359; and Peter Carruthers, “Natural Theories of Consciousness,” *European Journal of Philosophy* 6 (1998), pp. 203–222.

⁷ Donald Davidson, “Rational Animals,” in Ernest LePore and Brian McLaughlin (eds.), *Actions and Events: Perspectives on the Philosophy of Donald Davidson* (Oxford: Basil Blackwell, 1985), pp. 473–480. See also Donald Davidson, “Thought and Talk,” in Samuel Guttenplan (ed.), *Mind and Language* (Oxford: Oxford University Press, 1980), pp. 7–23.

⁸ For it seems there can be good evidence for thought in the absence of language. Although, one might argue that certain complex types of thought require language [See, e.g., José Bermudez, *Thinking without Words* (Oxford: Oxford University Press, 2003), Chapter 8].

the more plausible view that having any one intentional state requires having lots of others.⁹ This follows from the idea that an intentional state acquires its content in virtue of its logical relations to other states within a network of intentionality. If we conjoin this holistic view of mental content with a higher-order theory of consciousness,¹⁰ we get the result that a conscious mental state, even a pain sensation, requires lots of intentionality indeed!

While many of us might be unsure whether fish, snakes, or frogs have genuine beliefs and desires, most will find it odd to credit any *invertebrates* with these mental states. And, yet, in an essay appearing in this issue, Carruthers describes the results of research on the navigating behavior of honey bees and jumping spiders, and argues that the behavior observed in these studies is best explained by supposing that the bees and spiders possess a genuine belief-desire psychology. While this conclusion might not be easy to accept, after reading the description of the impressive behavior recorded in these studies, one is hard pressed to say exactly what it is about having a belief or a desire (or at least what it is about the requisite behavioral dispositions) that these little creatures lack. And if one is impressed by the complexity of the behavior observed but still reluctant to say these invertebrates *really* have intentional states, one might be tempted to accept some brand of *instrumentalism* regarding the mind. One might, for instance, agree with Daniel Dennett that there is no fact of the matter of whether an individual really has intentional states – i.e., no fact of the matter other than the usefulness of adopting the intentional stance when explaining and predicting its behavior.¹¹

It would seem, then, that ethicists who are tempted to classify the moral status of nonhuman animals based on their presumed mental capacity should remain aware of the fact that which mental states an individual has is a difficult issue, in part because there is much controversy about what exactly having the relevant mental states consists in. Another reason that questions about animal mentality are difficult is that in many cases it is far from easy to find adequate behavioral evidence for the presence or absence of various mental states in other animals. There is the Quinean worry that any amount of

⁹ Davidson, "Rational Animals," p. 475.

¹⁰ This is not to imply that Davidson himself endorses the conjunction.

¹¹ See Daniel Dennett, *The Intentional Stance* (Cambridge: The MIT Press, 1987), Chapter 1, for a general introduction to the intentional stance and the notion of an intentional system, and Daniel Dennett, *Brainchildren: Essays on Designing Minds* (Cambridge: The MIT Press, 1998), Chapter 22, for application to other animals.

behavioral evidence observed is compatible with a number of different mentalistic interpretations,¹² a point that is especially threatening in the absence of language. In the absence of language, it seems in principle impossible to decide how exactly to interpret the content of an animal's mental states. Does the dog believe "that the cat went up that oak tree" or "that the cat went up the oldest tree in sight" or "that the cat went up the same tree it went up the last time the dog chased it"?¹³ Also, given the holistic nature of mental content, there is the additional worry that "we must be able to imagine how we would decide whether the dog has many other beliefs of the kind necessary for making sense of the first," in which case, "we very soon come to beliefs such that we have no idea at all how to tell whether a dog has them."¹⁴

Despite these general skeptical worries, researchers in cognitive ethology are optimistic about finding data that adequately justify at least some of our beliefs about the mental states of other animals. And given how fertile research on animal behavior can be, the optimism seems warranted. One should be aware, however, that finding sufficient empirical evidence in this domain is often much more difficult than one might think. To illustrate the difficulty, let us consider the issue of whether any nonhuman animals have thoughts, beliefs, or desires *about the mental states of others*.

Note the communicative behavior of vervet monkeys studied by Dorothy Cheney and Richard Seyfarth.¹⁵ The vervets have four different alarm calls, each indicating the approach of a different type of predator, and each causing escape behavior in other members of the group appropriate to the type of predator signaled by the call. Now suppose a vervet emits a leopard alarm, a call which has the effect of getting the others to head for the trees. Presumably, there were some thoughts, beliefs and/or desires the monkey had in mind that caused it to give this alarm call. What exactly is the content of those intentional states? Dennett notes that there are different interpretations available, depending on the order of intentionality we are prepared to ascribe to the monkey.¹⁶ We might be willing to ascribe intentionality only of the *first-order*: the monkey called because he *wants* the others to head for

¹² W. V. O. Quine, *Word and Object* (Cambridge: The MIT Press, 1960).

¹³ Davidson, "Rational Animals," p. 474.

¹⁴ Davidson, "Rational Animals," p. 475.

¹⁵ See, for example, Richard Seyfarth and Dorothy Cheney, "The Structure of Social Knowledge in Monkeys," in Marc Bekoff, Colin Allen, and G. M. Burghardt (eds.), *The Cognitive Animal* (Cambridge: The MIT Press, 2002), pp. 379–384.

¹⁶ See Dennett, *The Intentional Stance*, Chapter 7.

the trees. But perhaps we should also attribute the *desire* to make the others *believe* there is a leopard nearby, which is an instance of *second-order* intentionality. Or maybe we should say the monkey *wants* the others to *recognize* that he *wants* them to head for the trees. In addition to this *third-order* intentional ascription, there is the possible *fourth-order* Gricean attribution of meaning – *wanting* the others to *believe* there is a leopard nearby in virtue of their *recognition* of that *intention*.¹⁷ Even if the highly limited overall range of vervet verbal behavior renders attributions of third- and fourth-order intentionality implausible (as Dennett notes¹⁸), we are still left with the daunting task of deciding between the first- and second-order interpretations.¹⁹

Of course, the issue of whether there is anything more than first-order intentionality underlying the communicative behavior observed arises for other mammals as well – and also for birds. Irene Pepperberg's pigeon, Alex, is able to correctly name various objects, and their shapes and colors, as well as correctly answering questions about the respects in which pairs of objects are the same or different.²⁰ This seems to show that the bird has genuine *concepts* – color concepts, shape concepts, and concepts of different objects of various types. Does the parrot's verbal behavior also suggest the presence of thoughts, beliefs, and desires? Does Alex *desire* to get his trainer to *believe* that, for example, the object is blue? If the behavior observed does not support this second-order attribution, then why not? What behavioral evidence would justify it? Does Alex at least have the first-order intentional state of *desiring* to answer correctly? Here, especially, it is unclear why the behavioral evidence does or does not justify the attribution.²¹

¹⁷ H. P. Grice, "Meaning," *The Philosophical Review* 66 (1957), pp. 377–388.

¹⁸ Dennett, *The Intentional Stance*, p. 247.

¹⁹ The higher-order thoughts (HOTs) required by a HOT theory of consciousness differ from the higher-order intentionality mentioned here in two ways. Here we are focusing on intentional states directed toward the mental states of *others*. Also, depending on one's version of the HOT theory, the HOT might be directed toward a mental state without representing it *as a mental state*, i.e., without employing the concept of a mental state (perhaps with the content, "I am having *this*" or "*This* is occurring," where "*this*" refers to the target mental state).

²⁰ See, for example, Irene M. Pepperberg, "Cognitive and Communicative Abilities of Grey Parrots," in Marc Bekoff, Colin Allen, and G.M. Burghardt, *The Cognitive Animal* (Cambridge: The MIT Press, 2002), pp. 247–253.

²¹ It might even be wondered whether the bird has genuine concepts. What *concept-possession* consists in is a big issue in the philosophy of mind. To get a sense of the debate in connection with other animals, see Colin Allen and M. Hauser, "Concept Attribution in Nonhuman Animals," *Philosophy of Science* 58 (1991), pp. 221–240.

Deceptive behavior (verbal or otherwise) is also potential evidence of higher-order intentionality. One might engage in behavior that happens to have the effect of producing a false belief, or one might act with the *intention* of producing a false belief. It seems that only in the latter case is there genuine deception; deception, it seems, requires the second-order intentional state of *wanting* to produce a false belief. Do any other animals engage in genuinely deceptive behavior? Consider the plover bird who “pretends” to have a broken wing to entice the fox, who is approaching her egg-filled ground nest, to come after her instead. The bird’s broken-wing display becomes more exaggerated until the fox finally takes the cue and pursues.²² Is the bird intending to produce a false belief in the fox? Or does it only desire to get the fox to move away from the nest (without any thoughts about the fox’s mental states)? Or could it be that the bird’s behavior is not guided by any real beliefs or desires at all – *zero-order* intentionality, as Dennett calls it?²³ Also consider a female baboon having an unauthorized sexual rendezvous with a subordinate male behind a boulder; she wants to prevent the alpha male from finding out what she is doing, so with her head and shoulders in view, she pretends to be foraging all the while.²⁴ Is this good evidence of genuinely deceptive behavior? Is it better evidence than the behavior of the plover bird? Given the empirical nature of the matter, we cannot expect the behavioral evidence to provide any absolute guarantee. Still, it is amazing how much research is required to achieve only weak evidence for conclusions about higher-order intentionality.²⁵

The moral status of an individual is a function of its mental status. This is true, in particular, in the case of *moral agency*. So let us turn to that issue for a moment.

It is arguable that being a suitable object of moral concern does not require moral agency. According to Bentham and Singer, as noted earlier, the capacity to suffer is enough to make an individual a

²² See J. L. Gould and C. G. Gould, *The Animal Mind*, 2nd Edition (New York: Scientific American Library, 1999), pp. 136–140, for a description of the different deceptive behaviors of plover birds.

²³ Dennett, *The Intentional Stance*, p. 246.

²⁴ Gould and Gould, *The Animal Mind*, p. 161.

²⁵ One gets a good sense of how difficult it is to find adequate evidence by considering the intricate experimental designs and controls described by David Premack and Mark Woodruff in their seminal attempt to show that chimpanzees have beliefs and desires about the mental states of others [David Premack and Mark Woodruff, “Does the Chimpanzee Have a Theory of the Mind?” *Behavioral and Brain Sciences* 4 (1978), pp. 515–526].

potential object of our moral obligations, even if the individual does not qualify as an agent that bears moral *responsibility* for its actions. So the question arises: Do any nonhuman animals qualify as moral agents?

The presence of higher-order intentionality seems relevant to the issue of moral agency. It is arguable that one is a moral agent only if one is capable of having thoughts about the welfare of others – which would consist, at least in part, in thoughts about the mental states of others. Of course, higher-order intentionality might not, itself, be sufficient for moral agency. What might be required is a certain special type of thought about the mentality of others. In the end, it is up to the ethicists to figure out what sort of higher-order intentionality is necessary and/or sufficient for moral agency. However, whatever the ethicists discover about moral agency, studies on animal behavior certainly are required to determine whether any nonhuman animals actually satisfy the conditions specified.

Charles Darwin claims that a *moral sense*, a *conscience*, is present to some degree in many other animals.²⁶ There are numerous examples of animals exhibiting behavior characteristic of *altruism*, for example. Gould and Gould note that “dolphins keep injured members of the group afloat, vampire bats share food with starving inhabitants of their colony, [and] childless elephants help form a defensive circle to protect the young of the herd.”²⁷ This is behavior *characteristic of* altruism, behavior normally associated with genuinely altruistic mental states in us. Yet, whether the mentality necessary for genuine altruism really does underlie the “caring” behavior of these other animals, and which of these animals, remains a significant source of debate – requiring conceptual inquiry into the nature of altruism along with the arduous empirical investigation needed to provide adequate evidence for or against its presence in other animals.²⁸

One clear sign of moral agency is the possession of *personhood*. As John Locke notes, the word “person”

²⁶ Charles Darwin, *The Descent of Man, and Selection in Relation to Sex* (London: D. Appleton, 1897), Chapter 4.

²⁷ Gould and Gould, *The Animal Mind*, p. 150.

²⁸ *Deceptive* behavior, such as that mentioned earlier, is another possible source of evidence for the kind of higher-order intentionality involved in moral agency. Desiring to produce a false belief in others, and acting upon that desire, might be enough to make one morally blameworthy for one’s action – provided there is suitable autonomy involved.

is a forensic term, appropriating actions and their merit; and so belongs only to intelligent agents, capable of a law, and happiness and misery. This personality extends itself beyond present existence to what is past, only by consciousness, – whereby it becomes concerned and accountable ...²⁹

In addition to the normative component, there is also a purely descriptive component to the concept of a person. A person, Locke claims, “is a thinking intelligent being, that has reason and reflection, and can consider itself as itself, the same thinking thing, in different times and places ...”³⁰ Besides *self-awareness* and *intelligence* (including the capacity to *reason*), *autonomy* of some type is arguably another essential part of personhood.³¹

It is not entirely clear how these two components, the descriptive and the normative, logically interrelate, although it is not implausible to suppose that satisfying the descriptive conditions is sufficient for satisfying the normative element of personhood. Satisfying the former certainly takes one at least a long way toward fulfilling the latter. To see, then, whether any nonhuman animals are persons in the normative sense, thereby qualifying as moral agents, we should consider whether any of them have a suitable degree of rationality, self-awareness, and autonomy (or whatever other descriptive features might be thought necessary).

David DeGrazia notes that the various person-making features come in different varieties; there are different types of rationality, as noted earlier, and various brands self-awareness, including bodily, social, and introspective self-awareness. And these different varieties admit of degrees; one can have more or less of a capacity for instrumental rationality, and more or less social self-awareness.³² Given that these mental features come in degrees, it is natural to wonder whether some nonhuman animals have enough of them, to a sufficient degree, to qualify as genuine persons. DeGrazia makes a strong case that the typical adult members of the various species of great apes and the cetaceans (whales, dolphins and porpoises) exhibit

²⁹ John Locke, *An Essay Concerning Human Understanding*, ed. A. C. Fraser (New York: Dover Publications, 1959), p. 467.

³⁰ Locke, *An Essay Concerning Human Understanding*, p. 448.

³¹ Consider, e.g., what Harry Frankfurt calls “freedom of the will,” which consists in the presence of second-order volitions [H. Frankfurt, “Freedom of the Will and the Concept of a Person,” *The Journal of Philosophy* 68 (1971), pp. 829–839].

³² See David DeGrazia, “Great Apes, Dolphins, and the Concept of Personhood,” *The Southern Journal of Philosophy* 35 (1997), pp. 301–320; and David DeGrazia “On the Question of Personhood beyond *Homo sapiens*,” in P. Singer (ed.), *In Defense of Animals* (Oxford: Blackwell Publishers, 2006), pp. 40–53.

a high enough degree of the various person-making features to qualify as *borderline persons*.³³ He also argues that certain members of these species exhibit a high enough degree to qualify as clear-cut persons.³⁴ The best behavioral evidence in the latter case is the use of language. Language use, in itself, clearly demonstrates a high level of intelligence and conceptual/logical acumen, and it can also provide strong evidence for self-awareness, e.g., when the animal refers to itself and communicates to others its beliefs about itself.³⁵

Even when we have gotten clear on what sort of rationality, self-awareness, or autonomy is most important for personhood, finding adequate empirical evidence for the presence or absence of these features, as the earlier discussion would suggest, is not an easy project. Consider the self-recognition behavior of chimpanzees studied by Gordon Gallup (where the chimps detect and explore in mirrors red marks that were previously placed on their foreheads during anesthesia).³⁶ While the behavior observed would initially seem to be irresistible evidence for the presence of a self-concept, the behavior is also compatible with employing the alternative notion of *that body there of special concern*.³⁷ Consider, also, Lynne Baker's detailed description of the *first-person perspective*, which she argues few if any other animals attain.³⁸

The preceding remarks are meant to remind readers that there is a wide array of questions about the nature of mind and the minds of other animals that are of potential significance to the field of animal ethics. Along the way, I hope to have provided some sense of the great importance of research in cognitive ethology for answering these questions.

³³ DeGrazia, "On the Question of Personhood beyond Homo Sapiens," pp. 44–46.

³⁴ DeGrazia, "On the Question of Personhood beyond Homo Sapiens," pp. 46–48.

³⁵ Consider, for example, the linguistic behavior of Francine Patterson's gorilla, Koko [F. Patterson and W. Gordon, "The Case for the Personhood of Gorillas," in P. Cavalieri and P. Singer (eds.), *The Great Ape Project* (London: St. Martin's Griffin, 1993), pp. 58–77].

³⁶ Gordon Gallup Jr., "Self-Recognition in Primates," *American Psychologist* 2 (1977), pp. 329–338.

³⁷ See J. Bennett, "Thoughtful Brutes," *Proceedings and Addresses of the American Philosophical Association* 62 (1988), pp. 197–210.

³⁸ Lynne R. Baker, *Persons and Bodies* (Cambridge: Cambridge University Press, 2000), Chapter 3.

Whatever I do know about animal mind and animal ethics I owe to renowned researchers in these areas such as those who contributed to this issue of *The Journal of Ethics*. The following is a preview of the essays they provide.

THE ESSAYS

Bernard Rollin notes that while many empirically-oriented philosophers and scientists for much of the 20th-century were skeptical about attributing mentality to other animals, their attitude is not at all in keeping with the beliefs of their empirically-minded ancestors. Rollin points out that Locke, David Hume, Bentham, and John Stuart Mill credited other animals with a variety of mental states, from the capacity to feel pain to the ability to reason, with the scientific culmination of these beliefs about animal mentality in the work of Darwin. In “Animal Mind: Science, Philosophy, and Ethics,” Rollin offers useful information for those working in animal ethics on how this change in ideas came about.

One might be tempted to think that 20th-century skepticism regarding animal minds would have had to come about for legitimate scientific reasons, reasons that the scientific community itself would regard as legitimate – i.e., empirical disconfirmation of the belief or conceptual/logical flaws found within. But, Rollin argues, this was not the case; the change in scientific opinion was due to a change in *value* – *disvaluation* rather than disconfirmation. Rollin notes that this phenomenon is not uncommon. He explains how the scientific revolution inaugurated by Galileo, Rene Descartes, and Issac Newton was not the result of any actual empirical falsification of Aristotlean ideas, nor any proof that those ideas are logically flawed; the scientific revolution resulted from disvaluing rather than disproving Aristotlean beliefs. In the case of animal mind, the change in belief was also due to a change in value – a change in value that came about, Rollin explains, with the rise of *psychological behaviorism*. Rollin also describes some of the major moral consequences of this scientific shift, including the change from animal husbandry to the factory farm, and the callous use of animals in biomedical research.

For those who think the capacity to suffer makes one an object of moral concern, a question that needs to be addressed is: What exactly is it about suffering that matters morally? In “Invertebrate Minds: A

Challenge for Ethical Theory,” Carruthers argues that in a case of suffering, the appropriate object of moral concern is not the *feel of pain*, but the fact that an organism does not want the pain and is *frustrated in this desire*. Only individuals capable of having desires and having their desires frustrated are appropriate objects of sympathy and moral concern.

One would expect Carruthers to conclude from this that invertebrates, for example, are not appropriate objects of moral concern since they are incapable of having intentional states. On the contrary, he describes the results of experiments on honey bees and jumping spiders, and contends that the only plausible interpretation of the behavior observed is that these invertebrates have informational and goals states that qualify as genuine beliefs and desires. While many will be reluctant to agree with Carruthers about this, he argues that the burden of proof is on us to say what more should be required for beliefs and desires, and why.

If these invertebrates are mentally sophisticated enough to have beliefs and desires, does it not follow that we are morally obligated to be concerned about their welfare? Carruthers argues that this does not follow by highlighting the difference between being *appropriate* to feel concern at an individual's struggles and being *required* to feel concern. Given this distinction, the fact that one is undergoing states of suffering of the sort that makes one an appropriate object of sympathy does not, by itself, entail that sympathy and moral concern are required of us. And in the case of invertebrates, the idea that moral concern is required of us is one Carruthers finds highly implausible. So a challenge for ethical theory, he thinks, is to reconcile the belief that the suffering of invertebrates makes no direct moral claims on us with the following two beliefs: that when humans suffer, the basic ground for our sympathy and moral concern lies in their states of frustrated desires, and that invertebrates share with us a form of belief-desire psychology.

In “Animal Minds, Cognitive Ethology, and Ethics,” Colin Allen and Marc Bekoff offer valuable advice along with some scientific background to help ethicists more effectively support their views about the rights of animals or our obligations toward them. It is not uncommon for animal ethicists to draw conclusions about the moral status of other animals while knowing little about the empirical studies of animal behavior and what these do or do not suggest about their mentality. Even when they do refer to work in cognitive ethology, these often loose references, Allen and Bekoff note, can

signal ignorance of the field to scientists who are more deeply immersed in the relevant literature. The risk is that their ethical arguments end up being far less convincing than they otherwise might be. In an effort to clear some of our ignorance of the relevant scientific complexity, Allen and Bekoff describe the origins of the field of cognitive ethology and how this area relates to the field of comparative psychology.

The information and advice on scientifically-informed ethical reasoning that Allen and Bekoff offer is especially useful for those ethicists arguing on behalf of animal mentality against skeptical *scientists*. As they note, scientific skepticism about animal cognition remains a significant factor in policy debates, and it is important for philosophers who wish to engage these scientists to have a good understanding of the origins of their skepticism. It is tempting to dismiss skepticism about animal mentality on ideological grounds, and they describe four methods for doing so. But they remind us that when arguing on behalf of animal mentality of various sorts and the ethical consequences, nothing substitutes for detailed knowledge of the empirical data.

In “Thinking without Words: An Overview for Animal Ethics,” José Bermudez outlines aspects of his book *Thinking without Words* that are most relevant to those working in the area of animal ethics. Bermudez argues that there are limits to the types of thought available to non-linguistic animals, and it may be important, he notes, for animal ethicists to take this fact into account when considering the moral obligations we might or might not have toward these creatures. Furthermore, to the extent that the moral significance of an animal is a function of its level of cognitive sophistication, ethicists need to take account of the subtle differences between the different types of thought (which Bermudez identifies and explains) available to non-linguistic animals.

After distinguishing between two different types of thinking at the non-linguistic level (propositional thought and non-propositional thought), Bermudez presents a revised version of one of the central arguments of his book, an argument concluding that higher-order thought is language-dependent.³⁹ This conclusion is clearly significant

³⁹ Talk of higher-order thoughts, here, is restricted to thoughts (and other intentional states) that represent other thoughts (and other intentional states) in their content. Recall the distinction mentioned in footnote 18 between *thinking that one is having this*, where “this” happens to signify a thought, and *thinking that one is having a thought* of some variety.

for those interested in animal minds, and might also have important implications for the moral status of languageless animals. Bermudez notes, however, that the types of cognitive activity ruled out by his argument are more limited than they might immediately seem.

For example, by differentiating between two types of desire, goal-desires and situation-desires, Bermudez shows it is possible for non-linguistic creatures to have a type of knowledge regarding the psychological states of their conspecifics. This knowledge, he explains, allows non-linguistic creatures to engage in a primitive form of psychological explanation, and allows them to predict the behavior of others with some success. Whatever type of reasoning is involved here will not, however, count as *logical* reasoning. Logical reasoning involves the deployment of logical concepts, which Bermudez explains requires thoughts about thoughts, and therefore depends on language. Thus, non-linguistic animals are incapable of logical reasoning. Yet, Bermudez argues, it may be possible to identify other forms of reasoning, ones that can be explained without assuming the animal (or prelinguistic infant) is using logical concepts. He describes for us what this non-logical reasoning might involve.

Thanks to the authors who contributed for showing the importance of various issues in animal mentality to the field of animal ethics. These essays certainly are of value for those trying to understand the moral status of nonhuman animals. And assuming it is true, in general, that one's moral features are a function of one's mentality, the following discussions may shed light on the moral status of human animals as well.

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