

Animal Minds

JOHN R. SEARLE

I.

Many species of animals have consciousness, intentionality, and thought processes. By "consciousness" I mean those subjective states of sentience and awareness that we have during our waking life (and at a lower level of intensity in our dreams); by "intentionality" I mean that feature of the mind by which it is directed at or about objects and states of affairs in the world; and by "thought processes" I mean those temporal sequences of intentional states that are systematically related to each other, where the relationship is constrained by some rational principles. Examples of conscious states are such things as feeling a pain or hearing a sound. Examples of intentional states are such things as wanting to eat food or believing that someone is approaching. Examples of thought processes are such things as figuring how to get a banana that is out of reach or monitoring the behavior of prey who is on the move and is trying to escape. Though these three phenomena—consciousness, intentionality, and thought processes—overlap, they are not identical. Some conscious states are intentional, some not. Some intentional states are conscious, many are not. For example, my current thought that it is unlikely to rain is conscious, my belief when I am asleep that Bill Clinton is president of the United States is unconscious. All thought processes, as I have defined them, are intentional; but not every intentional state occurs as part of a thought process. For example, a pang of undirected anxiety, though conscious, is not intentional. A sudden desire for a cold beer is both conscious and intentional. An animal who has a sudden pang of hunger can have that pang without it being part of any thought process.

I have said that many species of animals have consciousness, intentionality, and thought processes. Now why am I so confident about that? Why, for

example, am I so confident that my dog, Ludwig Wittgenstein, is conscious? Well, why is he so confident I am conscious? I think part of the correct answer, in the case of both Ludwig and me, is that any other possibility is out of the question. We have, for example, known each other now for quite a while so there is not really any possibility of doubt.

Philosophically speaking the interesting question is why in philosophy and science we have so much trouble seeing that such sorts of answers are the correct ones? I will come back to this point later. Now I want to turn the original question around and ask, why have so many thinkers denied what would appear to be obvious points, that many species of animals other than our own have consciousness, intentionality, and thought processes? Think for a moment how counterintuitive such denials are: I get home from work and Ludwig rushes out to meet me. He jumps up and down and wags his tail. I am certain that (a) he is conscious; (b) he is aware of my presence (intentionality); and (c) that awareness produces in him a state of pleasure (thought process). How could anyone deny either a, b or c? As his namesake might have said, "This is how we play the language game with 'certain'." I now turn to consider some of these denials.

II.

In the seventeenth and eighteenth centuries, in response to the Cartesian revolution, it made sense both philosophically and theologically to wonder whether animals had minds. If, as Descartes had taught us, there were two kinds of substances in the universe, mental substance whose essence was thinking or consciousness, and physical substance whose essence was extension, then the question becomes pressing: Which of the animate extended substances had minds? Which of the living substances contained consciousness?

The basic Aristotelian dichotomy between the living and the non-living was transcended by an even more fundamental dichotomy between those things that had minds and those that did not. The question became even more pressing when people reflected on the theological implications of any philosophical answer that they might care to give. The commonsense view that higher animals are conscious in exactly the same sense that human beings are conscious has the result that every such animal possesses an immortal soul. This is because the Cartesian theory of the nature of the mental, and of the distinction between the mental and the physical, has the implication that consciousness is indestructible. Any mental substance is indivisible and so lasts eternally. But if animals have consciousness, then it follows immediately that they have immortal souls, and the afterlife will, to put it mildly, be very much overpopulated. Worse yet, if consciousness extends very far down the phylogenetic scale, then it might turn out that the population of the afterlife included a very large number of the souls of fleas, snails, ants, etc. This is an unwelcome theological consequence of what seemed a plausible philosophical doctrine.

Another problem that arose even for theologians who were not Cartesians is this: If animals are conscious then they can suffer. But if they can suffer then how is their suffering to be justified, given that they do not have original sin and presumably do not have free will? The arguments that were used to reconcile the existence of an omnipotent and beneficent God with a suffering human population do not seem to work for animals.

We now regard these ways of thinking about the problem of animal minds as completely implausible, and the Cartesians gave an equally implausible solution: On their view, animals simply do not have minds. Animals are unconscious automatons and though we feel sympathy for the dog crushed beneath the car wheel, our sympathy is misplaced. It is just as if a computer had been run over.

Ridiculous as this view now seems to us, I believe it is an inevitable consequence of the rest of the Cartesian system. If every mind is an immortal soul, then only beings that can have immortal souls can have minds. The natural way out of this puzzle is to abandon dualism, both property dualism and substance dualism. And if one abandons dualism, if one really abandons it, then one must also abandon materialism, monism, the identity thesis, behaviorism, token-token identity, functionalism, Strong Artificial Intelligence, and all of the other excrescences that dualism has produced in the nineteenth and twentieth centuries. Properly understood, all these absurd views are forms of dualism.¹

If one thoroughly abandons dualism, what is the result as far as animal minds are concerned? Before answering that, I want to consider some other more recent attempts to show that animals do not have certain sorts of mental phenomena.

III

Very few people today would be willing to argue that animals lack consciousness altogether. But several thinkers, both philosophers and scientists, have argued that animals either lack intentionality in general or at least that animals cannot think, that is they cannot have thought processes in my sense. I am frankly extremely suspicious *a priori* of any argument of this form because we know in advance that humans do have intentionality and thought processes and we know that humans are biologically continuous with the rest of the animal kingdom. Whatever its surface logical form, any argument against animal intentionality and thinking has to imply the following piece of speculative neurobiology: the difference between human and animal brains is such that the human brain can cause and sustain intentionality and thinking, and animal brains cannot.

Given what we know about the brains of the higher mammals, especially the primates, any such speculation must seem breathtakingly irresponsible. Anatomically the similarities are too great for such a speculation to seem even remotely plausible, and physiologically we know that the mechanisms that produce intentionality and thought in humans have close parallels in other

beasts. Humans, dogs, and chimpanzees all take in perceptual stimuli through visual, tactile, auditory, olfactory, and other sensory receptors, they all send the signals produced by these stimuli to the brain where they are processed, and eventually the resultant brain processes cause motor outputs in the forms of intentional actions such as socializing with other conspecific beasts, eating, playing, fighting, reproducing, raising their young, and trying to stay alive. It seems out of the question, given the neurobiological continuity, to suppose that only humans have intentionality and thoughts.

However let us turn to the actual arguments against the possibility of animal thinking. The form of the arguments is and has to be the same: humans satisfy a necessary condition on thinking which animals do not and cannot satisfy. Given what we know of the similarities and differences between human and animal capacities, the alleged crucial difference between humans and animals, in all of the arguments I know, is the same: the human possession of language makes human thought possible and the absence of language in animals makes animal thought impossible.

The Cartesians also thought that language was the crucial differentiating feature that distinguished humans from animals. But they thought the significance of language was epistemic. The possession of language was a sure sign that humans are conscious and its absence a sure sign that animals are not conscious. This view has always seemed very puzzling to me. Why should linguistic behavior be epistemically essential for the presence of consciousness? We know in the case of human beings that children are conscious long before they are able to speak a language and we know that many human beings never acquire the ability to speak a language, but we do not for that reason doubt that they are conscious.

More recent thinkers concede that animals are conscious but think of language as somehow playing a constitutive role in thought, such that beings without language could not have thoughts.

The major premise, then, of these arguments is always that humans have language in a sense in which animals do not have a language, and so far that premise seems to me to be correct. Even those of us who would be willing to describe the waggle dance of the bees as a language and the achievements of the chimpanzees, Washoe, Lana, and others, as genuinely linguistic would still grant that such symbolizing behavior is vastly weaker than any natural human language. So let us grant that, in some important sense of "language," humans have language, and as far as we know, no other species does. What follows about the mind? Well one thing follows immediately: If there are any intentional states whose possession requires a language, animals cannot have those states, and *a fortiori* they cannot have thought processes involving those states. Clearly there are such states. My dog can want me to take him for a walk but he cannot want me to get my income tax returns in on time for the 1993 tax year. He can want to be let out but he cannot want to write a doctoral thesis on the incidence of mononucleiosis among American undergraduates. To have these latter sorts of desires he would have to have, at the very least, linguistic

abilities that he lacks. Is there a principle? How do we decide which intentional states require language and which do not? I think there are several principles involved, and I will come back to this question later. Right now I want to continue to follow the arguments against the possibility of any intentionality and thought among linguistically deprived beasts. The argument that there are some intentional states that animals cannot have does not show that they can have no intentional states. Here are some arguments for the stronger thesis.

One argument is that in order to attribute beliefs to a system we have to have a way of distinguishing cases where the system genuinely believes that p from cases where the system merely supposes that p , hypothesizes that p , reckons that p , has a hunch that p , is certain that p , or is merely inclined to think that on balance, all things considered, that p .² But we cannot make these distinctions for a being that cannot make them for itself, and a being can only make them for itself if it has the relevant vocabulary. The vocabulary need not be the same as or translatable exactly into English, but there must be some vocabulary for marking the different types of intentional states within the range or there is no sense to the attribution of the states.

What are we to make of this argument? Even if we grant the premise that such discriminations require a language it does not follow that we need to be able to make fine-grained distinctions before we can make any attributions of intentional states at all. In fact this premise just seems wrong. Very general psychological verbs like "believe" and "desire" are often used in such a way as to allow for a slack, an indeterminacy, as to which of the subsidiary forms of the general attitude are exemplified by the agent. Thus I may believe that it is going to rain, without it being the case that I myself could say without reflection whether it is a strong or weak belief, a hunch, a conviction, or a supposition. And even if I can answer these questions on reflection, the reflection itself may fix the relevant attitude. Before I thought about it there simply may not have been any fact of the matter about which kind of belief it was, I just believed that it was going to rain. So I conclude that the fact that fine-grained discriminations cannot be made for animal beliefs and desires does not show that animals do not have beliefs and desires.

A related argument has been considered by Davidson (I am not sure if he accepts it).³ The fine discriminations we make about the propositional content of beliefs and desires cannot be made for the alleged intentional attributions to animals. We say that the dog believes his master is at home, but does it believe that Mister Smith (who is his master) is at home or that the president of the bank (who is that same master) is at home? Without an answer to such questions we cannot attribute beliefs to the dog.

This argument is parallel to one mentioned earlier. According to that argument, unless there is a determinate fact of the matter about *psychological type*, there is no intentional state; according to this argument, unless there is a determinate fact of the matter about *propositional content* there is no intentional state. The argument is subject to the same objection we made to the earlier one. The premise seems to be false. Even if we assume that there is no fact of the

matter as to which is the correct translation of the dog's mental representations into our vocabulary; that, by itself does not show that the dog does not have any mental representations, any beliefs and desires, that we are trying to translate.

Davidson mentions this argument only in passing. An argument he presents more seriously against animal thoughts goes as follows. In order that an animal have a thought, the thought must occur in a network of beliefs. His example is: in order to think the gun is loaded I must believe that guns are a type of weapon, and that a gun is an enduring physical object. So in order to have a thought there must be beliefs. But, and this is the crucial step, in order to have beliefs a creature must have the concept of belief. Why? Because in order to have a belief one must be able to distinguish true from false beliefs. But this contrast, between the true and the false, "can only emerge in the context of interpretation" (of language).⁴ The notion of a true belief or a false belief depends on the notion of true and false utterances, and these notions cannot exist without a shared language. So, only a creature who is the possessor and interpreter of a language can have thoughts. The basic idea in this argument seems to be that since truth is a metalinguistic semantic predicate and since the possession of belief requires the ability to make the distinction between true and false beliefs, it seems to follow immediately that the possession of beliefs requires metalinguistic semantic predicates, and that obviously requires a language.

This argument is not as clear as it might be, and one might object to various of its steps. The feature on which I want to concentrate here is what I take to be the central core of the argument: In order to tell the difference between true and false beliefs one must have a linguistically articulated concept of belief.

Only within a language can one distinguish correct from incorrect beliefs. I agree with the first part of this claim: having an intentional state requires the capacity to discriminate conditions which satisfy from those that do not satisfy the intentional state. Indeed, I wish to generalize this point to all intentional states, and not just confine it to beliefs. In general, in order to have intentional states one must be able to tell the difference between satisfied and unsatisfied intentional states. But I see no reason at all to suppose that this necessarily requires a language, and even the most casual observation of animals suggests that they typically discriminate the satisfaction from the frustration of their intentional states, and they do this without a language.

How does it work? Well the first and most important thing to notice is that beliefs and desires are embedded not only in a network of other beliefs and desires but more importantly in a network of perceptions and actions, and these are the biologically primary forms of intentionality. We have all along in this discussion been talking as if perception and action were not forms of intentionality but of course they are; they are the biologically primary forms. Typically, for animals as well as humans, perception fixes belief, and belief together with desire determines courses of action. Consider real-life examples: Why is my dog barking up that tree? Because he *believes* that the cat is up the

tree, and he wants to catch up to the cat. Why does he believe the cat is up the tree? Because he *saw* the cat run up the tree. Why does he now stop barking up the tree and start running toward the neighbor's yard? Because he no longer believes that the cat is up the tree, but in the neighbor's yard. And why did he correct his belief? Because he just saw (and no doubt smelled) the cat run into the neighbor's yard; and *Seeing and Smelling is Believing*. The general point is that animals correct their beliefs all the time on the basis of their perceptions. In order to make these corrections they have to be able to distinguish the state of affairs in which their belief is satisfied from the state of affairs in which it is not satisfied. And what goes for beliefs also goes for desires.

But why do we need to "postulate" beliefs and desires at all? Why not just grant the existence of perceptions and actions in such cases? The answer is that the behavior is unintelligible without the assumption of beliefs and desires; because the animal, e.g., barks up the tree even when he can no longer see or smell the cat, thus manifesting a belief that the cat is up the tree even when he cannot see or smell that the cat is up the tree. And similarly he behaves in ways that manifest a desire for food even when he is neither seeing, smelling, nor eating food.

In such cases animals distinguish true from false beliefs, satisfied from unsatisfied desires, without having the concepts of truth, falsity, satisfaction, or even belief and desire. And why should that seem surprising to anyone? After all, in vision some animals distinguish between red-colored from green-colored objects without having the concepts vision, color, red, or green. I think many people suppose there must be something special about "true" and "false," because they suppose them to be *essentially* semantic predicates in a metalanguage. Given our Tarskian upbringing, we tend to think that the use of "true" and "false" to characterize beliefs must somehow be derived from a more fundamental use to characterize linguistic entities, sentences, and statements, for example. And then it seems to us that if a creature could tell true from false beliefs it would first have to have an object language to give any grip to the original metalanguage distinction between truth and falsity, now being applied by extension to something nonlinguistic.

But all of this is a mistake. "True" and "false," are indeed metalinguistic predicates, but more fundamentally they are *metaintentional* predicates. They are used to assess success and failure of representations to achieve fit in the mind-to-world direction of fit, *of which statements and sentences are a special case*. It is no more mysterious that an animal, at least sometimes, can tell whether its belief is true or false, than that it can tell whether its desire is satisfied or frustrated. For neither beliefs nor desires does the animal require a language; rather what it requires is some device from recognizing whether the world is the way it seemed to be (belief) and whether the world is the way the animal wants it to be (desire). But an animal does not have to have a language in order to tell true from false beliefs, any more than it has to have a language to tell satisfied from unsatisfied desires. Consider the example of the dog chasing the cat, for an illustration.

IV.

I conclude that the arguments I have seen which deny mental phenomena to animals, ranging from Descartes to Davidson, are without force. I now turn to a remaining question: How do we distinguish those intentional states that require a language, and hence are impossible for animals, from those that do not? I believe the best way to answer this question is to list some of the categories of intentional states which require a language and explain the reasons why they require a language. I doubt that I have thought of all of these, but here are five for a start.

1. *Intentional states that are about language.* For example, a creature cannot think that "eat" is a transitive verb or wonder how to translate "Je n'aurais pas pu" into English if it does not possess the capacity to speak a language.
2. *Intentional states that are about facts which have language as partly constitutive of the fact.* For example an animal cannot think that the object in front of it is a twenty-dollar bill or that the man it sees is the Chairman of the Philosophy Department at the University of California, because the facts represented, facts involving human institutions such as money and universities, require language as a constitutive element of the facts.
3. *Intentional states that represent facts that are so remote in space and time from the animal's experience as to be unrepresentable without language.* For example, my dog might think that I am now eating good food, but it cannot think that Napoleon ate good food.
4. *Intentional states that represent complex facts, where the complexity cannot be represented without language.* This is a very large class. Thus my dog can fear a falling object, but he cannot believe the law of gravity even though the falling object instantiates the law of gravity. He can probably have some simple conditional thoughts, but he cannot have subjunctive counterfactual thoughts. Perhaps he can think: "If he gives me that bone I will eat it," but not "If only he had given me a bigger bone I would have enjoyed it more!"
5. *Intentional states that represent facts where the mode of presentation of the fact locates it relative to some linguistic system.* For example, my dog can believe that it is warm here now, but he cannot believe that the 30th of April, 1993 is a warm day, because the system of representing days is essentially linguistic.

No doubt this list could be continued. What it shows so far is that the reasons that an intentional state essentially requires a language for its existence fall into two classes. Either the state has conditions of satisfaction that are essentially linguistic or the mode of representing the conditions of satisfaction is essentially linguistic. Or, quite commonly both. A third type of reason would be that the type of the state requires language for the very possession of a state

of that type. I have seen it claimed that there are such types of state—perhaps hope and resentment would be examples—but I have never seen a convincing argument.

V.

I now return to the question: How should we think of animals' mental phenomena in a philosophy purged of dualism? The answer is a form of what I have elsewhere called biological naturalism. Consciousness and other forms of mental phenomena are biological processes occurring in human and certain animal brains. They are as much a part of the biological natural history of animals as are lactation, the secretion of bile, mitosis, meiosis, growth, and digestion. Once we remind ourselves of what we know about the brain and we forget our dualist upbringing, the general outline of the solution to the so-called mind-body problem, whether for humans or animals, is quite simple. Mental phenomena are caused by lower-level neuronal processes in human and animal brains and are themselves higher-level or macro features of those brains. Of course, we do not yet know the details of how it works, how the quite specific neurobiology of human and animal nervous systems causes all the enormous variety of our mental lives. But from the fact that we do not yet know *how* it works it does not follow that we do not know *that* it works.

From the fact that human and animal brains cause consciousness it also does not follow that only human and animal brains could do it. Perhaps one could create consciousness of the sort that exists in us and other animals using some artificial device, perhaps one might be able to create it in systems not made of carbon-based molecules at all. And for all we know, consciousness may have evolved among beasts in other galaxies, or other solar systems within our own dear galaxy, that do not have our local obsession with carbon, hydrogen, nitrogen, and oxygen. But one thing that we know for certain: any system capable of causing consciousness and other mental phenomena must have causal capacities to do it equivalent to the biological capacities of animal brains, both our own human brains and the brains of other kinds of animals. From the fact that brains do it causally, it is a trivial logical consequence that any other system capable of doing it causally, must have causal powers to do it equivalent to brains. If that sounds trivial, it should. It is, however, routinely denied by any amount of confused contemporary philosophy of mind that tries to treat consciousness as some purely formal abstract phenomenon independent of any biological or physical reality at all. Contemporary versions of this view are sometimes called 'Strong Artificial Intelligence'.⁵ They are expressions of one of the major tenets of traditional dualism, the view that where the mind is concerned the specific neurobiology of the brain is of little importance.

So far, we have not the faintest idea how to create consciousness artificially in some other medium, because we do not know exactly how it is created in our own brains. Some of our best contemporary theories tell us

that it is a matter of variable rates of neuron firings relative to certain specific neuronal architectures. But what is it exactly about the peculiar electrochemistry of neurons, synapses, transmitters, receptors, etc., that enables them to cause consciousness? At present, we do not know. So, the prospects of artificial consciousness are extremely remote, even though the existence of consciousness in brains other than human brains is not seriously in doubt.

Well, what about the special problems having to do with animal minds? I have so far been talking as if humans and animals are in the same boat, but what about the special features of animal minds? Problems in this area can be divided roughly into two categories and it is important to keep them separate. First, *ontological* problems which have to do with the nature, character, and causal relations of animal mental phenomena, both what causes them and what they in turn cause. Second, *epistemic* problems which have to do with how we find out about animal mental states, how we know that animals have mental states, and how we know which animals have which sorts of mental states. It is a consequence of the views that I have enunciated so far, that there are not very many interesting philosophical questions about the ontology of animal mental life in general and animal consciousness in particular. The most important questions in this are largely questions for animal psychologists, biologists, and especially neurobiologists. Specifically, if we know that our brains cause consciousness, and we know therefore that any other system capable of causing consciousness must have the relevant causal powers equivalent to our own brains, then the question becomes a factual empirical question: which sorts of animal brains are capable of causing and sustaining consciousness?

Often however in this area epistemology and ontology are confused. The Turing Test tempts us to precisely such a confusion, because the behaviorism behind the test leads to arguments like the following: If two systems behave the same way we have the same grounds for attributing mental states to one as we do to the other. For example, both snails and termites are capable of exhibiting what appears to be goal-directed behavior, so what sense could be attached, for example, to the claim that snails had consciousness and termites did not have it? In fact, since the appearance of goal-directed behavior seems to be a feature of all sorts of artifacts, mouse traps and heat-seeking missiles for example, if we are going to attribute consciousness to snails or termites on the basis of the appearance of goal-directed behavior, why not to any system that appears to be goal directed, such as mouse traps or heat-seeking missiles?

But if, as I am claiming, this approach confuses epistemology and ontology, what is the right way to look at such questions? How, for example, would we test the hypothesis that snails had consciousness and termites did not? Well, here is one possible way. Suppose we had a science of the brain which enabled us to establish conclusively the causal bases of consciousness in humans. Suppose we discovered that certain electrochemical sequences were causally necessary and sufficient for consciousness in humans. Suppose we knew that humans that had those features were conscious and humans that lacked them lacked consciousness. Suppose we knew, for example, in our own

case, that if we knocked out these specific features through anaesthetics, we became unconscious. We may suppose that this is an extremely complicated electrochemical phenomenon, and following a long philosophical tradition, I will simply abbreviate its description as XYZ. Suppose that the presence of features XYZ in the otherwise normal human brain are causally both necessary and sufficient for consciousness. Now, if we found XYZ present in snails but absent in termites, that would seem very strong empirical evidence that snails had consciousness and termites did not. If we had a rich enough theory so that we could identify XYZ as causally both necessary and sufficient for consciousness, then we might regard the hypothesis as definitely established, pending, of course, the usual hesitations about the ultimate falsifiability in principle of any scientific hypothesis.

VI.

If the ontological questions are mostly for specialists, what about the epistemology? Here we find plenty of opportunities to clear up philosophical confusions. I have said that contrary to Descartes we are absolutely confident that the higher animals are conscious; but what are the grounds for our confidence? After all, we can design machines that can behave in some areas just as intelligently as animals, perhaps more so, and we are not inclined to ascribe consciousness to these machines. What's the difference? What other than biological chauvinism would lead us to ascribe consciousness to animals but not, for example, to computers?

The standard answer has been that we know of the existence of other minds in animals in the same way we know it in humans, we infer from the *behavior* of the human or animal that it has consciousness and other mental phenomena. Since the behavior of other humans and animals is relevantly similar to my own, I infer that they have conscious states just like mine. On this view, if we could build a mechanical animal out of tinker toy parts that behaved like real animals, we would have to say that it too had consciousness.

In response I want to say that I think this view is hopelessly confused and that behavior by itself is simply irrelevant. Even if we confine ourselves to verbal behavior, as Descartes did, it is important to point out that my car radio exhibits much more intelligent verbal behavior, not only than any animal but even than any human that I know. Furthermore, it is capable of extremely intelligent verbal behavior. It will on demand provide me with predictions of the weather, reports of the latest news, discussions of the Stock Market as well as Western songs and rock and roll music, and it will display a large number of other forms of verbal behavior, even some where the same radio speaks with a whole lot of its different voices at once. But I do not for a moment suppose that my radio is conscious, and I have no doubt that my dog is conscious. The reason for the distinction is that I have a theory. I have a theory about how radios work and I have a theory about how dogs work. By 'theory' I do not mean anything fancy, I just mean a kind of commonsense theory. I know that

a radio is a machine designed for the purpose of transmitting the voices and music produced by people a long way away in such a fashion that I can hear it in my living room or my car. I know that my dog has a certain inner causal structure that is relevantly similar to my own. I know that my dog has eyes, ears, skin, etc., and that these form part of the causal bases of his mental life, just as similar structures form part of the causal bases of my mental life. In giving this answer, I am not trying to "answer skepticism" or trying to "solve the other minds problem." I do not think there is any such problem and I do not take skepticism seriously. Rather, I am explaining what are in fact, in real life, the grounds for our complete confidence that dogs are conscious and radios are not. It is not a matter of behavior as such. By itself, behavior is irrelevant. Behavior is only interesting to us to the extent that we see it as the expression of a more ontologically fundamental causal structure. The principle by which we "solve the other minds problem for animals" is not that intelligent behavior is proof of consciousness but rather the principle is that if the animal has a causally relevant structure similar to our own, then it is likely to produce the similar mental states in response to similar stimuli. The "behavior" is simply evidence that it is so responding. Nothing more.

Contrary to the whole epistemological tradition I am suggesting that the grounds on which we found our certainty that animals are conscious is not that intelligent behavior which is the same or similar to ours is proof of consciousness, but rather that causal structures which are the same or similar causal structures to ours produce the same or similar effects. Behavior, even linguistic behavior, is only relevant given certain assumptions about structure. That is why we attribute consciousness to humans and animals, with or without language, and we do not attribute it to radios.

But even saying this seems to me to concede too much. It will almost unavoidably give the impression that I think there really is an other minds problem, that there are tests that a system must pass in order to have a mind, and that dogs and baboons are passing the tests and computers as well as chairs and tables are failing. I think that is the wrong way to see these matters and I will now try to explain why.

The worst mistake that we inherited from Cartesianism was dualism, together with all of its idealist, monist, materialist, physicalist progeny. But the second worst mistake was to take epistemology seriously, or rather to take it seriously in the wrong way. Descartes together with the British empiricists and right up through the Positivists and the Behaviorists of the twentieth century have given us the impression that the question: "How do you know?" asks the fundamental question, the answer to which will explain the relation between us as conscious beings and the world. The idea is that somehow or other we are constantly in some epistemic stance toward the world whereby we are making inferences from evidence of various kinds. We are busy inferring that the sun will rise tomorrow, that other people are conscious, that objects are solid, that events in the past really occurred, etc. In this case, the idea is that the evidence that we have that other people are conscious is based on their

behavior, and since we see relevantly similar behavior in dogs and primates, we may reasonably infer that they, too, are conscious. Against this tradition, I want to say that epistemology is of relatively little interest in philosophy and daily life. It has its own little corner of interest where we are concentrating on such things such as how to understand certain traditional skeptical arguments, but our basic relationships to reality are seldom matters of epistemology. I do not infer that my dog is conscious, any more than, when I come into a room, I infer that the people present are conscious. I simply respond to them as is appropriate to respond to conscious beings. I just treat them as conscious beings and that is that. If somebody says, "Yes, but aren't you ignoring the possibility that other people might be unconscious zombies, and the dog might be, as Descartes thought, a cleverly constructed machine, and that the chairs and tables might, for all you know, be conscious? Aren't you simply ignoring these possibilities?" The answer is: Yes. I am simply ignoring all of these possibilities. They are out of the question. I do not take any of them seriously. Epistemology is of very little interest in the philosophy of mind and in the philosophy of language for the simple reason that where mind and language are concerned, very little of our relationship to the phenomena in question is epistemic. The epistemic stance is a very special attitude that we adopt under certain special circumstances. Normally, it plays very little role in our dealings with people or animals. Another way to put this is to say that it does not matter really *how* I know whether my dog is conscious, or even *whether* or not I do 'know' that he is conscious. The fact is, he is conscious and epistemology in this area has to *start* with this fact.

There are indeed grounds for my certainty in the cases of dogs, chairs, tables, baboons, and other people, and I tried to state some of those grounds earlier, but the important thing to see is that I am certain. When I state the grounds for my certainty I am not trying to answer philosophical skepticism or "prove" that animals have minds and tables and chairs do not.

However, though the general or philosophically skeptical form of the "other animals' minds problem" seems to me confused, there are quite specific questions about specific mechanisms the answers to which are essential to scientific progress in this area. For example, how are cats' visual experiences similar to and different from that of humans'? We know quite a lot about this question because we have studied the cat's visual system fairly extensively, and we have an extra motivation for wanting to answer it because we need to know how much we can learn about the human visual system from work done on cats. Furthermore, we currently suppose that certain species of birds navigate by detecting the earth's magnetic field. And the question arises, if they do this, do they do it consciously? And if so, what are the mechanisms for conscious detection of magnetism? In the same vein, bats navigate by bouncing sonar off solid objects in the dark. We would like to know not only what it feels like to do this but what the mechanisms are that produce the conscious experience of detecting material objects by reflected sound waves. The most general question of all is this: What exactly are the neurobiological mechanisms

by which consciousness is produced and sustained in animals and humans? An answer to this question would give us solid epistemic grounds for settling the issue as to which animals are conscious and which are not.

Such epistemic questions seem to me meaningful, important, and indeed crucial for scientific progress in these areas. But notice how different they are from traditional philosophical skepticism. They are answered by doing specific work on specific mechanisms, using the best tools available. For example, no one could have said in advance, just on the basis of philosophical reflection, that using PET scans and CAT scans would prove crucial in studying human and animal minds. To these genuine epistemic questions the answer is always the same: Use your ingenuity. Use any weapon you can lay your hands on and stick with any weapon that works. With this type of epistemology we have the best chance of understanding both human and animal minds.

NOTES

1. See John R. Searle, *The Rediscovery of the Mind* (Cambridge, Mass., 1992) for arguments to substantiate this claim.
2. This was an argument popular during my student days at Oxford in the 1950s. I first heard it in lectures and seminars by Stuart Hampshire. I do not know if he ever published it.
3. D. Davidson, "Thought and Talk" in *Truth and Interpretation* (Oxford, 1984), 155–70.
4. *Ibid.*, 170.
5. Cf. John R. Searle, "Minds, Brains and Programs," *Behavioral and Brain Sciences* 3 (1980): 417–24.