

## DO ANIMALS HAVE BELIEFS?

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Do animals have beliefs? Many of the philosophers who have thought about this question have taken the answer to be obvious. Trouble is, some of them take the answer to be obviously yes, others take it to be obviously no. In this disagreement both sides are surely wrong. For whatever the answer may be, it is not obvious. Moreover, as I shall argue, both sides are wrong in a more serious way, for on my view the issue itself is moot. If I am right that the issue is moot, it is not for any lack of information about the details of animal psychology. What is at issue is not what animals are like, but whether the concept of belief can properly be applied to animals, *given* certain relatively uncontroversial assumptions about what animals are like. Working toward an answer requires that we dissect out various features of the concept of belief. And it is here that the philosophical interest of the issue lies. To begin, I will set out what I take to be the best case for both an affirmative and a negative answer to our question.

### 1: *The Case For Animal Beliefs*

Do animals have beliefs? Of course they do. Our notion of belief is embedded in a network of views we use in explaining action or behaviour. This network constitutes a sort of commonsense theory about how behaviour is to be explained. The theory is 'functional' in the sense that the states it postulates are characterised only in terms of their relations to each other, to perception (and other environmental stimuli) and to behaviour. So while each *token* or instance of one of these functionally characterised states is surely to be identified with some state characterised in physical or physiological terms, functional state *types* admit of no such identification with physical state types. Now when we attribute a belief to an animal we are presupposing that our commonsense psychological theory provides (at least a first approximation to) a correct explanation of the animal's behaviour. The presupposition makes an empirical claim, of course, and it could be false. But there is good reason to think that our informal psychological theory does provide (at least a first approximation to) a correct explanation of the behaviour of (at least higher) animals. Indeed, the reasons for thinking that our commonsense theory applies to animals are quite parallel to the reasons for thinking that it applies to humans. To see all this let us sketch in some of the outlines of our informal psychological theory.

The theory postulates two very different sorts of functional states, beliefs

and desires, with normal subjects having a large store of each. Desires can arise in a variety of ways. One way in which they typically arise is as a result of deprivation. An organism deprived of food, water or sexual release, will acquire a desire for food, water or sexual release, the strength of the desire generally increasing with the length of time the organism has been deprived. Also, organisms generally have a strong desire to escape from painful stimuli. Desires can, in addition, be generated by the interaction of beliefs with other desires. Thus, for example, if a dog wants something to eat and if it believes there is a meaty bone in the next room, it may well acquire a desire to go to the next room. It need not acquire this desire, however. It may, for example, also believe that it would be severely shocked if it were to go into the next room, and thus not desire to go into the room despite the presence of the bone. Alternatively, it might fail to form the desire without the influence of some overriding desire, like the desire to avoid pain. For it might simply be a rather stupid dog, or perhaps (like all of us from time to time) it may simply fail to make use of its beliefs about the bone. The belief might 'slip its mind'.

Desires, or at least a certain subset of them, are capable of causing behaviour. Generally, if an organism now wants to move its body in a particular way and if it has no incompatible wants, it will move its body in this way. Higher level desires, like the desire to get his master to open the door, can result in behaviour by generating (in collaboration with appropriate beliefs) one or more of these low level desires that are capable of causing bodily movement. The lowest level desires, those capable of causing actions without the intervention of further desires, mark a sort of boundary in our informal psychological theory. There is, doubtless, some extraordinarily complex mechanism or system of mechanisms which mediate between these lowest level desires and the bodily motions they cause. However, our commonsense theory has little to say about these 'desire effecting' mechanisms, beyond the minimal claim that, in normally functioning organisms, they generally succeed in transforming a lowest level desire into a suitable action.

Like desires, beliefs have a variety of causes. The two most conspicuous ones are perception and inference. If our canine's master puts a meaty bone in the dog's dish, if the dog has a clear view of the proceedings, if it is paying attention and is psychologically normal, then the dog will form the belief that there is a meaty bone in its dish. It will also, no doubt, form a variety of further beliefs, some enduring and some ephemeral, as a result of observing its master's activity. In a similar way, perception also leads to the removal of beliefs from an organism's store of beliefs. The processes mediating between stimulation of the sense organs and formation or elimination of beliefs is, no doubt, a vastly complicated one. But our intuitive psychological theory is uninformative about the details, requiring only that there be some mechanism leading from stimulation to the appropriate belief.

Beliefs can also be generated by other beliefs. When tolerably coherent, the process whereby beliefs generate further beliefs counts as inference. Thus, for

example, Fido may believe that if he scratches at the door his master will open it, and also that if the door is opened he will be able to reach a bone. From the pair he may infer that if he scratches at the door he will be able to reach the bone. Not all inferences need be so blatantly deductive in structure; many, perhaps most, instances of inference are inductive. Moreover, the relation of deductive logic and inductive logic (if there is such a subject) to actual inference is not at all straightforward. A subject will not draw all the logically permissible inferences from his beliefs, nor will all his inferences be logically permissible.

The preceding few pages by no means constitute an exhaustive survey of our intuitive 'belief-desire' psychological theory.<sup>1</sup> But they do portray enough of the skeleton of our intuitive theory to support the claim that animals have beliefs. For in making this claim we are contending that the best psychological explanation of animal behaviour will be provided by a theory which follows the general pattern of our intuitive belief-desire theory. Of course we expect that a fully worked out theory explaining animal behaviour will be much richer in detail than our commonsense theory. And we should not be surprised if one or another feature of our intuitive theory is contradicted by a mature theory. But if animals have beliefs then the best psychological explanation of animal behaviour will be provided by a theory which, for the most part, is an elaboration and refinement of our informal belief-desire theory. And conversely, if our intuitive theory is a tolerable first approximation to a correct theory, then animals do have beliefs.

Why now should we think that our intuitive theory is a good first approximation? The sharpest answer is that our reasons for thinking the best explanation of animal behaviour will be provided by a belief-desire theory are much the same as our reasons for thinking that the best explanation of *human* behaviour will be provided by such a theory. We have a virtually endless stock of examples of human behaviour for which the only even remotely plausible explanation we can offer is in terms of the subject's beliefs and desires. Thus suppose *S* sees his wife put some beer in the refrigerator. Some hours later, while eating salty potato chips, *S* says, 'I think I'd like a beer'. He then goes to the refrigerator and takes a beer. It boggles the mind to think that the explanation of such ordinary activities will not appeal to the subject's desires and his beliefs. The situation is quite parallel for animals (or at least for higher animals). Here too we have innumerable examples of behaviour for which the only plausible explanation appeals to the animal's beliefs and desires. (If we suppress the verbal expression of the desire, and make a few additional changes to accommodate canine tastes and capacities, the example just cited can easily be warped into an illustration.) It is of course *possible* that there is some theory to be found which explains the behaviour of higher animals without appeal to the sorts of states and interactions postulated by our intuitive belief-desire theory. Thus, for example, it is

<sup>1</sup> For a more detailed account, cf. my *The Case Against Belief* (in preparation).

logically possible (though just barely) that behaviourists might produce a better explanation of behaviour invoking none of the elaborate psychological mechanisms of a belief-desire theory. Rather less farfetched is the possibility that a sophisticated information processing theory might be constructed, none of whose various sub-components could comfortably be identified with the stores of beliefs and desires postulated by our commonsense theory. However, and this is the crucial point, it would be remarkable indeed if a theory could be produced which explains the behaviour of higher animals without appeal to beliefs and desires, and if this theory could *not* be adapted to explain *human* behaviour as well. In light of the evolutionary links and behavioural similarities between humans and higher animals, it is hard to believe that belief-desire psychology could explain human behaviour, but not animal behaviour. If humans have beliefs, so do animals.

## 2. *The Case Against Animal Beliefs*

Do animals have beliefs? Of course not. If we were to suppose that animals do have beliefs, we would find ourselves utterly incapable of saying *what* they believe. But it is absurd to suggest that we can explain an animal's behaviour in terms of its desires and beliefs when we cannot say what it is that the animal believes.

To see the problem in attempting to attribute beliefs to animals we need only take a careful look at an example of the sort typically cited by those who are fond of such attributions. Thus consider trusty Fido who sees his master bury a meaty bone in the back yard. Fido goes out the door and begins pawing at the very spot where the bone is buried. On the belief-desire account, Fido believes that there is a meaty bone buried in the yard and wants to get it. More has to be added to flesh in the belief-desire explanation of the dog's behaviour, but we already have enough to see where the problem arises. It surely cannot be quite right to say that Fido believes there is a meaty bone buried in the yard. After all, Fido does not even have the concept of a bone, much less the concept of a meaty bone or a yard. He may be able to recognise bones tolerably well, provided they are typical examples and presented under conditions that are not too outlandish. But this is hardly enough to establish that he has the concept of a bone or any beliefs or desires about bones. For Fido does not, it seems safe to assume, have any beliefs about the origin and general anatomical function of bones. Nor would he recognise or exhibit any interest in chewing atypical bones — the bones of the middle ear, for example, or the collar bone of a blue whale. Worse yet, Fido does not know the difference between real bones and a variety of actual or imaginable ersatz bones (made of realistic looking plastic, perhaps, and partially covered with textured soy protein suitably flavoured). Nor is there anything that would count as explaining the difference between real and fake bones to the dog. Fido is incapable of understanding that distinction. But given Fido's *conceptual and cognitive poverty* in matters concerned with bones, it is surely wrong to ascribe to him any belief about a *bone*. To clinch

the point, we need only reflect that we would certainly balk if the same belief were attributed to a human who was as irremediably ignorant about bones as we take Fido to be.

Obviously this argument may be reiterated, *mutatis mutandis*, for meat, yards, and burying. None of these concepts would be attributed to a human who is as irremediably ignorant as Fido. And if we would not attribute these concepts to such a human we cannot attribute them to Fido either. But if Fido lacks the concepts of meat, bone, burying and yard, plainly he does not believe that there is a meaty bone buried in the yard. It is equally obvious that the same sort of argument could be constructed against just about any attribution of a belief to Fido. If so, then it is quite absurd to suggest that dogs have beliefs, for if a dog does have a belief we cannot say *what* it believes. We cannot explain a dog's behaviour in terms of its beliefs since we cannot say what a dog's beliefs are.

### 3. *Armstrong's Way Out*

The previous two sections have developed a dilemma. On the one hand, it was argued that it is as reasonable to think a belief-desire psychology can explain the behaviour of higher animals as it is to think that such a theory can explain the behaviour of people. On the other hand, we seem quite unable to say what it is that an animal believes, and thus quite unable even to begin an explanation of its behaviour in terms of its beliefs and desires. This dilemma has been noted by David Armstrong in his recent volume *Belief, Truth and Knowledge*.<sup>2</sup> Armstrong's effort to resolve the dilemma is, I think, thoroughly unsuccessful. But it is an instructive failure. Sketching Armstrong's view and its problems will be a good way to sharpen our focus on the roots of the dilemma.

Armstrong begins by relating an example, essentially similar to the one above, in which a dog's behaviour tempts us to say that he believes a bone is buried in a certain spot. He then observes:

It is entirely natural to explain the dog's action by attributing certain beliefs to him. And if the explanation is so natural, that is already some argument for thinking it an intelligible explanation (whether or not it is a true explanation). Against this, however, it is argued that this 'natural' explanation of the observed facts becomes suspect when it is asked exactly what it is that the dog believes. Has the dog got concepts of 'burying', of 'bone', . . .? It is sufficiently obvious that he does not have our concepts of these things. But if he lacks our concepts, what can it mean to say that 'he believes that he has a bone buried there' . . .? We want to say that the dog believes something — but we do not seem able to say what! Is our attribution of beliefs to the dog really intelligible after all? Perhaps it is concealed nonsense. (p. 25)

<sup>2</sup> Cambridge University Press, 1973. Page references to Armstrong's book will be given in parentheses in the text.

Armstrong proposes to resolve the problem by invoking 'a distinction which Quine has made familiar between referentially opaque and referentially transparent propositions about belief.' (p. 25) Although he gives us no formal characterisation of the distinction, Armstrong hints that the essential difference between the two sorts of propositions is that the transparent ones but not the opaque ones allow substitution of co-referential expressions 'without loss of truth'. (p. 26) Now on Armstrong's view, when we offer a plausible belief-desire explanation of an animal's behaviour, we use referentially transparent propositions to attribute beliefs to the animal.

... the referentially opaque construction is the more fundamental. For it tells us the actual content of the belief which is in the believer's mind. The referentially transparent mode of speech is a way of talking about beliefs without actually saying what their content is. Such a glancing or indirect style of reference has obvious utility in discourse. It is particularly useful when the exact content of the belief is not known. And this, I suggest, is what is happening in our reference to animals' beliefs. We do not know the exact contents of their beliefs and our attributions of belief to them have no more than referentially transparent force. (p. 26)

Applying this idea to the case of the dog, Armstrong maintains that while we do not know the exact contents of the dog's beliefs, we can still talk about his beliefs using the 'loose or referentially transparent way of talking about beliefs'.

In saying that the dog believes that his master is at the door we are, or should be, attributing to the dog a belief whose exact content we do not know but which can be obtained by substituting *salva veritate* in the proposition 'that his master is at the door'.

Our assertion about the dog makes a claim of the following sort. The dog has a belief of the form  $R(a,b)$ . 'a' is the canine individual concept which picks out the very same individual as our individual concept that we express by the words 'the dog's master'. 'b' is a canine individual concept which picks out the very same individual as our individual concept that we express by the words 'the door'. 'R' is a canine concept that is applicable to the very same class of ordered pairs (or much the same class) as our spatial concept that is expressed by the word 'at' in sentences like 'the dog's master is at the door' . . .

Generations of work by animal psychologists may be necessary before the exact content [of the dog's belief] is known. (pp. 26-27)

There are, I think, a pair of problems with Armstrong's proposed escape. The first, and more superficial, is that Armstrong is simply mistaken about the behaviour of the locutions we use in our everyday attributions of beliefs to animals. Our ordinary talk about animal beliefs cannot be viewed as employing a construction that behaves in the way Armstrong describes, since there is *no* locution in English that behaves in this way. It is plausible enough to suggest that English sentences of the form

(1) *S* believes that *Pa*  
 (for example: Todd believes that the Postmaster General is Irish) are ambiguous. On one reading, the opaque or *de dicto* reading, they tolerate little or no alteration of the content sentence (the sentence replacing '*Pa*') without risk of changing a truth into a falsehood. On the transparent or *de re* reading, by contrast, we can freely interchange the term replacing '*a*' with a co-designating name or definite description *salva veritate*.<sup>3</sup> However, Armstrong requires a construction which is considerably more logically pliable than the transparent belief construction. For on his account, our ordinary attributions of beliefs to animals must also permit the substitution of co-extensive predicates within the content sentence. Such a construction would view the inference from

*S* believes that *Pa*  
 and

$(\forall x)Px \equiv Qx$   
 to

*S* believes that *Qa*  
 as a valid one. But there is no such construction in English. There is, for example, no reading of

(2) Jones believes that the department chairman is going to audit his class.  
 that allows the inference from (2) and

(3)  $(\forall x)x$  is going to audit Jones' class  $\equiv x$  has witnessed the birth of a giant panda in captivity.

to

(4) Jones believes that the department chairman has witnessed the birth of a giant panda in captivity.

And if there is no such construction in English, then it cannot be the case that in ordinary attributions of beliefs to animals we are saying what Armstrong claims we are.

I indicated earlier that the problem just detailed is a relatively superficial one. Confronted with my criticism, Armstrong could simply grant the point that our ordinary attributions of beliefs to animals cannot be invoking the construction he suggests. But, he might continue, if we do not ordinarily employ such an idiom in talking about animal beliefs, there is no reason why we could not *begin* to talk about animal beliefs in this way. That is, there is no reason why we could not simply introduce a construction, say 'believes\*', into English as follows:

A sentence of the form

*S* believes\* that *R a*<sub>1</sub>, *a*<sub>2</sub>, . . . , *a*<sub>*n*</sub>

is true if and only if there are denoting expressions *a*<sub>1</sub>', *a*<sub>2</sub>', . . . , *a*<sub>*n*</sub>' whose denotations are the same as *a*<sub>1</sub>, *a*<sub>2</sub>, . . . , *a*<sub>*n*</sub> respectively and there is a

<sup>3</sup> Neither the alleged ambiguity nor the proposed criterion for drawing the *de dicto* / *de re* distinction is uncontroversial. Cf. E. Sosa, 'Propositional Attitudes *de Dicto* and *de Re*', *Journal of Philosophy* LXVII, 21, 1970. Also see T. Burge, 'Belief *De Re*', *Journal of Philosophy* LXXIV, 6, 1977.

predicate  $R'$  whose extension is the same as the extension of  $R$  (or nearly so) and the sentence

$S$  believes (in the *de dicto* sense) that  $R' a_1', a_2', \dots, a_n'$  is true. Of course such a move leaves us with no account of how our ordinary attributions of beliefs to animals are to be analysed. But that question is largely irrelevant to the issue of whether animals have beliefs.

Let us stand back for a moment and retrace the thread of the argument to see just where we have got to. We began with a dilemma: on the one hand, it seems just as plausible that higher animals' behaviour can be explained by a belief-desire theory as it does that human behaviour can be so explained; on the other hand, we seem unable to *say* just what it is that an animal believes. The proposal we have just urged on Armstrong by way of reply would provide us with a way of talking about an animal's beliefs, thus blunting the second horn of the dilemma. Notice, however, that the proposal presupposes that there are *de dicto* (or opaque) belief sentences which correctly and accurately attribute beliefs to animals, although, of course, Armstrong suggests that we do not now know what they are. This claim is central to Armstrong's strategy for dealing with the dilemma of animal belief. As Armstrong sees it, the difficulty we find in saying just exactly what it is an animal believes is rooted in our own empirical ignorance. And though it may take 'generations of work by animal psychologists' to discover the exact contents of a dog's beliefs, Armstrong foresees no problem in principle in producing accurate, *de dicto* accounts of what is believed. The view is surely a tempting one. It holds out a promise of a single theory capable of explaining both human and animal behaviour, and it also suggests an agreeably non-cosmic resolution of the dilemma about animal beliefs. The fact that we cannot say with precision what the contents of an animal's beliefs are indicates not that animals have no beliefs but only that we do not know enough about animals.

On my view, Armstrong's resolution of the dilemma is fundamentally mistaken. Our difficulty in specifying the contents of animals' beliefs derives not from an ignorance of animal psychology but rather from a basic feature of the way we go about assigning content to a subject's beliefs: *We are comfortable in attributing to a subject a belief with a specific content only if we can assume the subject to have a broad network of related beliefs that is largely isomorphic with our own.* When a subject does not share a very substantial part of our own network of beliefs in a given area we are no longer capable of attributing content to his beliefs in this area. The greater the disparity between a subject's beliefs and our own, the clearer it becomes that, as Armstrong puts it, 'he lacks our concepts'.<sup>4</sup>

Armstrong thinks that the difficulty can be remedied simply by studying

<sup>4</sup> The observation that attributions of content presuppose substantial agreement between ourselves and our subject is not original with me. Donald Davidson, for example, has made the point as follows.

We can . . . take it as given that *most* beliefs are correct. The reason for this is that a belief is

animals and finding out what their concepts are. It is important to see why this strategy will be of no help. There is, of course, much we could do that would plausibly count as 'studying an animal's concepts'. But nothing we could discover would enable us to attribute content to an animal's beliefs. To make the point, let us consider the example of Fido and his bone. Suppose that Fido is keen on bones; he will run through his entire routine of tricks for a bone, and once he has it he will gnaw contentedly for hours. Further, let us suppose that Fido is nowhere nearly so keen on other rewards, scorning table scraps (except for bones, of course) and turning up his nose at dog biscuits. Plainly, then, Fido has the capacity to discriminate bones from the rest of the objects of the world. And this, let us grant for argument's sake, suffices to establish that Fido has or can invoke a concept. However, Fido is not a flawless bone recogniser. There are some bones (very small ones and very large ones, perhaps) which he treats with the same scorn he accords table scraps. And there are many possible ersatz bones which Fido cannot distinguish from the real thing. So Fido's 'bone concept' is not the same as ours. Still, we can surely study his concept. We might, for example, undertake to discover just what class of actual or possible objects will set off Fido's 'bone-recognising' mechanism, i.e. what objects fall under his concept. No doubt the answer will be a complex one. What sets off Fido's 'bone-recogniser' will be objects which fall within a very complex range of shapes whose surfaces are covered with any one of a number of combinations of

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identified by its location in a pattern of beliefs; it is the pattern that determines the subject matter of the belief, what the belief is about. Before some object in, or aspect of, the world can become part of the subject matter of a belief (true or false) there must be endless true beliefs about the subject matter. False beliefs tend to undermine the identification of the subject matter; to undermine, therefore, the validity of a description of the belief as being about that subject. And so, in turn, false beliefs undermine the claim that a connected belief is false. To take an example, how clear are we that the ancients — some ancients — believed that the earth was flat? *This* earth? Well, this earth of ours is part of the solar system, a system partly identified by the fact that it is a gaggle of large, cool, solid, bodies circling around a very large, hot star. If someone believes none of this about the earth, is it certain that it is the earth he is thinking about? An answer is not called for. The point is made if this kind of consideration of related beliefs can shake one's confidence that the ancients believed the earth was flat. It isn't that any one false belief necessarily destroys our ability to identify further beliefs, but that the intelligibility of such identifications must depend on a background of largely unmentioned and unquestioned true beliefs. To put it another way: the more things a believer is right about, the sharper his errors are. Too much mistake simply blurs the focus. ('Thought and Talk' in S. Guttenplan, ed., *Mind And Language* (Oxford: 1975).)

Davidson and I differ only in that on my view content attribution presupposes a *shared* background of beliefs, while on his view what is presupposed is a *true* background of belief. The two views all but converge if we grant that most of *our* beliefs are true — a position few are inclined to deny. However, it is agreement not truth which is central, as is shown by the fact that if a subject simply *lacks* enough of our beliefs, though he holds no false ones, content attribution is undermined as surely as it would be if he held false beliefs.

We would do well to note in passing that if Davidson and I are right that content attribution presupposes substantial agreement, then this fact itself requires an explanation. I try my hand at such an explanation in *The Case Against Belief* (in preparation). The details make for a very long story.

organic molecules which give the object the flavour and aroma that Fido craves. Actually, the story about Fido's 'bone concept' will be more complex still, since surface texture, hardness and colour properties will likely all enter into Fido's recognition. In addition, a specification of the clusters of properties that trigger Fido's 'bone-recognition' responses will probably bristle with disjunctions. However let us speculate no further about the details. Instead, suppose that after years of research by animal psychologists we have discovered a list of properties, geometric, biochemical, etc. such that Fido exhibits his 'bone-recognition' behaviour when and only when these properties are present. That is, what we have discovered is that an object falls under Fido's concept if and only if it is  $P_1 \ \& \ P_2 \ \& \ \dots \ \& \ P_n$ , where ' $P_1$ ', ' $P_2$ ' etc. are each complex specifications of geometric, chemical and other properties.

Now, knowing this much about Fido's concept, are we any better off in finding a content sentence to express what he believes? The answer, clearly, is no. For suppose there is a bone directly in front of Fido, clearly in view. Suppose further that it is one of those bones which is  $P_1 \ \& \ P_2 \ \& \ \dots \ \& \ P_n$ . Fido clearly recognizes it; he tenses with anticipation. What is it that he believes? We have already argued that we cannot capture the content of his belief by saying

Fido believes that there is a bone in front of him.

And surely it is even less plausible to suggest

Fido believes there is an object in front of him which is  $P_1 \ \& \ P_2 \ \& \ \dots \ \& \ P_n$ .

For that is a belief we could attribute to no subject who did not have a substantial knowledge of geometry, organic chemistry, etc. So it looks like Armstrong's way out is a dead end. 'Generations of work by animal psychologists' may uncover a great deal about animal concepts. But it will be of no help in specifying the content of animal beliefs.

#### 4. *Belief and Content*

Where has the argument of the previous section left us? This much at least is clear. If the argument is sound, then Armstrong has not provided us with a viable escape from the dilemma of animal beliefs. It might be thought that we could draw a much stronger and more powerful conclusion. In the course of our discussion of Armstrong we developed an argument to show that we could not attribute content to the beliefs of subjects whose total collection of beliefs differed significantly from our own. And since animals seem to be such subjects, we have an argument that we cannot attribute content to an animal's beliefs. But, it might be claimed, this is tantamount to granting that animals *have no beliefs*. For what sense could it make to say that animals have beliefs if we *cannot* say what they believe nor what their beliefs are about? This line of argument receives an inadvertent endorsement from Armstrong. In discussing Fido's beliefs he notes the problem of saying what Fido believes, then adds the following:

We want to say that the dog believes something — but we do not seem able to say what! Is our attribution of beliefs to the dog really intelligible after all? Perhaps it is concealed nonsense. (p. 25)

Armstrong seems willing to allow that if we cannot say *what* an animal believes, then perhaps attribution to beliefs to animals is 'concealed nonsense'.

Here, however, Armstrong is too accommodating an adversary. A more adamant advocate of animal beliefs might choose to defend his position even while accepting the argument that we cannot attribute content to an animal's beliefs. What has been shown, the advocate would argue, is *not* that animals do not have beliefs, but only that we cannot attribute content to their beliefs. The former follows from the latter only if we suppose that the possibility of our assigning content is a necessary condition for a psychological state to be a belief. And no argument has been suggested for *that* supposition. Indeed, in light of the dependence of content attribution on a shared fund of background beliefs, it is hardly likely that any such link between belief and content could be defended. For animals are not the only creatures whose background of beliefs differs significantly from our own. The same is true (or may well be) of primitive folk, of persons from cultures radically different from our own, and will surely be true even of our own distant descendants, unless our race succeeds in making itself extinct. If we were to insist that every belief must have some specifiable content, then we would be forced to grant that some future scientist who is explaining to his students the received theory of the day is not expressing any beliefs at all, provided that his theory is radically different from anything we are currently acquainted with. Similarly, we would have to insist that the ancient in Davidson's little story (*cf.* fn. 4), or some more distant ancient with a yet odder and more primitive conception of the world, is not expressing any belief at all. But surely all this is perverse and amounts to no more than a *reductio* of the principle that beliefs must have specifiable content.

On my view, the principle which is the focus of our imagined advocate's arguments lies at the core of the dilemma of animal belief. The dilemma arises because we generally conceive of beliefs as having two quite different sorts of properties. On the one hand, we take beliefs to be functional or psychological states of quite a special sort. Beliefs are states which interact with desires, with perception and with each other in the ways sketched in section 1. Thus a psychological model of a subject who has beliefs (and desires) would have to fit the pattern elaborated there. On the other hand, beliefs are states with content; they are propositional attitudes. If a state is a belief we expect it to be a belief *that* something or other; we expect there to be some way of expressing its content. The two common characteristics of beliefs need not, as a matter of logic, occur together. For, as we have noted, the assignment of content to a belief-like state requires that the state be part of a system of belief-like states which is largely congruent with our own. There may, however, be entities (natural or artificial) whose general

organisation and structure is just as indicated in section 1, but where the internal organisation of the belief store is as different as you please from the internal organisation of our own belief store. That is, there may be entities — organisms or automata — for which models can be constructed that fit the pattern elaborated in section 1 although the internal organisation of the model's 'belief store' is radically different from the internal organisation of the belief store in models for familiar people. This is enough to show that the second feature of beliefs — having expressible content — is not entailed by the first (the 'structural' features).

Our most common use of the notion of belief is in the course of describing our compatriots and explaining their actions. And in this context we can safely ignore the fact that a system of psychological states could exhibit some of the characteristics of beliefs while lacking another. However, trouble looms when we attempt to apply the notion of belief to more exotic subjects, be they human, animal, or artifact. It is here that the two features of our ordinary conception of belief pull apart. Consider, for example, the pair of arguments with which this paper began. The argument that animals do have beliefs aimed to show that a psychological model of an animal could well have the structural features of a belief-desire model. There is, it was argued, about as much reason to think that a model for a higher animal would exhibit this form as there is to think that a model for a human would. The argument that animals do not have beliefs focused instead on the issue of content. If we suppose that animals have beliefs, it was argued, we find ourselves quite unable to say what they believe.

What are we to say of these half-breed states that have the structural features of beliefs but lack specifiable content? Are we to count them as beliefs? Before trying to answer this question, let us explore some of the consequences of each answer.

If we opt for an affirmative answer then we are, of course, committed to accepting beliefs without specifiable content. If a subject has one of these beliefs we cannot attribute it to him with a sentence of the form

The subject believes that \_\_\_\_\_.

There is no saying what the subject believes, thus no way of filling in the blank. An equally uncomfortable feature of contentless beliefs is that we cannot readily assign them a truth value. If  $p$  is an eternal sentence and Jones has a belief that can be attributed to her by substituting  $p$  in

Jones believes that \_\_\_\_\_.

then Jones' belief is true if and only if  $p$  is true. If  $p$  had contained indexicals or demonstratives, our specification of the conditions under which Jones' belief is true would be a bit more complicated, though still quite straightforward. But what are we to say of a belief whose content we cannot specify? Under what conditions is it true or false? There is, it seems, no obvious account of truth for such beliefs. In depriving beliefs of expressible content we have also deprived them of truth values. What is more, we have largely undermined the notion of rationality. A good part of rationality is the disposition to draw

inferences that conform to a pattern which is generally truth preserving. However, there is no sense to be made of the notion of a generally truth-preserving pattern of belief generation if the beliefs themselves are neither true nor false.

So much for the uncomfortable consequences of the view that belief-like states without specifiable content should still be counted as beliefs. Let us turn now to a more attractive consequence of the view. If these belief-like states are beliefs, then it is at least possible that belief-desire psychology might be true. That is, it is at least possible that we can construct theories explaining the behaviour of organisms (partly) in terms of their beliefs and desires. Or, to put it the other way around, if belief-like states without specifiable content are not to count as beliefs, then it is not possible to construct a theory which explains an organism's behaviour in terms of its beliefs and desires. This is obvious enough for animals, since if belief-like states whose content we cannot specify fail to count as beliefs, then animals have no beliefs. But if such belief-like states are not beliefs, then human behaviour will not be susceptible to a belief-desire explanation either. The superficial reason is that there likely have been (or will be) humans whose belief store is sufficiently different from our own that they did (or will) have no beliefs. The deeper reason is that, if specifiable content is a necessary condition for a belief-like state to be a belief, then 'is a belief' will not be a lawlike predicate and will not find a place in *any* serious theory aimed at explaining behaviour. The line between beliefs and belief-like states which are not beliefs will be determined not by any explanatorily significant feature of the systems in which these states play a role, but rather by similarity (or lack of it) between a subject's belief store and ours. And such a distinction has no place in a mature science which aims at explaining behaviour.

For the last several paragraphs, we have been looking at the consequences of affirmative and negative answers to the question: Must a belief have specifiable content? Let us now turn to the question itself. On the view I have been urging, our ordinary conception of beliefs portrays them as having the structural properties of beliefs and as having specifiable content. So the question we are now asking amounts to asking how central to our concept of belief is the having of specifiable content. Is a belief-like state which lacks a specifiable content simply a somewhat peculiar belief, or is it, in virtue of lacking content, no belief at all? The answer I would urge is that there is no answer. Our informal pre-theoretic concept of belief is simply not up to deciding the question. The features imposed on beliefs by our informal concept do not come marked 'necessary' and 'contingent'. At best some features can be said to be relatively more central, others relatively less central. And there is no doubt that content is a relatively more central feature; beliefs without a specifiable content are intuitively peculiar beasts. It think it is equally clear that if we are to renovate rationally our pre-theoretic concept of belief to better serve the purposes of scientific psychology, then one of the first properties to be stripped away will be content. But given the current

contours of our concept of belief, our question is moot.

Do animals have beliefs? To paraphrase my young son: 'A little bit they do. And a little bit they don't.'

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