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65 Animals use Signs, They just don't know it

> All thinking is by signs; and the brutes use signs. But they perhaps rarely think of them as signs. To do so is manifestly a second step in the use of language. Brutes use language, and seem to exercise some little control over it. But they certainly do not carry this control to anything like the same grade that we do. They do not criticize their thought logically. (CP 5.534, 1905).

The wider context for this quote is Peirce's discussion of pragmaticism in volume five of the Collected Papers, but the immediate context is Peirce's claim that reasoning must be based upon ethics. This claim is itself based on an understanding of reasoning as "thought subjected to self-control", and although Peirce admits that there are modes of self-control that escape consciousness or are instinctive, self-control in thinking is also something we are trained to do and "when a man trains himself, thus controlling control, he must have some moral rule in view, however irrational it may be" (CP 5. 533). Eventually, he may undertake to improve this rule, and then he shall need a moral principle that ultimately must be controlled by "reference to an esthetic ideal of what is fine" (ibid.). This, however, is where humans diverge from other animals. While animals may think and use signs, they do not control their own thoughts logically, and thus they do not behave as genuine ethical subjects.

It will take a historian to decide how usual or unusual these views were in Peirce's own time, but considering present day discussions on animal cognition and morality, they are striking in several ways. The general taboo in science toward anthropomorphism has, for obvious reasons, been exceptionally rigidly maintained in the study of animal behavior where the observer may so easily commit the error of ascribing a human motivational structure to the studied animal. Only very recently have a few cognitive ethologists, such as Marc Bekoff, dared to claim that many animals do, in fact, exhibit behaviors that we cannot well not call moral (Bekoff and Pierce 2009). Most of us would probably not hesitate long to accept this claim when exposed to pictures such as the one shown recently on Facebook of a snake in the Zoo of Hangzhou (Eastern China) that was fed mice. The photo shows the snake already holding one mouse in its mouth while another mouse is trying to bite the snake in the neck (instead of

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escaping and hiding) in what must be a vain attempt to help its fellow sufferer. The amount of anecdotal evidence such as this is overwhelming but doesn't count much in the minds of skeptics. Decent controlled experiments, on the other hand, are difficult to establish as long as the property in question, morality, cannot be measured objectively, such as by genetic or hormonal analysis, but must be evaluated by analogy to human moral behavior. Nevertheless, as Bekoff points out, when skilled ethologists interpret the narratives informed by their knowledge about a particular species, and their attention to context and individual particularities, it cannot be dismissed as anecdotal evidence (ibid.: 37).

Whether apparently altruistic behaviors, such as seen in the mouse example above, really deserve to be called moral behavior is not my concern here. In the end such questions depend on how we define morality. The important point rather is that cognitive ethology in recent years has established strong arguments for the claim that human moral behavior is not a unique property in the world, but a property that has grown out of more primitive forms of social behavior patterns that were already established in several mammal species. The fact that such behaviors antedates the appearance of primates – since they may also occur in more distantly related species such as elephants or mice – confirms Bekoff and Pierce's observation that "morality is an evolutionary adaptation to social living. Many of us tend to think of animals as individual units – the dog underlying my desk, or the squirrel scurrying along the fence toward my bird feeder. But for animals, as for humans, life is really all about social relationships" (ibid.: 45). Even though Peirce could not, in his time, have made such a direct claim, the quote from his work dealt with in this article clearly shows his evolutionary intuition. The mental powers of humans are, of course, unequalled among the 'brutes', but animals are not totally deprived of such powers. Peirce admits that they use signs and even that they use language, but they "do not criticize their own thoughts logically", and therefore their activities are not guided by moral rules or ethical principles.

Again, whether the communicative activity exhibited by apes or other animals deserves to be called language use is not the issue here. I personally prefer a more restrictive use of the term language, but rather then raising insurmountable barriers around specific human capabilities, we should be concerned with uncovering the graded mental landscape that separates us from our remote ancestors. The key point here, according to Peirce, is the kind of self-control that humans intuitively or consciously perform in their thinking. Although we may often forget it or even repress it, we also necessarily know that our thinking relies on concepts and ideas and that such concepts and ideas are not identical to the things in the world to which they refer. They are signs, and only humans seem capable of thinking of signs as signs, which is a necessary step in thinking about thinking

and thus controlling our thoughts. As Frederik Stjernfelt has observed: "Self-control involves taking one's own thought as the object of a meta-level thought. But this is only possible by making the first thought an object – stiffening in the shape of a hypostatic abstraction. Such self-control even makes possible language" (Stjernfelt 2012: 57). Stjernfelt accordingly sees the human ability to perform hypostatic abstractions, such as e.g. the ability to form a concept of "frogness" upon encountering a "frog", to be a central element in the evolution of the human linguistic mindset (Stjernfelt 2007). Self-controlled thinking consists in the conscious – or to some extent unconscious[2] – checking out of whether particular signs "are suitably used, focusing on the relation between sign, object and interpretant" (Stjernfelt 2012, 257–8). Self-control thus is not in itself a creative act, instead it presupposes the creation inside the mind of the person of a range of possible inferences and objects to choose between. Human controlled thinking in this sense is itself indebted to our evolutionary past: "the basic pool of such inference structures is found in the perception-action habits refined through the evolution of animals – habits which have been subjected to increasing degrees of control already over the course of evolution, before they are made, in turn, the object of the vastly increasing human processes of self-control by means of hypostatic abstraction and diagram experimentation" (ibid.: 58).

Peirce saw logic as a "normative science" rooted in aesthetics and ethics: A "person cannot perform the least reasoning without some general ideal of good reasoning, for reasoning involves deliberate approval of one's reasoning; and approval cannot be deliberate unless it is based upon the comparison of the thing approved with some idea of how such a thing ought to appear. Every reasoner, then, has some general idea of what good reasoning is. This constitutes a theory of logic" (CP 2.186). It follows that to Peirce logic was a much wider concept than it was to his contemporaries and to most philosophers of our own time. The narrow deductive and inductive schemes of logic as this discipline is normally conceived would not reflect the richness and creativity of human thinking, or of all thinking in fact, human or not. In addition to induction and deduction, he included abduction as a necessary resource for good human thinking or logic. Thus to Peirce "Logic, in its general sense, is ... only another name for semiotic ({sémeiötiké}), the quasi-necessary, or formal, doctrine of signs" (CP 2.227).

2 While consciousness must guide this search, it surely also must involve a number of intermediate unconscious (and thus uncontrollable!) steps of evaluation along the path. Peirce was well aware of "Reason to be more than a thousand times as fallible as Instinct" (CP 2.177).

Animals use signs, and they think[3], but they don't know that they think through signs, and they cannot therefore reason, they cannot doubt the truth of what they think. This conception of animal cognitive skills is strikingly modern as is also Peirce's understanding of the abductive element of human thinking, an element that was indirectly hinted at by Michael Polanyi (Polanyi 1958) with his concept of tacit knowledge and more directly by Gregory Bateson (Bateson 1979) but which still has not received the attention it deserves in science and philosophy.

3 In one notorious paragraph Peirce even ascribes thinking to brainless or lifeless structures, saying that "thought is not necessarily connected with a brain. It appears in the work of bees, of crystals, and throughout the physical world" (CP 4.551). But this "pancognitivist" and often-cited paragraph seems somewhat out of line with his general thinking.