

**HUMANS AND APES:
ON WHETHER LANGUAGE USAGE, KNOWLEDGE OF OTHERS'
BELIEFS, AND KNOWLEDGE OF OTHERS' EMOTIONS INDICATE THAT
THEY DIFFER WHEN IT COMES TO RATIONALITY**

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Human beings are animals. As Darwinian gradualism would have it, we differ from other animals by variations which made us better adapted to a particular local environment. This gradualism seems to entail either that humans are simply animals with a special set of adaptations or, alternatively, that there are other animals which share in common with us so many features that they are to be grouped with humans and accorded the same rights. In other words, gradualism¹ leads people to conclude that humans are nothing more than really smart apes or, conversely, that apes are simply less intelligent rational beings.

Long before the theory of evolution, people observed that animals are in many ways similar to us. Aquinas goes so far as to say that "animals other than man have some share either in liberality or courage [or some other moral virtue]."² At the same time, Aquinas distinguished humans from other animals on the grounds that humans had reason or the capacity for abstract thought. I think this is a defensible position and I intend to argue in favor of it below.³

¹ Note that one can accept evolutionary gradualism and still maintain that there are radical differences between humans and their closest living ancestors (see note 10 below). Note, also, that it may be the case that evolution does not occur or always occur in a gradualistic manner.

² *Summa Contra Gentiles*, Bk. III, q. 34, edited by C. Pera, O.P. et al. (Turin: Marietti, 1961), 298. Unless otherwise noted, all translations of Aquinas's works are my own.

³ I attempt to work out some of the details concerning language and rationality in "Thomas Aquinas Meets Nim Chimsky: On the Debate about Human Nature and the Nature of Other Animals," *The Aquinas Review* 10 (2003): 1-50 (available online). See also Dennis Bonnette, "Significance of Recent Ape-Language Studies," in *Origin of the Human Species* (Naples, Florida: Sapientia

Nevertheless, I am the first to admit that it is fair to ask whether Aquinas really knew enough about other animals to be able to conclude that we are the only ones endowed with reason. I rather doubt he saw a great ape in his life. I also rather doubt that he was on the lookout for another rational animal, given that, from a theological standpoint, he had reason to think that humans were the only animals who could know and love their creator.⁴ The apparent absence in the animal kingdom of anything in the line of civilization—fine arts, technological improvements, etc.—fit with this line of thought. Perhaps in some unexplored part of the world a non-human civilization was waiting to be discovered. But, given his theological convictions, Aquinas was not inclined to consider such a possibility.

In our day, people did go into remote parts of the world and started observing apes. Some mistaken conceptions of human uniqueness took a hit as a consequence. In the 1960s, when Jane Goodall saw chimpanzees take leaves off twigs to make tools which they used to fish for termites, the notion that we were the only inventive tool-making animal had to be discarded. People had known for a long time that animals like beavers and spiders made artifacts. What was different about the apes was that they did not make tools by instinct, but rather they learned to do so over a period of time.⁵ In the late 1960s, researchers successfully taught apes to communicate using sign language. Evidence thus began to mount that we had perhaps underestimated the cognitive abilities of animals. Some of the more recent research has been directed to determining the ape's ability to recognize itself in a mirror and to testing its theory of mind abilities. In

Press, 2007), 73-102. See also James B. Reichmann, "Human and Non-Human Language," in *Evolution, Animal 'Rights' and the Environment* (Washington, D.C.: The Catholic University of America Press, 2000), 168-240.

⁴ "The likeness of image is found in human nature according as it has a capacity for God [*capax Dei*], namely, by attaining him by its proper operation of knowledge and of love. The likeness of vestige is found only according to some representation existing in the creature from the divine impression; not however from this that the irrational creature, in which there is only such a likeness, is able to attain God through its operation alone" (Thomas Aquinas, *Summa Theologiae*, III, q. 4, a. 1, ad 2, edited by Instituti Studiorum Medievalium Ottaviensis [Ottawa: Commissio Piana, 1953], 2448b).

⁵ Earlier in the 1900s, Wolfgang Köhler studied apes in captivity, focusing on how they made and used tools to solve problems.

this paper, I intend to investigate whether two sorts of recent studies, the language studies and the theory of mind studies, indicate continuity or discontinuity between humans and other animals.

I. LANGUAGE

One of the strongest pieces of evidence that animals do not think thoughts is that apes that have been taught to communicate using signs do not carry on conversations geared to augmenting their own understanding of the world or that of the other participant. We humans have an intellectual understanding of the world. We naturally seek to enlarge this understanding, and we know, at least implicitly, that other humans want to as well—whence we converse.⁶ To do so, we must be capable of recognizing a topic and making statements relevant to the development of that topic. An exchange where one person asks how the weather has been, and the other person answers that figs are sweet is not a conversation. Note that, while we do call an exchange in which one person communicates to another knowledge ordered to some immediate practical application a “conversation” (such as when one person explains to another how to do something), the sort of conversation I am using as a test for the capacity for abstract thought is an exchange in which the participants use symbols to seek or share knowledge desired for its own sake.⁷ For, while some exchanges about practical matters are based on abstract ideas, others take place in the absence of abstract thought. Animals can learn to present certain symbols in order to get what they want in the same manner that they learn to press certain buttons to get what they want; forming an

⁶ For more on the conversation test for rationality, see my paper “Descartes’ Language Test for Rationality: A Response to Michael Miller,” *American Catholic Philosophical Quarterly* 83, no. 1 (2009): 107-25.

⁷ Certain types of conversations are focused on singulars. A typical conversation of this sort is gossip. Even in gossip, however, universal notions come into play. Gossip is not a disinterested description of persons and events, but a description which at least implicitly involves some type of moral judgment. Another sort of conversation focused on the singular is when one discusses one’s feelings. Here, though, there is ultimately a practical goal in mind; the person who talks about their feelings is seeking approbation, correction, consolation, or is wanting to vent, to show appreciation, etc. Chimps that sign to one another sign commands (“come hug”) and things in the line of emotion (“good”).

association is all that is required in both cases. Thus a “conversation” such as the following does not provide evidence of thought on the part of the ape:

Tim presented himself outside [the chimpanzee] Lana’s room with another Coke. Lana’s first response was the stock sentence Please machine give Coke period,⁸ which was correct but not appropriate since the machine had no Coke to vend. Next she said Please Lana drink Coke this room period. Perhaps she intended to say out-of room instead of this room, but she did not. Tim said No. Lana came back with the original composition, ?Lana drink this out-of room period to which Tim responded with a question for clarification ?Drink what period. Lana answered, Lana drink Coke out-of room period. Tim said Yes, the door was opened, the Coke was shared; and Lana’s first conversation, one she had both initiated and successfully negotiated, had been recorded.⁹

If Lana could engage in a simple conversation about whether various beverages are good for your health, as a child is able to do, then we would be convinced that this chimp understood the concepts behind the symbols it was proffering.

The psychologist Clive Wynne, in his recent book *Do Animals Think?*, argues strenuously against the notion that apes converse in the sense of using symbols to express their ideas or acquire new ones, rather than simply to get something. What is particularly interesting about Wynne is that, while he argues that animals do not think, he tells us in the beginning of his book that he neither thinks that his conclusion (that animals do not think) reinstates man at the center of things, nor that humans have a “divine spark” or soul. Yet, unlike the majority of those who subscribe to these views, Wynne, who unabashedly embraces evolution, points to evidence of *evolutionary discontinuity* between apes and us when it comes to language.¹⁰ Among other things,

⁸ Lana communicated by typing graphic symbols for words on a computer keyboard.

⁹ Duane M. Rumbaugh, *Language Learning by a Chimpanzee: The Lana Project* (New York: Academic Press, 1977), 173-74.

¹⁰ Wynne accepts that humans and apes have evolved from a common ancestor. However, he does not see this as a reason to dismiss discontinuities between our closest living relatives and us. In defense of humans (and other

Wynne notes how ape researchers tend to give inflated interpretations of what their apes sign: “Several journalists have published interviews with Kanzi [a bonobo], and those that listen to what Kanzi says, rather than Savage-Rumbaugh’s interpretations, notice the ape’s tendency to monosyllabic conversation focused on treats.”¹¹ Wynne also notes how hard it is to get transcripts of what these animals sign so that we can make up our own minds about the intelligence of these beings.¹² This

organisms) having unique features which their evolutionary relatives lack, Wynne adopts the line of thought developed by Steven Pinker in *The Language Instinct*: “[I]magine what would happen if some animal behaviorists were elephants. Elephants are the only living animals that possess trunks, remarkable organs that are six feet long, contain 60,000 muscles, and enable their owners to carry entire huge trees. The elephant’s closest relative is the hyrax, a guinea-pig-like mammal. Nonetheless, one school of the elephant behaviorists, Pinker writes, ‘might try to think up ways to narrow the gap. They would first point out that the elephant and the hyrax share about 90 percent of their DNA and thus could not be all that different. They might say that the trunk must not be as complex as everyone thought; perhaps the number of muscles has been miscounted. They might further note that the hyrax really does have a trunk, but somehow it has been overlooked; after all, the hyrax does have nostrils. Though their attempt to train hyraxes to pick objects with their nostrils have failed, some might trumpet their success at training hyraxes to push toothpicks around with their tongues, noting that stacking trees ... differs from it only in degree’” (Clive Wynne, *Do Animals Think?* [Princeton, New Jersey: Princeton University Press, 2004], 42-43).

¹¹ Ibid., 126.

¹² I share to a large extent Wynne’s frustration about the lack of availability of transcripts of what the linguistically trained apes sign, so that we could make up our own minds about these animals’ abilities: “the ape language supporters guard the transcripts of their apes’ utterances better than biological weapons labs guard their anthrax—you just can’t get one” (Ibid., 121). A typical example is Roger Fouts telling us “when they [a group of chimps] discussed their favorite food, it wasn’t to get the food ... but just to comment on it” (*Next of Kin*, [New York: William Morrow and Company, 1997], 303) without providing us with what the chimps actually signed. There are, though, a few transcripts readily available. For example, some can be found in H. Lyn White Miles’s “Foundations for reference in a signing orangutan,” in *“Language” and Intelligence in Monkeys and Apes*, edited by Sue Taylor Parker and Kathleen Rita Gibson (Cambridge, Massachusetts: Cambridge University Press, 1994), 520-23 and in the appendix (“Utterance and Context on One Randomly Selected Morning”) to Sue E. Savage-Rumbaugh, Kelly McDonald, Rose A. Sevcik, William D. Hopkins, and

raises the suspicion that the transcripts would show the experimenters' claims regarding their apes' abilities to be insufficiently grounded. This certainly is the case of the few exchanges for which Wynne found transcripts. For example:

Kanzi: Want milk. Milk.

Human: You want some milk? I know, you always want some milk when you are planning to be good.

Kanzi: Key. Matada. Good.

Human: Oh, you want the key to Matada, and you're going to be good.¹³

As Wynne observes: "Note how abrupt, demanding, and/or meaningless Kanzi's utterances are on their own and how the trainer struggles to add comprehensibility.... Note too how the transcriber has added periods after almost every word that Kanzi's utters. These words just refuse to string together into sentences."¹⁴

A partial survey of scientific literature indicates that the apes' mean length of utterance is 1-2 signs.¹⁵ This pretty well excludes the

Elizabeth Rubert, "Spontaneous Symbol Acquisition and Communicative Use by Pygmy Chimpanzees," *Journal of Experimental Psychology: General* 115, no. 3 (1986): 233-35. Note, though, that the latter transcript is edited, and thus incomplete. *Teaching Sign Language to Chimps*, edited by R. Allen Gardner, Beatrix T. Gardner, and Thomas E. Van Cantfort (Albany: SUNY Press, 1989) at first sight seems a promising source. However, it focuses on single signs, provides only one transcript of an exchange, and does not provide even one complete transcript of what a chimp signed during any given period of time. For these reasons, the transcripts that can be readily found are not always as useful as they might be for assessing the apes' abilities. In sum, it is fair to say that researchers rarely provide a complete log of what the animals have signed during a given period. More often than not, they either describes their apes' abilities without offering data or they selectively present excerpts of what the apes sign when the excerpts lend themselves to positive interpretations about ape intelligence.

¹³ Wynne, *Do Animals Think?* 123.

¹⁴ *Ibid.*, 124.

¹⁵ The chimp Nim's mean length of utterance (MLU) was 2.0 (see Herbert S Terrace, *Nim* [New York: Alfred A. Knopf, 1979], 184), and the gorilla Koko's was 2.2 (see graph on 85 of Francine Patterson and Eugene Linden, *The*

possibility that any of the apes tested can carry on a conversation. It is pretty hard to elaborate on a topic using two words at a time.¹⁶

Indeed, far from carrying on a conversation, apes rarely produce anything approximating a statement.¹⁷ As Tomasello and Call note:

It is well known that the productions of these apes are almost invariably requests (... one estimate is that requests account for

Education of Koko [New York: Holt, Rinehard and Winston, 1981]), and 2.7 as stated by Patterson (see *Ibid.*, 114). After 7 years of language training, orangutan Chantek's MLU "remained approximately 2.0.... MLU based on gestural inflected modulations was slightly higher" (H. Lyn White Miles, "Foundations for reference in a signing orangutan" in *Language and intelligence in monkeys and apes*, 518). The bonobo Kanzi's MLU is 1.15 signs; see Wynne, *Do Animals Think?* 126.

¹⁶ See Michael Tomasello and Josep Call, *Primate Cognition* (New York: Oxford University Press, 1997), 268: "It is probably not the case that Kanzi understands language in every way like a human two-year-old child. In his production he uses mostly single words, he acquires his linguistic skills more slowly than human children do, he uses his lexigrams mostly to request rather than to report or make comments, he does not talk about some things that children are very fond of talking about (e.g., possession), his production of symbol combinations show word-specific structure only. In terms of conversation, even the analysis of Greenfield and Savage-Rumbaugh (1991) is not convincing that Kanzi or any other linguistic ape knows how to produce a full-fledge conversational turn in which the topic of conversation is acknowledged and specifically indicated, and simultaneously something is predicated of that topic."

¹⁷ Even very young children put forth a running commentary on some activity that they are engaging in. For example, as E. Sue Savage-Rumbaugh notes, "By the time Laura [a child] was 19 months old, she was uttering phrases such as 'Pretty nestor cup,' 'Laura spill milk,' 'Cold milk,' 'All gone,' 'Mama straw blow,' 'Pour juice,' and 'Laura do,' all in contexts where her only previous utterances had been 'Ba'" (E. Sue Savage-Rumbaugh, *Ape Language: From Conditioned Response to Symbol* [New York: Columbia University Press, 1988], 25). Apes may on occasion produce something that could be interpreted as a genuine comment. Yet their failure to produce utterances of this sort with increasing frequency, as a young child does, indicates otherwise.

95% of all productions) and that the intention behind those productions that are not requests is difficult to discern.¹⁸

Now Duane Rumbaugh, coauthor of *Intelligence of Apes and Other Rational Beings*, never directly addresses the argument suggested by the high percentage of requests, namely, that the supposedly linguistically competent ape does little more than use signs to get it what it wants¹⁹ and lacks any conceptual understanding of what it is signing. Rumbaugh does speak about the “declarations” apes supposedly make

¹⁸ See Tomasello and Call, *Primate Cognition*, 323. Emphasis added. A good example of the difficulty of discerning what meaning to give to certain productions that are not obvious requests is provided by Savage-Rumbaugh as she attempts to defend the position that requests and statements differ in that “for a usage to be coded as a statement of a comment Kanzi must either make it clear that he is not asking for the object or event (by refusing it if offered), or he must carry out the action on his own.... For example, in the following observation (taken from the data base) Kanzi is not making a request and this is self-evident from his behavior. Kanzi is sitting and eating near the keyboard. He stops eating and touches the Matata lexigram, then vocalizes to Matata who is in the next room. She answers back. Kanzi makes no gesture to suggest that he is requesting a visit to Matata. To make certain, the experimenter queries ‘?go Matata.’ Kanzi ignores the question, touches the lexigram *food* and resumes eating” (“Communication, Symbolic Communication, and Language: Reply to Seidenberg and Petitto,” *Journal of Experimental Psychology: General* 116, no. 3 [1987]: 291). Given that “Matata” does not express a complete thought, even if one concedes that touching the Matata lexigram was not a request to see her (could Kanzi have changed its mind?), to call it a statement is plainly an interpretation.

¹⁹ It should be noted that while apes produce signs in order to get things, they apparently do not initially learn signs very efficiently if the teaching method is based on rewarding them for their sign comprehension or production. “B. T. Gardner and Gardner (1989b) note that great apes spontaneously learn, generalize, and productively use signs without extrinsic rewards when they are raised in rich communicative environments. More surprisingly, when they are subjected to operant conditioning, they fail to use signs spontaneously and productively to communicate with humans and each other as they do when they are immersed in naturalistic communicative environments.” (see Sue Taylor Parker and Michael L. McKinney, *Origins of Intelligence* [Baltimore, Maryland: The Johns Hopkins University Press, 1999], 188).

on occasion.²⁰ These declarations would account for a certain amount of the 4-5% of utterances which are not patent requests. In one exercise, the experimenter would press a key for a symbol for something and the ape would then fetch that item; at a certain point, the ape took over and pressed a key before fetching the corresponding item. Rumbaugh claims that the ape was announcing what it was going to do. This is hardly the only way to interpret the ape's behavior. Another interpretation is that the ape picked up the pattern of the exercise, regarded it as kind of a game, and then introduced its own variation on the game. In another later exercise, the ape was to go in a room and mentally select among a number of items, and then go into another room and press the key for the item it wanted. After doing so, it went back to the first room where it was allowed to take only the item it pressed the key for. Rumbaugh again claims that the ape was making a declaration about what it was going to do. Yet, although the ape was not handed the item it typed the symbol for, e.g., a banana, still it was allowed to take a banana in function of its typing 'banana'. So, for all practical purposes, typing 'banana' in this situation functions the same way as it does in a request—it is a way of getting a banana. Other "declarations" may be produced by apes out of habit. Trained apes are used to producing signs in response to questions such as, What is that? Thus, it is not particularly surprising that apes have been known to sign to themselves,²¹ given that habit is second nature.²² Moreover, apes know that signing earns them positive feedback from their human companions, and this is yet another reason that would explain why apes occasionally put together words in what appear to be statements.

²⁰ See Duane M. Rumbaugh and David A. Washburn, *Intelligence of Apes and Other Rational Beings* (New Haven: Yale University Press, 2003), 119-20.

²¹ See Terrace, *Nim*, 209: "[Nim] was often observed to sign to himself, for whatever intrinsic pleasure that produced, while flipping through a book or magazine with his back to the teacher." The Fouts recount that in fifty-six hours of videotape there were 368 instances of a chimp signing to itself. "Examples are Washoe naming the picture in the magazine, or Dar signing DOG when he notices a dog outside his window" (Roger S. Fouts and Deborah H. Fouts, "Chimpanzees' Use of Sign Language" in *The Great Ape Project*, edited by Paola Cavalieri and Peter Singer [New York: St. Martin's Press, 1993], 35).

²² Note how dogs continue to do tricks upon command long after their masters have stopped giving them a treat for doing so; the dogs do, however, still usually receive verbal approval or petting.

I am often asked, "How do you know animals don't have their own language?" Well, if apes had their own system of signs for signifying abstract thought, why is it that after they have been taught to use a humanly-devised form of symbolic communication they never use it to enlarge their understanding of the world for the sake of understanding? It would be as if an English-speaking person who was a true language user upon learning to read and write rudimentary French somehow became unable to carry on a simple conversation in written French for the purpose of augmenting the interlocutors' understanding of reality.²³

It is completely far-fetched to think that certain kinds of animals have been capable all along of using a bona-fide language (i.e., signs serving the purpose of expressing abstract ideas), but had never gotten around to inventing one. As Noam Chomsky notes:

It also seems reasonable to suppose that possession of the language faculty conferred extraordinary selectional advantages, and must be a primary factor in the remarkable biological success of the human species, that is, its proliferation. It would be something of a biological miracle if we were to discover that some other species had a similar capacity but had never thought to put it to use, despite the remarkable advantages it would confer, until instructed by humans to do so—rather as if we were to discover in some remote area a species of bird that had the capacity of flight but had never thought to fly.²⁴

The difference between Helen Keller and the apes that were taught a symbolic means of communication highlights the difference in the cognitive abilities of humans and apes. She had the capacity to form abstract thoughts, and that is why once she caught on that thoughts

²³ One might initially be impressed to read in a section entitled "Chimpanzee Conversations" that 5,200 instances of chimp-to-chimp signing had been recorded by a group of researchers. See Fouts and Fouts, 37. However, when one reads on, one discovers that all of the categories used to classify these interactions pertained to the practical realm (e.g., "play, "reassurance"), and none identified areas of interests pursued for their own sake. Thus, their research actually witnesses to the absence of reason in chimps.

²⁴ Noam Chomsky, "Human Language and Other Semiotic Systems," in *Speaking of Apes*, edited by Thomas A. Sebeok and Jean Umiker-Sebeok (New York: Plenum Press, 1980), 433.

could be expressed through tactile signs, she was able to learn fairly quickly to use these signs to augment her understanding of the world, and this despite her disabilities. Teaching apes symbolic means of expression did not result in their using it in order to gain an intellectual understanding of the world. This is a clear indication of their lack of capacity for abstract thought.

So when people ask me, "How do you know that squirrels or squid are not capable of abstract thought?" it seems to me the best way to respond is by means of an *a fortiori* argument: Given that the most likely candidates for true language usage, after being taught how to use a symbolic means of communication, fail to manifest true language usage—i.e., they fail to use the symbols in the manner that beings capable of abstract thought naturally do, namely, to augment their understanding of reality—*a fortiori* the same would be the case for the less likely candidates for true language usage. The less likely candidates are identified primarily by their behavior and secondarily by their physical characteristics. Animals that are less able to learn from sense experience and that show little or no ability to solve novel problems are less promising candidates for learning language. Such animals also possess less complex brains than do the great apes.

II. THEORY OF MIND

A question that is raised by those who are investigating whether there is a radical difference between humans and non-human animals is whether the latter attribute mental states to other individuals. If you saw me present a paper on this topic, you would know that I see and that I take great interest in it. Can an animal know that another animal sees and that another animal experiences interest in something? Put in other words, are there non-human animals that have mental representations of the mental states of others? If they do, they are said to possess "a theory of mind."²⁵

²⁵ "An individual has a theory of mind if he imputes mental states to himself and others. A system of inferences of this kind is properly viewed as a theory because such states are not directly observable, and the system can be used to make predictions about the behavior of others. As to the mental states the chimpanzee may infer, consider those inferred by our own species, for example, *purpose* or *intention*, as well as *knowledge*, *belief*, *thinking*, *doubt*, *guessing*, *pretending*, *liking*, and so forth" (D. Premack and G. Woodruff, "Does

Theory of mind investigations often skip over a point that is important for discussions of the similarities and differences between humans and other animals. It is natural to think that “theory” in “theory of mind” implies the view that knowledge of others’ mental states involves reason. However, the originators of the notion of theory of mind define it so broadly as to not necessarily imply this, or at least not in an obvious way. Animals possessing a theory of mind possess a way of making predictions about the behavior of another that is based on recognizing others’ unobservable mental states. Now, if the mental states in question can be known by the internal senses without the intervention of reason, such as would seem to be the case of emotions and images in the imagination, then animals possessing a theory of mind might know others’ mental states without having to reason.

Two questions which need to be addressed before considering theory of mind research are: 1. What is a mental state? 2. Is there reason to think that every sort of mental state is known in the same way? Intentions, thoughts, perceptions, emotions, beliefs, and pretending are some of the things that are commonly taken to be mental states. But should these things be referred to as “states”? Part of the problem is determining the different meanings of the word “state.” Aristotle would have placed some of these things, e.g., perceptions and emotions, in the category of affection (Gr. *pathe*; L. *passio animae*).²⁶ Does some meaning of “state” correspond to affection? Is there some reason to prefer one of these terms to the other? I do not intend to attempt to solve these difficult questions, as beneficial as doing so would be for understanding mental *state* attribution.

As for “mental” in “mental state,” here too the word is ambiguous. “Mental” is related to the word “mind,” and a mind is an ability to

the chimpanzee have a theory of mind?” *Behavioral and Brain Sciences* 4 [1978]: 515).

²⁶ See, for example, *Categories*, 10a6-10: “Those, however, which arise from causes easily rendered ineffective are called affections, not qualities. Suppose that a man is irritable when vexed: he is not even spoken of as a bad-tempered man, when in such circumstances he loses his temper somewhat, but rather is said to be affected. Such conditions are therefore termed, not qualities, but affections.” Note that the word “condition” in the last sentence is not found in the Greek. The translation is that of Harold P. Cooke in the Loeb edition.

know. Yet, if it is the case that the intellect and the senses are radically different knowing powers, “mind” and “mental” in the case of humans mean two quite different things. The question also arises as to whether a sense perception in the absence of consciousness should be considered a mental state. Those familiar with the Aristotelian-Thomistic tradition know that the external sense powers are themselves said to in some way know their own act, but at the same time the common sense power seems necessary for consciousness. Aside from the puzzle of exactly how these two forms of knowledge (consciousness?) differ, there also arises the question of whether sense perception is ever present without consciousness. It is the case that we are often not consciously aware that we are seeing, as for instance, when we are walking in an area familiar to us without paying any particular attention to anything on our route; yet we could, nonetheless, become aware that we are seeing. Could a being see, and yet be unable to ever be aware that it sees? If this is possible, sight would then seem to be scarcely more than the sort of unknowing reaction that goes on in a plant in response to light.

Similar questions arise in the case of emotion. Is it possible for a being to have emotions, but to be unable to ever become aware that it has them?²⁷ If so, it would seem that, for it, emotion would not count as a mental state, and this despite the fact that ordinarily emotion is consequent upon perception.²⁸ (Ordinarily, one is not just afraid, one is afraid of something that one has seen, heard, etc.) In any case, I am going to consider as a mental state something that both involves knowledge and is in principle something one can be conscious of. All mental states share in common having a component that is accessible to the individual, while not being directly observable by others.

1. A Classic Theory of Mind Test Fails to Show What it Purports to Show

Some of the classic tests for theory of mind focus on the notion of false beliefs—Is an ape able to mentally represent the false belief of

²⁷ Those familiar with psychologist Antonio Damasio’s work know that he distinguishes emotion from feeling on the basis of the latter involving consciousness, whereas the former does not. See, for example, *The Feeling of What Happens* (San Diego: Harcourt, 1999), 42. I intend to use emotion and feeling synonymously, and the sort of emotion that I am interested in here involves consciousness.

²⁸ See Aristotle, *On the Soul*, 433b27-434a4.

another ape?²⁹ What is the rationale for theory-of-mind researchers' preoccupation with testing for *false* beliefs? It is sometimes claimed that one does not have a notion of belief until one can recognize that beliefs can be true or false. While I think this is true for a complete notion of belief, it seems that some notion of belief is already present in a child who can understand a question such as, "Who do you think is coming today?" The child need not understand that his answer may be right or wrong in order to answer the question. It does seem to be the case that one can more decisively tell that an individual distinguishes what is mental from what is real by seeing whether he evidences knowledge of discrepancies between the two when such occur.³⁰

A classic false-belief test³¹ involves an experimenter, an ape, and a human subject. The three are together in a room and the experimenter in the sight of all places an object such as an apple under a cone. The human subject leaves the room. The experimenter then takes the apple and hides it elsewhere in the room. The subject comes back. The ape is asked where the subject will look for the apple. If it answers "Under the cone," rather than in the new location, it has passed the test for theory of mind. But is this test adequate?

Apparently, when very young children take this test, they give the wrong answer, responding that the subject will look for the apple in its new location. Very young children apparently cannot dissociate what they know from what others know or what is the case from what is

²⁹ See Tomasello and Call, *Primate Cognition*, 324.

³⁰ "From the earliest research, however, a central focus has been on children's understanding of belief, especially false belief. Why? Mental-state understanding requires realizing that such states may reflect reality and may be manifest in overt behavior, but are nonetheless internal and mental, and thus distinct from real-world events, situation, or behaviors. A child's understanding that a person has a false belief—one whose content contradicts reality—provides compelling evidence for appreciating this distinction between mind and world (see, e.g., Dennett, 1979)" (Henry M. Wellman, David Cross, and Julianne Watson, "Meta-Analysis of Theory-of-Mind Development: The Truth about False Belief," *Child Development* 72, no. 3, [2001]: 655).

³¹ This sort of test goes by the name of the Sally Anne test and was originally formulated by H. Wimmer and J. Perner in their paper, "Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception," *Cognition* 13 (1983): 103-28.

thought by others to be the case. There is a question, though, as to why an ape or child has to understand that some type of deception is going on to answer that the subject will look for the apple under the cone. I would assume that if the apple were still under the cone, the ape or child would give the same answer when asked "Where will the person look for the apple?" Thus, this test does not establish whether an individual is aware of the false beliefs of others.

In addition, it is questionable whether this test even shows that an individual is aware that others have beliefs at all. An ape can remember that the subject fixed his eyes on the cone being put over the apple, or at the very least that the subject was present when the apple was covered, and the ape may well remember that subjects that fix their eyes on something positioned in a given place will look for it in that same place. If this is so, the ape would not have to attribute any mental state to the subject to respond that he will look for the apple under the cone.³²

I think, then, that this test for whether individuals know that other individuals have false beliefs is faulty for two reasons. First, the question posed is not explicitly about the other's false belief. Secondly, the test set-up does not allow one to distinguish whether a correct answer is based on prior experience of certain kinds of behavior being commonly linked together rather than on any knowledge of mental states. It might be that a child or ape goes from giving the wrong answer to the right one by arriving at an understanding of others' mental states. But it might also be that the child or ape makes this transition by having learned through experience that in such circumstances the subject does not go to the object's current location, but rather to where the object and subject were initially together. And there might yet be other possible explanations of how one could go from an incorrect answer to a correct one.

³² It is true that animals show surprise when something they expect to happen does not happen. However, this does not amount to universal knowledge that beliefs may be true or false. To gain this knowledge would require one to consciously reflect that this particular discrepancy between what one thought and what was revealed that the realm of thought and the realm of real being are not the same, even though there may be a correspondence between them.

2. Do Apes Know Others as Knowers or Only as Actors?

Consider another theory of mind experiment, this time involving a “baiter,” a “finder,” and a chimp.³³ The baiter places some food item in a closet, which he then locks. He next places the key on a hook near the closet and leaves. Now the finder comes in, takes the key, unlocks the closet and gives the chimp the food item. Every once in a while, the baiter does not put the key in its usual place, but hides it somewhere. The finder who now enters is ignorant of where the key is. The chimp, at first, does not try to inform him as to the key’s whereabouts. When the finder looks and fails to find the key in the usual place, only then does the chimp try to indicate where it is presently hidden. It is not hard to come up with an explanation of the chimp’s behavior that does not ascribe a theory of mind to the chimp: The chimp knows the sequence of events, perceives a blockage in the sequence, and recalls that the finder must use the key to get the food. There is no reason to conclude that the chimp knows the mental state (i.e., the ignorance) of the finder.

A further twist was added to the experiment. A stranger occasionally came in after the baiter left, and moved the key. The chimp often regarded the stranger with some hostility, spitting on occasion. When the finder returned, the chimp now informed the finder of the whereabouts of the key even before the finder showed himself unable to open the closet. This would seem to indicate that the chimp realized after all that the finder was ignorant and needed to be informed.

It is very natural for us to interpret the chimp’s directing the finder to the key as being an intentional effort to inform an individual whom it recognizes to be ignorant. However, an alternate explanation is that through experience a chimp knows that, if a person or other chimp fixes its eyes on something, the person or chimp may perform some act towards it at some later time; conversely, if a person or chimp does not fix its eyes on something, it is unlikely to act towards it at some later time. This account works both for this experiment and for the experiment with the cone recounted earlier. In the baiter-finder experiment, the chimp knows that a key located in an area where the finder had not fixed his eyes would not be sought there by the finder. In the cone

³³ This experiment is recounted by Juan Carlos Gómez in *Apes, Monkeys, Children, and the Growth of Mind* (Cambridge, Massachusetts: Harvard University Press, 2004), 229-31.

experiment, the chimp knows that a person seeks a thing in the place where he earlier fixed his eyes.

I agree that such accounts sound forced to us, for we humans habitually attribute mental states to other people. But, as Daniel Povinelli points out, attributing mental states to others is generally dependent on observing their overt behavior.³⁴ In the baiter-finder experiment, to know that the finder was ignorant of the displaced key would require one to remember that the finder had not been present or fixed his gaze upon the key when it was placed in its new location. So, as far as determining a course of action goes, it makes no difference whether a being directly associates absence of the fixing of gaze with the inability to locate an object or if a being knows that the absence of the fixing of gaze means that the person does not know where the object is and consequently will not be able to readily locate it. We think to ourselves: “*X was not present when the key or food was placed where it is now, and so X didn’t see it, and therefore doesn’t know where it is, and thus is unlikely to go after it,*” whereas a chimp may simply know: “*X was not present when the key or food was placed where it is now, and is therefore not likely to go after it.*”³⁵

In other words, testing whether apes are aware of mental states of others involves creating a scenario in which there is something observable from which mental states can be inferred. However, the physical situation the apes observe can in principle always be directly linked through experience with a given course of action or inaction: X fixes eyes on desirable food item; X goes to eat that item—both these things are observable. And the same is true when X does not fix eyes on a food item and subsequently does not go to eat that item. So there seems no way for experiments in which one observable behavior could be potentially linked to another to determine whether apes know others as knowers and not simply as actors. Of course, the more parsimonious explanation is to say that they know others only as actors.

³⁴ See Daniel J. Povinelli and Christopher G. Prince, “When Self Met Other,” in *Self-Awareness: Its Nature and Development*, edited by Michel Ferrari and Robert J. Sternberg (New York: Guilford Press, 1998), 33-107.

³⁵ This example is adapted from Daniel J. Povinelli and Jennifer Vonk, “Chimpanzee minds: suspiciously human?” in *Trends in Cognitive Sciences* 7, no. 4 (2003): 159.

3. Do We Really Want to Deny That Animals Can Know Others' Emotions?

I admit that I originally found Povinelli's minimalist account in terms of behavior alone persuasive. But is it just our anthropomorphic biases that strongly incline us to think that certain animals know the knowledge states and emotional states of other animals? Do we really want to say that a dog doesn't know that we see it or know when we are sad? If we admitted that the dog knows that we see it and knows that we are sad, would this mean we would have to acknowledge the dog to be essentially the same sort of animal as ourselves? Again, different mental states may require different answers. I am not sure whether some kind of knowledge of another's false belief concerning a particular requires reason or not,³⁶ which was the point I was investigating above. I will now explore whether knowledge of others' emotions is something which falls within the capabilities of a sensing being devoid of reason.

It seems that one cannot know that another person is angry unless one has experienced anger oneself.³⁷ When one has, then one can go on to realize that when another being similar to oneself is showing external signs of being angry and is in the sort of situation that provokes anger, that individual is *feeling* angry. Our knowledge that a person is angry seems to be the conclusion of a reasoning process. Assuming that animals are conscious, they know when they themselves are angry. They can also observe another animal *acting* angrily. But it is hard to see how in the absence of reason they can know that another animal is having the internal experience of *feeling* angry. We humans

³⁶ Aristotle denies that animals have beliefs. "No animal has belief [*pistis*], but many have imagination" (*On the Soul*, 428a20, translated by W. S. Hett in the Loeb edition). It is plain that in this passage he understands belief to be the result of being convinced by an argument. Does he mean to deny that a dog can believe that a squirrel is in a tree? Or is it rather the case that the Greek word "*pistis*" means thinking something is true due to some rational warrant, and thus is not applicable in the case of the dog who saw or smelled or heard the squirrel run up the tree?

³⁷ A plain example of an inability to perceive an emotion experienced by another because one has not experienced it oneself is the case of sexual attraction; children are oblivious to manifestations of sexual attraction between adults, because they have as yet to experience such an attraction themselves.

distinguish external changes that express emotion from external changes that do not. We distinguish the look of pain that crosses a person's face from the gesture of reaching for the aspirin bottle. Are animals capable of doing so? Or for them are all external changes simply harbingers of future actions (or something of the sort) and never signs of internal feeling?

It is debatable whether animals ever know emotional states.³⁸ Apes that have been taught to use a symbolic form of communication use signs that for us signify emotions or something related to emotion: "laugh," "funny," "hurt," "cry,"³⁹ "mad," and "scare." However, some of these words refer to the external expression of emotion, and in the case of the others it is not always clear what the apes are associating the sign with. For example, a chimpanzee named Panbanisha is reported signing: "Fight, mad, Austin,"⁴⁰ which the experimenter construed as referring to a fight between the chimp Austin and another chimp that had taken place the day before. Aside from the fact that we are not sure whether Panbanisha is signing that it is (or was) mad or that Austin was mad, it is further unclear whether for the chimp "mad" means something other than threatening behavior or aggressive action. The chimps' use of "scare" is perhaps a more convincing instance of their ability to recognize emotion. On one occasion, a chimp named Sherman

³⁸ "Although it is clear that the production of facial expressions is associated with predictable behavioral outcomes, little is known about whether nonhuman primates attribute an emotional disposition to individuals who produces these expressions" (see Lisa A. Parr, Bridget M. Waller, and Jennifer Fugate, "Emotional communication in primates: implications for neurobiology" *Current Opinion in Neurobiology* 15 [2005]: 719). Parr has a particular research interest in determining "whether nonhuman primates infer emotional meaning from facial expression," something she sees as "a first step towards understanding the evolution of emotional communication and empathy" (see Emory University Graduate Division of Biological and Biomedical Sciences, faculty profile: Lisa A. Parr, http://www.yerkes.emory.edu/research/divisions/developmental_cognitive_neuroscience/parr_lisa.html).

³⁹ *Teaching Sign Language to Chimpanzees*, edited by R. Allen Gardner, Beatrix T. Gardner, Thomas E. Van Cantfort (Albany, New York: State University of New York Press, 1989). The Gardners report chimps signing "laugh" (93), "funny" (93), "hurt" (131, 209), "cry" (252).

⁴⁰ George Johnson, "Chimp Talk: Is It Really Language?" *The New York Times*, 6 June 1995, late edition, sec. C, 1.

“rushed inside to announce to people and to Austin ‘scare outdoors’ when he saw a partially anesthetized ape moaning as it was transported past the building.”⁴¹ Again, it is not clear whether the chimp means to indicate that there is something scary outdoors or there is a scared ape outdoors or it is scared by what it sees outdoors. If the chimp means there is a scared ape outdoors, one again is left with the problem of determining whether “scared” refers simply to the expression of emotion. On other occasions, though, “Sherman would scream as though he had seen something that had scared him and comment ‘scare’ at the keyboard,”⁴² and on some of these occasions people spotted something that could frighten a chimp. Regardless of whether “scare” means “I’m scared” or “there is a scary thing there,” it is hard to give a meaning to “scare” without some reference to the feeling of fear. I am personally convinced by accounts such as these that apes can use symbols to name their own emotions or those of others, and not simply the expressions thereof.⁴³ I have not undertaken here to display and analyze all the evidence for this view available in the literature, and realize that some readers might find it debatable. In any case, however, it is worth reflecting on whether turning up adequate evidence that apes know others’ emotions would blur the boundary between human and ape.

I am going to assume that a higher animal is sometimes conscious of its own emotions, just as it is sometimes conscious that it sees, hears,

⁴¹ Sue Savage-Rumbaugh, Stuart Shanker, and Talbot J. Taylor, “Apes with language,” *Critical Quarterly* 38, no. 3 (1996): 53.

⁴² *Ibid.*, 218.

⁴³ An experiment which suggests that apes know others’ emotions required chimpanzees “to categorize emotional video scenes presented on a computer monitor by matching them to conspecific facial expressions with similar emotional valence, so that matching was based on emotional similarity instead of perceptual features (Parr, 2001). Without previous training, chimpanzees spontaneously matched positive or negative video scenes to conspecific facial expressions according to their shared emotional valence, suggesting an ability to discriminate facial expressions on the basis of their underlying emotional states” (Filippo Aureli and Andrew Whiten, “Emotions and Behavioral Flexibility,” in *Primate Psychology*, edited by Dario Maestripieri [Cambridge, Massachusetts: Harvard University Press, 2003], 311).

etc.⁴⁴ Could an animal arrive at an awareness of others' emotions starting from its awareness of its own emotions? One way to approach this question is to ask the more general question of how animals recognize and in some manner categorize different kinds of things. Understanding how they categorize things in general is liable to shed some light on whether their cognitive ability extends to recognizing others' beliefs, emotions, and perceptions.

4. How Do Animals Categorize Things?

Animals plainly have some way of identifying things of different kinds. A sheep runs from a wolf, but not from a fly. Birds generally fly away when anything large moves in the near vicinity, but can get used to passing traffic. Pigeons in studies learn to pick out pictures of kingfishers from pictures of other birds, and pictures of animals from non-animals.⁴⁵ Alex the parrot was able to pick out what was the same and what was different in the case of color, shape, and material (e.g., he would be shown two wooden blocks of different colors, and could respond correctly to the questions, "What is the same?" and "What is different?").

Above, I argued that animals lack abstract concepts and thus cannot categorize things in function of such. How then do they do so? We obviously cannot get into their minds. However, we can make some reasonable guesses as to the sort of thing that is going on by reflecting on our own sub-universal knowledge and by examining the experiments with animals that are geared to determining how they categorize things.

One sub-rational way we have of knowing things is by experience, which Aristotle delineates in the following manner:

For to have a judgement that when Callias was ill of this disease this did him good, and similarly in the case of Socrates and in many individual cases, is a matter of experience; but to judge that it has done good to all persons of a certain

⁴⁴ A dog that has chased a squirrel up a tree knows when it no longer hears or smells the squirrel, at which point it gives up waiting at the bottom of the tree. This shows it has awareness of whether or not it is sensing.

⁴⁵ See Stephen Budiansky, *If a Lion Could Talk* (New York: The Free Press, 1998), 86.

constitution marked off according to type, when they were ill of this disease, e.g., to phlegmatic or bilious people when burning with fever—this is a matter of art.⁴⁶

The person of experience is on the verge of arriving at universal knowledge, but has not yet done so. Experience is constituted by memories of similar things that are grouped together due to their similarity, although the mind as yet has failed to seize exactly in what way they are similar. So perhaps a squirrel that has become somewhat tame has a mental catalogue of various humans, and upon seeing an individual that is similar to the ones in this mental catalogue, identifies this individual as the sort of being that might feed it.

Another way of recognizing something as belonging to a kind without recourse to universal concepts is by matching it to an idealized model that is stored in one's imagination or memory. Not every human kidney looks exactly the same. However, one can learn to recognize a kidney by remembering an idealized drawing of a kidney in a biology book. Perhaps animals' instinctive recognition of enemies is a matter of matching a sensed particular to an innate model of this sort. And perhaps learned recognition of friends and foes is due to the unconscious formation of an idealization based on individual instances that the animal has observed. The idealized-model explanation, however, does not seem capable of explaining how an animal could recognize higher categories such as color or shape. Is it possible to form an idealized representation of shape that would allow one to recognize a specific shape as a shape?

Stephen Boudiansky, who discusses the above sub-rational means of recognizing kinds, proposes a third way:

A competing theory holds that animals form groups by maintaining stripped-down lists of rules governing "family resemblance." Not every feature on the list would need to be present in every case; a pigeon might categorize an object as a tree if it contains several of these characteristics, or some established weighted average among them, which the pigeon has shaped and refined as it encounters new examples. These

⁴⁶ Aristotle, *Metaphysics*, 981a7-10. The translation is that of W. D. Ross with a few of my own alterations.

characteristics might include greenness, leaves, branching limbs, and an overall shape that rises vertically from the ground.⁴⁷

It is not entirely clear to me whether this third way is finally all that different from the other two. Instead of having a collection of images of trees to which the animal unconsciously matches a specific tree as being more similar to individuals in that collection than to individuals in another collection, or instead of having an idealized trunk with green leaves on top, Budiansky is proposing that the animal has a list of rules that it applies ("greenness, leaves, branching limbs, and an overall shape that rises vertically from the ground"). How, though, are these characteristics grouped together in the animal's mind? It seems that it would be either by way of a collection of memories of things sharing these traits or as a single idealization.⁴⁸

On the other hand, one might maintain that Budiansky's explanation in terms of a rule is distinguishable from the other two explanations. In one experiment, chimpanzees were to sort the lexigrams (symbol tokens) for various foods and tools into the appropriate container.⁴⁹ It seems likely that they did so on the following basis: a token with, for example, the symbol for banana has become through habituation associated in their memories with a banana and the banana is associated in their memories with the property of being edible. Anything with the property of being edible is put into the "food" container. Any token of an object lacking that property is put into the "tool" container. So here it does seem likely that rather than matching the image associated with a given lexigram to images of other foods, apes instead categorize foods on the basis of a characteristic, edibility. Similarly, perhaps the pigeons that are able to distinguish

⁴⁷ Budiansky, *If a Lion Could Talk*, 87.

⁴⁸ Note that while humans imagine primarily in visual terms, there is reason to think that other animals imagine in other sensory modes, e.g., given that smell plays a much greater role in the lives of many animals, one would reasonably expect this to be reflected in how they imagine things. Thus, while I am giving examples in visual terms, I do not mean that animals' representations are necessarily visual.

⁴⁹ See Duane M. Rumbaugh and E. Sue Savage-Rumbaugh, "Language in Comparative Perspective," in *Animal Learning and Cognition*, edited by Herbert Roitblat, Louis Herman and Paul Nachtigall (Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1993), 319.

animals from non-animals do so on the basis of a single characteristic, e.g., perhaps they perceive things that have eyes as being similar to one another, and different from things that do not have eyes. The latter case does seem amenable to the two other types of explanation, e.g., it seems possible that the pigeons pick out living things in function of a vague idealized image of "a thing with eyes."

Even if we cannot figure out which, if any, of the above explanations actually corresponds to what is going on in an animal's mind when it categorizes something, we can nonetheless see that in principle some operation of the internal senses (imagination, memory) can account for an animal's doing so. Thus, while abstract thought is not the explanation for how animals categorize things (for, as the language studies show, they lack abstract thought), the senses offer an adequate explanation of how they are able to do so.

5. Can Animals Recognize Others' Emotions by Using Their Senses?

Having established that some form of identification of kinds is possible on the basis of sense knowledge alone, now the question is whether it is reasonable to think that some form of sense knowledge can allow an animal to know the emotions of another animal. If it can, then the claim that animals know the emotions of other animals is not tantamount to saying that animals possess reason.

Is there any reason an animal could not identify another's emotions by means of unconscious matching to a memory of its own emotion? It can plainly witness the display of others' emotions along with any observable circumstances surrounding that display. The animal should then be able to match what it observes in such cases to the most similar memory it possesses, which in this case will be that of its own emotion. E.g., it sees another chimp screeching, teeth-bared, at an aggressor and this matches its memory of being angry and screeching, teeth-bared, at an aggressor. Again, I'm not claiming here that this is necessarily the exact explanation of what goes on in the animal's mind. What I am saying is that this illustrates that it is possible to come up with adequate explanations for how an animal that is incapable of abstract reasoning could nonetheless know the emotions of another.

I used to think that knowledge of others' emotions requires reasoning. One cannot know that another person is angry unless one has experienced anger oneself. When one has, then one can go on to realize that when another being similar to oneself is in the sort of

situation that provokes anger and is showing external signs of being angry, that individual is feeling angry. Here, one is plainly making some sort of connection between one's internal experience and something which is partly hidden in others. I now think that a connection can be made using the senses alone. Humans generally get beyond this stage and also make rational connections between their own and others' emotions. We are the ones who realize that there is some aspect of our emotions that is hidden to others, and ponder whether and how others' can really know how we feel. We are the ones who reason about the general reliability or unreliability of our knowledge of others' emotions. These kinds of reflections manifest knowledge of emotion that goes beyond what sense perception can bring. Sense perception (including here that of the internal senses) can bring an animal knowledge of something that is not observable to the external senses, but not knowledge of it as unobservable or hidden. Sense perception allows an animal to know "that other animal is angry," but not to have knowledge such that it can tease apart the expression it has observed from the corresponding internal dimension that it has not observed but in some confused way knows by unconscious matching to its own memories.⁵⁰

There would be nothing particularly surprising if "mad" for a young human did not initially signify a universal concept, but had the same sort of signification that "mad" has for apes, given that repeated memories of similar things are often required for concept formation. Eventually, humans do form concepts of emotion in general and of the

⁵⁰ My concern here is plainly not to offer a physiological account of how animals are able to know others' emotions. It is interesting, however, to note that the neurological research has turned up a matching system, which appears to be operative in at least some cases of recognition of others' emotions. Mirror neurons are single neurons that are activated both when an individual performs an action and when he watches another perform the same action. "Preliminary research suggests that a mirror matching system could be at the basis of our capacity to perceive in a meaningful way, not only the actions, but also the sensations and emotions of others (see Gallese 2001). Single neuron recording experiments in humans have demonstrated that the same neurons become active when the subject either feels pain or observes others feel pain (Hutchison et al. 1999)" (Stephanie D. Preston and Frans B. M. de Waal, "Empathy: Its ultimate and proximate bases," *Behavioral and Brain Sciences* 25 [2002]: 36).

various emotions in particular. That this has occurred is clearly evidenced by questions we ask concerning the nature of the emotions.

Perhaps as adults we sometimes recognize emotion without reference to our abstract concept thereof. Often when we look at a person's face we immediately gauge that he or she is in a bad mood without being able to tell exactly what has made us aware of it. This suggests that at least some of our everyday identification of others' emotions does not require abstract thought on our part. Moreover, it appears that individuals who are more intuitive and have more experience of life are better judges of others' feelings than are those whose understanding of emotions is primarily by way of theoretical considerations of their nature. The misjudgments we make at one time or another in regard to others' emotions also indicate that we do not always apply our abstract knowledge of emotion to particular cases. We often fail to think that maybe the others' emotional expression is not true to their actual feelings or that the expression they are displaying does not necessarily correspond to the way we would feel if we displayed that expression.

6. What Benefit Would Animals Derive from Knowing Others' Emotions?

We can also approach the question of whether animals know the mental states of others from the point of view of finality. Why would animals be better off knowing that another animal saw something or felt a certain way? It is sometimes suggested that this makes for better social interaction. But how does knowing, for example, that another ape wants to play make for better social interaction than simply being able to recognize that certain gestures indicate that that ape is now disposed to engage in play?

It is beneficial for us humans to know others' emotional states, particularly when they are altering the expression of their emotions; it allows us to be tactful and considerate. Humans learn to alter the expression of their emotions partly due to constraints coming from what is considered socially acceptable, and partly due to advantages that can be derived in specific situations from misleading others as to our true feelings.⁵¹ With experience, we become aware of the potential

⁵¹ Animals can suppress expressions of emotion, but do not appear to do so to hide their feelings, but rather to prevent other animals from knowing what

discrepancy between expression of emotion and what a person is actually feeling, and we learn what it means for someone to hurt our feelings, that we can hurt others' feelings, and that we should show concern for others' feelings. We grow to expect that others make an effort to read our feelings and take them into account, and we sometimes rebuke people by telling them, "You don't know how I feel." This kind of understanding of emotional life and of the moral imperatives related to it is a function of self-consciousness.⁵² Beings that are only conscious may be able to know that their behavior is evoking on the part of others feelings such as fear or anger, but the notions of causing unjustified emotional distress or affecting someone's self-esteem are beyond their ken. That animals are unable to understand self-conscious emotions and the moral dimensions of emotion is not, however, a reason to conclude that they derive no benefit from conscious recognition of others' emotions.⁵³

they are doing or about to do. For example, "Females sometimes give away their clandestine mating sessions by emitting a special, high scream at the point of climax. As soon as the alpha male hears this he runs towards the hidden couple to interrupt them. An adolescent female, Oor, used to scream particularly loudly at the end of her matings. However, by the time she was almost adult she still screamed at the end of mating session with the alpha male, but hardly ever during her 'dates.' During a 'date' she adopted the facial expressions which go with screaming ... and uttered a kind of noiseless scream" (account of Frans de Waal quoted in Marc D. Hauser's *Wild Minds* [New York: Henry Holt and Company, 2000], 157-58).

⁵² Humans have a much more extensive gamut of emotions than animals, due to our capacity for self-reflection. We experience pride, envy, guilt, etc. When we talk about hurting others' feelings, we are referring primarily, and perhaps exclusively, to emotions of this sort. It is not that animals' emotions are not important to them; it is that they are not self-consciously aware of how their emotions are important to them.

⁵³ I am glossing over the debate about whether animals experience emotions that are based on moral assessments and whether they are self-conscious (or both). At the root of the debate are a number of confusions. I will take a quick look at a couple of them here. There is often a failure to distinguish different forms of shame. A dog can be ashamed because it knows it has done something its master typically punishes it or scolds it for doing. This, however, is not the same as being ashamed because one understands that what one has done is morally wrong. The same is true in regard to badness. Apes can identify certain behavior as "bad" because their trainers typically

Consoling behavior has as its immediate goal alleviating an individual's emotional discomfort. Frans de Waal was one of the first to observe what appears to be a specific type of consoling behavior among chimps. After a combat between chimps, a bystander that was uninvolved in the fight will sometimes offer reassurance to the loser, e.g., "gently puts an arm around his or her shoulders."⁵⁴ It is possible that there is some reason for this behavior other than to console. And then maybe chimps know to act in this manner while lacking any knowledge that in doing so they are addressing the other's feelings. Still, animals' emotional well-being is important for their survival. We see this in the case of certain domestic animals. Just as married people who were hitherto healthy are more likely to die at an earlier age upon losing their spouse, so, too, dogs belonging to certain breeds are prone to getting depressed and dying prematurely upon losing their master. If the well-being of individuals in a group depends on the overall well-being of the group or on the well-being of specific "friends" of theirs within the group, it would seem to be advantageous for individuals to be able to recognize the emotional state of other group members so as to be able to identify those in need of some form of consolation. Again, one might insist, it is enough that the group members know to identify those in need of consolation; they need not know that they are addressing the other's feelings.

If a being cannot tease apart the difference between emotion and the external expression thereof, it may still be the case that the confused perception of both combined, as opposed to only the perception of the external expression, is a more powerful motivator of action. An experiment with "altruism" in rhesus monkeys seems at first sight to provide evidence that this is so. In this experiment, two rhesus

punish them or scold them for it. They cannot understand "bad" to refer to something that violates a moral code. For, again, the evidence shows that apes lack abstract thought and thus any knowledge of moral principles. Another common mistake made by those who attribute self-conscious emotions to animals is to conclude that because an ape can recognize its body in a mirror, it must therefore be self-conscious. To be able to recognize one's body in a mirror is not the same thing as to recognize that one is a "self." Again, the question of animals and self-conscious emotions deserves more extensive examination than I am able to give here.

⁵⁴ Frans de Waal, *Primates and Philosophers* (Princeton, New Jersey: Princeton University Press, 2006), 33.

monkeys are in neighboring cages and can see each other. One monkey has a chain that it can pull, which results in food being delivered to it. Pulling the chain also administers a shock to the monkey in the other cage. Rhesus monkeys will forgo pulling the chain for varying periods of time, and thus also forgo eating, in order to avoid shocking the other monkey. Those rhesus monkeys that had themselves been on the receiving end of shocks were more likely to refrain from pulling the chain than those that had not.⁵⁵ This seems to indicate that those that could match the other monkey's expression of emotion to their own feeling of being shocked were more motivated to avoid harming the other than were those who could not match the other monkey's expression to their own specific emotional experience, but perceived it as a generic expression of pain. However, perhaps the monkeys with the experience of having been shocked are simply more motivated by a desire to avoid creating a situation reminiscent of their own past sufferings. The question of whether some animals are capable of empathy arises here. Empathy does often provide an additional motivation for action in the case of humans. Space does not allow us to investigate whether empathy is present in animals; doing so would require first defining empathy, and then determining what makes humans capable of it.

Another possible reason why it would be beneficial to an animal to know others' feelings is that, since emotion generally drives action, the ability to gauge emotion would be useful for predicting action. For example, the mood of a dominant animal may determine whether or not it tolerates juveniles that attempt to interact with it. Thus, it would be to the juveniles' advantage to be able to gauge the dominant's emotional state in order to avoid being growled at or swatted. Again, we are left wondering how we might know that the animal evaluates the emotion as a whole rather than the expression thereof, and what difference it would make to be able to do the former as well as the latter. It is frustratingly difficult to show that conscious awareness of others' emotions, and not simply of the expression thereof, would be beneficial to an animal. Part of the problem lies in the difficulty we have in examining consciousness. In trying to examine our own conscious experiences, we almost inevitably become self-conscious.

⁵⁵ See J. H. Masserman, S. Wechkin, and W. Terris, "'Altruistic' behavior in rhesus monkeys," *American Journal of Psychiatry* 121 (1964): 584-85.

Perhaps the finality in animals' knowledge of others' emotions does not lie in some net survival benefit for the animal itself, but lies in what is arguably one of the overall purposes of evolution, namely, to produce a human-like being. The self-conscious knowledge we have of emotion presupposes a conscious knowledge of emotion. Thus, perhaps animals' conscious knowledge of emotion serves as a stepping stone to the kind of understanding of emotion we need to fully integrate our emotions into our moral life. Otherwise, our emotions would be like digestion, something that takes place without our conscious awareness, and thus something we could not exercise direct control over.

III. CONCLUSION

I will leave off here my investigation of animals' knowledge of emotions. My primary intention in discussing this matter was to establish that, if animals do have knowledge of emotions, we need not conclude that they possess the capacity for abstract thought. I have shown that there is an alternate explanation available in terms of the internal senses. Higher animals are in principle able to know their own emotions in virtue of being conscious, and are able to know others' emotions in virtue of possessing memory, for memory allows an association to be made between one's experience of one's own emotions and one's present observation of external expression of others' emotions.

As for what the language studies reveal about animals' capacity for abstract thought, apes that have been trained to use symbolic forms of communication fail to carry on conversations geared to increasing their understanding of the world for the sake of understanding. Since this is something that beings capable of abstract thought naturally do, the apes' failure to do so shows that they lack this capacity.