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THE CONFUSION OF THE ANIMALISTS

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A recent book, entitled *Apes, Men, and Language,* bears the subtitle "How teaching chimpanzees to 'talk' alters man's notions of his place in nature."[1] I cite this book, not because it is better or worse than most books of its kind, but because it is the latest in a long line of books and essays that attempt to defend the proposition that men and other animals differ only in degree, not in kind. It does so in the light of the mass of recent evidence concerning the so-called linguistic ability of a number of chimpanzees who have apparently been trained by human experimenters to use signs that appear to function like words and to make what appear to be sentences that are declarative and interrogative in mood as well as imperative. In this essay, I shall attempt to defend the contrary proposition, that man differs in kind from other animals. I will try to explain why recent research on the "speech" of chimpanzees in no way alters the picture. It leaves the question about the difference between men and other animals exactly where it was before these researches were undertaken.[2]

For the sake of brevity, I will use the word *animalist* to refer to

[1] This book, by Eugene Linden (New York: Saturday Review Press, 1974), reports and appraises all the recent work done on the linguistic performances of chimpanzees. It reviews evidence accumulated since I wrote *The Difference of Man and the Difference It Makes* (New York: Holt, Rinehart & Winston, 1967)-hereinafter cited as *DOM.* I will in subsequent footnotes cite chapter and pages in *DOM* in order to acquaint the reader with the state of scientific evidence and opinion prior to the recent researches on chimpanzees, as well as for my own critical appraisal of scientific evidence and opinion at the time I wrote *DOM.*

[2] Although the new evidence accumulated since 1967 does not alter my adherence to the humanist position as defended in *DOM,* it does require me to make a sharper and more precise statement of the argument for the humanist position and against the animalist position than I made in *DOM.* The present essay, therefore, corrects a number of inaccuracies and imprecisions in the earlier statement of the argument.

those who hold that men differ *only in degree* from other animals, and the word *humanist* for those who hold that men differ *in kind.* To present a perspicuously ordered exposition of a complicated argument within the confines of brevity, I will number the propositions in my argument and state each of them in summary fashion.

1. The animalists do not understand the nature of the problem to which they think scientific evidence affords a solution, nor do they understand the terms in which the problem must be stated or the logic in the light of which the available evidence must be interpreted.

2. The problem of how man differs from other animals—in degree or in kind—is not a purely philosophical problem (like the problem of God's existence and nature or the problem of the distinction between local motion and other forms of change), nor is it a purely scientific problem (like the problem of the existence of certain elementary particles or the problem of the rate of acceleration in free-fall). It is a mixed problem, both scientific and philosophical, the solution to which requires knowledge of relevant scientific evidence and also philosophical competence in the interpretation of that evidence. With almost no exceptions, the animalists lack the philosophical competence requisite for thinking clearly about the mixed problem of the difference of man. What I have just said applies to animalists who happen to be professors of philosophy just as much as it does to those who are professors or researchers in one or another branch of natural or social science. *A fortiori* it applies to all the journalists who write popular reports of the scientific literature and endorse the animalist position.

3. Having the requisite philosophical competence to think clearly about this problem involves, first of all, an understanding of the distinction between difference in kind and difference in degree.

3a. Men and other animals differ in degree if both possess the same trait but one possesses more of it, the other less. For example, if both men and chimpanzees use signs that function like words, but men have very much larger vocabularies than chimpanzees, then with respect to this trait that they have in common, men and chimpanzees differ in degree.

3b. Men and other animals differ in kind if men either *have certain powers* or *perform certain acts* that are not present in other animals in the slightest degree. For example, if men have the power of conceptual thought and other animals lack this power, or if men use words to refer to unperceived and even imperceptible objects and

other animals never use words in this way, then men and other animals differ in kind. Any respect in which men differ in kind from other animals is a trait that only men possess or, what is the same, a uniquely human trait. Differences in kind or degree which are stated in terms of the actions or behavior of men and other animals are directly evidenced in observable behavior, but differences in kind or degree which are stated in terms of powers or abilities which are unobservable (such as the power of perceptual or the power of conceptual thought) cannot be directly evidenced in observable behavior but must be inferred from the observation of behavior.

4. It is a mark of confused thinking to say, on the one hand, that men and other animals differ only in degree and to say, on the other hand, that men do certain things or have certain powers that no other animals do or have to any degree whatsoever. Nevertheless, such eminent scientists as Jacob Bronowski and George Beadle do precisely that.[3]

5. The rule of parsimony in scientific inference first formulated by William of Ockham and later applied to research on animal behavior by Lloyd Morgan, proscribes the positing of an unobservable entity unless positing it can be shown to be necessary in order to explain observed phenomena. This rule directs us not to posit the unobservable power of conceptual thought, either in men or in other animals, unless we are unable to explain their observed behavior in any other way. Only if the power of conceptual thought is indispensable to explaining their behavior are we logically justified in positing it as a power they possess.[4]

6. The position of the humanists, which the animalists reject, can be stated in three ways, the second throwing light on the first, and the third on the second.

6a. *Only* man is a person with inherent dignity and inherent rights; all other living organisms, along with inanimate substances, are merely things, having neither inherent dignity nor inherent rights. If other animals have, to some degree, inherent dignity and rights, then man's killing of other animals for the sake of nutriment or clothing is murder and is reprehensible for the same reason that cannibalistic practices are. Similarly, man's use of other animals as

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[3] *See* Jacob Bronowski, *The Identity of Man* (Garden City, NY: Natural History Press, 1965), pp. 11-12, 48; and George and Muriel Beadle, *The Language of Life* (Garden City, N.Y.: Doubleday & Co., 1966), pp. 39, 41.

[4] See *DOM,* pp. 101-2, 106, 110.

beasts of burden or as chattel is enslavement and is reprehensible for the same reason that the enslavement of men is reprehensible. This does not mean, of course, that men cannot do moral damage to *themselves* when they treat animals with cruelty or wantonly destroy them. Many moral imperatives involve the proper use of things and require them to be respected.

6b. *Only* man is a rational animal with free will.

6c. *Only* man has the power of conceptual thought and the power of free choice in selection of means for the accomplishment of a given objective.[5]

7. All three of the foregoing formulations of man's difference in kind state that difference in terms of unobservable traits or properties: "personality," "dignity," "rights," "rationality," "free will," "conceptual thought," and "free choice" all refer to objects that cannot be observed perceptually. They are not objects of sense perception. Of the three statements, the third comes nearest to being stated in terms that permit inferences to be made, either affirmatively or negatively, from observable behavior. We should be able to determine from the observable behavior of men and other animals whether only men have the power of conceptual thought and the power of free choice, or other animals also have these powers, even though to a somewhat diminished degree. If other animals do possess these powers, even to the slightest degree, then men and other animals differ in degree, not in kind.

8. The inference that man uniquely possesses the powers of conceptual thought and of free choice is grounded in part on observations of human and animal behavior in the field of production and social organization. It is important here to note the precision required in stating the point of observable difference to which the evidence turned up by scientific investigation is interpreted as relevant.

8a. To say, for example, that only men make things, or that only men make tools, is false; for beavers make dams, spiders make

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[5] These three propositions make man superior to all other living organisms—superior in kind, not just in degree—but that is quite consistent with man's being not only the best but also the worst of animals, either best or worst because of the use he makes of his superior powers. *See* Aristotle *Politics* 1. 2. I253a 31-34: "Man, when perfected, is the best of animals, but, when separated from law and justice, he is the worst of all; since armed injustice is the more dangerous, and he is equipped at birth with arms, meant to be used by intelligence and virtue, which he may use for the worst ends" *(GBWW,* Vol. 9, p. 446).

webs, birds make nests, and apes make tools. However, the following more precise statements are true and are so regarded by leading anthropologists.[6]

8a(i). Only men fashion tools not for immediate use but for future action in remote but foreseeable contingencies. Other so-called tool-making animals improvise instruments that they immediately employ in the same perceptual context which led to the improvisation.

8a(ii). Only men machinofacture products as well as manufacture them; i.e., produce things, first, by making blueprints that incorporate the specifications of the product to be made, and then by creating dies for the reproduction of the specified item out of plastic materials. No other animal machinofactures to any degree.

8a(iii). Only men make totally useless (though enjoyable) works of fine art; the productions of other animals always serve a biological purpose or have some biological utility for the survival of the individual or the species, as human works of fine art do not.

8a(iv). Only man makes artistically, that is, by free choice as well as by conceptual thought. All other animals make instinctively. The observable evidence for this point of difference is the wide range of variability in human productions of every sort, as compared with the uniformity of the productions of other animals, uniform within a given species because instinctively determined and therefore species specific.

8a(v). It is an egregious error, yet one made by eminent scientists, to align the instinctive (and therefore uniform) performances of other species of animals with the voluntary (and therefore variable) performances of men, thereby concluding, for example, that both men and the bower-birds of Australia make artistically because the latter decorate their nests, or that both men and the dancing bees make complicated statements because the dances of the latter indicate the distance and direction of the place where nectar can be found.[7]

8b. Similarly, to say that only man is a social animal or that only man lives in a highly organized society is false; for many other species of animals are manifestly gregarious, and the social insects,

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[6] See *DOM,* chap. 6.

[7] See *DOM*, pp. 114-18.

such as wasps, ants, and termites, live in highly organized societies. However, the following more precise statements are true in the light of all available evidence.

8b(i). In addition to being gregarious as other animals are, only man is a political animal; that is, only man frames constitutions and makes laws for the organization and conduct of the societies in which he lives, prescribing right conduct and prohibiting wrong conduct.

8b(ii). Only man associates voluntarily, as is evidenced by the great variability within the human species of the forms of social organization, in families and tribes as well as in states. All other species of gregarious animals associate instinctively (especially those with the highest degree of social organization, such as the social insects), as is evidenced by the uniformity of their species-specific modes of association or patterns of social organization.

8b(iii). Of the two foregoing points, the first is the basis for an inference to man's possession of the power of conceptual thought; the second is the basis for an inference to man's possession of the power of free choice.

8c. To say that only man thinks is as ambiguous and imprecise as to say that only man makes products or that only man is social or lives in organized society. If the word *thinking* covers problem solving of all sorts, then other animals think, for problem solving is not a unique human performance. It is, therefore, false to say that only man thinks, or that only human behavior indicates the possession of a power to think. It might be somewhat truer to say that man and man alone is ever engaged in an effort to solve problems, the solutions of which have no biological utility or survival value, such, for example, as chess problems or metaphysical problems. However, the most precise statement of the difference of man, to which observable behavior can be interpreted as relevant, is as follows: only man has the power of conceptual thought, in addition to the power of perceptual thought; all other species totally lack the power of conceptual thought, while possessing in varying degrees the power of perceptual thought.[8]

8c(i). To interpret correctly the comparative behavior of men and other animals in the sphere of thought, and to make correct inferences from such behavioral evidence, it is necessary to understand precisely the distinction between perceptual and conceptual thought. Most of the animal psychologists and ethologists who

[8] See *DOM,* chap. 10.

have attributed the power of conceptual thought to nonhuman animals have done so with little or no understanding of this distinction. Because of that, they have attributed to nonhuman animals a power that they did not need to posit in order to explain their behavior. In so doing, they have violated Ockham's rule of parsimony. All animal behavior, including not only all forms of animal problem solving and all varieties of delayed reaction but also all forms of animal communication and even the recently observed linguistic behavior of chimpanzees, can be explained in terms of the power of perceptual thought. Nothing more need be posited .[9]

8c(ii). The power of perceptual thought enables an animal to deal thoughtfully with perceptual objects (things that are actually being perceived), and even in some cases to a slight degree with perceptible objects (things that are remembered or imagined but are not actually being perceived).

8c(iii). The power of perceptual thought includes the power of perceptual abstraction and the power of perceptual generalization. With the power of perceptual thought, an animal is able to react in the same way to perceptual similars, and to react in different ways to things that are perceptually different.[10]

8c(iv). The power of perceptual thought does not extend to objects that are intrinsically imperceptible—incapable of being perceived by the senses. In order to deal thoughtfully with such objects, it is necessary to have the power of conceptual thought, and with it the powers of conceptual abstraction and conceptual generalization.[11]

9. Unique performances on man's part that have already been mentoned, such as machinofacturing, artistic production, constitution framing, and lawmaking, all justify the inference from observed behavior to man's possession of the power of conceptual thought. These unique performances—things that man and man alone does—cannot be explained in terms of the power of perceptual thought, for all involve reference to imperceptible objects. To explain these performances, it is therefore necessary to posit a power that is distinct from and superior to the power of perceptual thought.

9a. In addition to the unique performances on man's part that have

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[9] For a fuller exposition of this matter, see *DOM,* chap. 10, especially pp. 152-64.
[10] Ibid.. pp. 160-61.
[11] See *DOM.* chap. 11.pp.180-90.

already been mentioned, which justify the inference to man's exclusive possession of the power of conceptual thought, it should also be pointed out that man is the only historical animal, that is, the only species of animal that has a history which involves the cumulative transmission of cultural artifacts from generation to generation—such things as beliefs, customs, laws, and theories. This would be impossible if men possessed only the power of perceptual thought. Hence, to explain cumulative cultural transmission, conceptual thought on man's part must be posited.

9b. Cumulative cultural transmission would also be impossible without human language, especially that aspect of human language which cannot be explained without positing the power of conceptual thought. It is further true that all the other unique performances on man's part (such as those in the sphere of artistic or technological production and in the sphere of social organization) would also be impossible without human language, and especially that aspect of human language which is the basis for inferring man's possession of the power of conceptual thought.[12]

9c. We must, therefore, now consider human language and how it differs from what appears to be language or some form of communication in other species of animals. It is at this point that the recent researches on chimpanzees become critically relevant.

9c(i). The question to be answered is *not* whether chimpanzees can, under human tutelage, acquire a language in some sense of the

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[12] "Man is the only animal whom [nature] has endowed with the gift of speech. And whereas mere voice is but an indication of pleasure or pain, and is therefore found in animals, for their nature attains to the perception of pleasure and pain and the intimation of them to one another, and no further, the power of speech is intended to set forth the expedient and inexpedient, and therefore likewise the just and the unjust" (Aristotle *Politics,* 1. *2.* 1253a 9-14; *GBWW,*. Vol. 9, p. 446). Allowing for some factual inaccuracies in this early statement of the humanist position, the quoted passage can be construed as drawing a sharp line between animal communication about perceptual objects and human speech which extends beyond this to conceptual objects, such as the *expedient* and the *inexpedient,* the *just* and the *unjust.* In addition to such conceptual objects of moral and political discourse, it extends to all the conceptual objects of scientific discourse. Even more distinctive of the unique range of human speech is the range of symbolic objects referred to in poetical discourse. On this next point, see the recent book by George Steiner, *After Babel, Aspects of Language and Translation* (New York: Oxford University Press, 1975): "I believe that the communication of information, of ostensive and verifiable 'facts,' constitutes only one part, and perhaps a secondary part, of human discourse. The potentials of fiction, of counterfactuality, of undecidable futurity profoundly characterise both the origins and nature of speech. They differentiate it ontologically from the many signal systems available to the animal world."

term *language;* it is *not* whether chimpanzees, dolphins, and other of the higher mammals manifest some form of linguistic ability: it is *not* even whether chimpanzees can, under human instruction, learn to use symbols for the purpose of making statements and asking questions.

9c(ii). The question to be answered is rather whether the linguistic performances of chimpanzees, so far as the record now goes, can be explained entirely in terms of the power of perceptual thought, which apes have to a high degree; and whether, in sharp differentiation, the linguistic performances of human beings cannot be thus explained but require us to posit the presence in man of the power of conceptual thought, over and above the power of perceptual thought which man possesses to an even higher degree.

10. In comparing and contrasting the linguistic performances of men and other animals, especially chimpanzees and bottle-nosed dolphins, precision about the points of comparison is of critical importance.

l0a. To say that only men communicate with one another is false. In many other species of animals, intraspecific communication by sound or gesture occurs.

10b. It is also false to say that only men make statements. Honeybees make statements by the dances they perform.

10c. In the light of recent researches on chimpanzees, we now know it is false to say that only men use signs that are designators rather than signals (i.e., signs that function as name-words do in human speech), and that only men use such signs to form declarative sentences or to ask questions.

10d. The recent experimental work on chimpanzees makes it false to say that only men can be taught by men to use designative signs and form sentences. The evidence is clear that chimpanzees can be taught by men to do these things.

10e. However, in the light of all the evidence so far reported, it still remains true to say that only human beings can teach other human beings or chimpanzees to use name-words and make sentences; so far as the record goes, chimpanzees do not teach other chimpanzees or human beings to perform these acts.

10f. Most important of all are the following facts ignored or overlooked by all the animalists in their mistaken supposition that the

recent experimental work on chimpanzees *proves* that the difference between men and apes is one of degree, not of kind.

I0f(i). In the light of all the recent work on chimpanzees, it still remains true to say that only men use signs that are name-words to refer to imperceptible objects, such as *right* and *wrong, just* and *unjust, liberty* and *equality, infinity* and *eternity, perceptual thought* and *conceptual thought,* and so on.

10f(ii). It also still remains true to say that only men make syntactically complete sentences which are grammatically correct in their construction; the recorded sentences of the chimpanzees may have some resemblance to human sentences, but the difference between the apparent and the genuine remains critically significant.

10f(iii). If the word *language* is used equivocally to cover all forms of sign using and all appearances of sentence making, then it cannot be said that man is the only linguistic animal, or that language is a unique property of human beings. But if instead of using the loose word *language,* we substitute the precise phrase *syntactical speech,* and use it unequivocally, then it must be said that man and man alone engages in syntactical speech and that syntactical speech is a unique property of human beings.[13]

11. While the evidence provided by recent work on chimpanzees does not prove, as the animalists claim, that men and apes differ only in degree or that chimpanzees show a capacity for acquiring syntactical speech even to a slight degree, we cannot, therefore, conclude with any finality that the question about the difference of man is demonstrably answered. The re-cent work on chimpanzees is at most a matter of the last seven or eight years. Given another twenty or another hundred years of experimental investigation in this field, evidence may be forthcoming which decisively disproves the position of the humanist; i.e., makes it false to say that only men have the power of conceptual thought, as to say that would be false if and when chimpanzees ever learn how to engage in genuinely syntactical speech about imperceptible objects.[14]

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13 Some years ago, after delivering a lecture at the Aspen Institute in which I defended the humanist position concerning the difference of man, Professor Walter Orr Roberts, the astronomer, who was present, asked me how I would respond if a chimpanzee who had listened to the lecture stood up and said, "Professor Adler, I agree with what you have said about the difference between men and chimpanzees." I replied that I would tell the chimpanzee that he was either a fool or a liar—a fool, if he didn't realize that his statement at the end of my lecture showed that the humanist position was wrong; a liar, if he did realize it.

14 The proposition advanced by Professor Frank E. X. Dance in his contribution

12. Future experimenters will have the criteria they need to make an accurate appraisal and correct interpretation of their data, and so avoid the confusions rampant among the current animalists, only if two basic distinctions become clear to them.

12a. The first is the distinction between naming by description and naming by acquaintance. These represent two quite distinct ways in which human infants acquire name-words and increase their vocabularies.[15]

12a(i). On the one hand, children do so by direct perceptual acquaintance with the object named, as when the child acquires the word *dog* as the name for the animal that is lying at her feet, or the word *candy* for the sweet being held out to him, or the word *mama* for the person who is holding him tight. These are all perceptual objects, immediately present to the child; he learns the new word by hearing an adult impose it as the name or designative sign for the object with which he is perceptually acquainted.

12a(ii). On the other hand, very young children also acquire new name-words when the object named is not perceptually present and even when they have never had any perceptual acquaintance with the object named. They are able to acquire new name-words, the referential significance of which they can understand as a result of having the object named verbally described to them. For example, when a child asks about the meaning of the word *kindergarten* on being told that he or she is going to be sent to kindergarten before ever having had the experience of being in one, the verbal description of kindergarten as "a place where you go to play with other children" will add the word *kindergarten* to the child's vocabulary as a significant name-word.

12a(iii). The very young child, with whose linguistic performances the animalists compare those of chimpanzees, acquires name-words by verbal description as well as by perceptual acquaintance—not only name-words such as *sister* or *brother* for a perceptual object that has not yet been perceived because the forthcoming sibling has not yet been born, but also name-words for

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to this Symposium parallels the proposition advanced in this paper. Professor Dance and I agree that the linguistic performances of men and other animals are different in kind, not in degree, although he uses the phrase *speech communication* for what uniquely characterizes the human performance, and I use the phrase *syntactical speech* for it.

[15] For a fuller exposition of this matter, see my forthcoming book *Some Questions About Language* (La Salle, III.: Open Court, 1975), chap. 3. q. 5.

such imperceptible objects as *just* and *unjust, right* and *wrong, good* and *bad.* Without being able to acquire names by verbal description of the objects named, the human child would be unable to acquire name-words for imperceptible objects.

12b. The second distinction is that between categorematic and syncategorematic words, or name-words and linguistic operators.[16]

12b(i). The categorematic words of human language are the parts of speech traditionally classified as nouns, verbs, adjectives—the words that name or designate both perceptual and also imperceptible objects.

12b(ii). The syncategorematic words of human language are the parts of speech traditionally classified as particles, and subdivided into definite and indefinite articles, prepositions, conjunctions, and disjunctions; they also include such logical operators as "is," "is not," "if ... then ...," "not both," and so on.

12c. As it is true that without the ability to acquire names by verbal description, the use of language to refer to imperceptible objects would be impossible, so it is also true that without the ability to use syncategorematic words, syntactical speech—the construction of grammatically complete and correct sentences—would also be impossible.

13. Recent work on chimpanzees does not include evidence that chimpanzees can acquire names by verbal description as contrasted with acquiring names by perceptual acquaintance, nor does it include evidence that chimpanzees can learn to use syncategorematic words (grammatical and logical operators). Hence we must conclude, so far as experimental results show, that the linguistic performance of chimpanzees does not indicate their possession of the power of conceptual thought, nor does it indicate their ability to engage in syntactical speech. The sentences formed by chimpanzees bear some resemblance to the sentences found in human speech, but that is as far as it goes. In addition, what chimpanzees can talk about (perceptual objects only) indicates a critical deficiency on their part, even as compared with the speech of very young children, who can refer to imperceptible as well as perceptual objects. Future research may change the picture and support the contention of the animalists. But it will do so only if the evidence warrants the animalist in answering the following questions affirmatively—questions which must now, in the light of present

[16] Ibid., q. 6.

evidence, be answered negatively.

13a. Can chimpanzees acquire name-words by verbal description as well as by perceptual acquaintance, and among the name-words thus acquired, do some refer to imperceptible objects or do all refer to perceptual objects?

13b. Can chimpanzees acquire syncategorematic as well as categorematic words, and can they learn to use such words to form syntactically complete and grammatically correct sentences?

13c. The two foregoing questions provide the criteria for judging whether or not chimpanzees have the power of syntactical speech and a range of name-words that requires us to infer that they have the power of conceptual thought. There are, however, two other questions which should be considered by the animalist; and if, now or in the future, he answers them negatively, he should ask himself, "If not, why not?"

13c(i). Do chimpanzees in their native habitat acquire any form of language that involves using signs that function as name-words (restricted to perceptual objects) and involves making sentences that bear some remote resemblance to sentences in human syntactical speech?

13c(ii). In captivity and under human tutelage, can one chimpanzee impart to another chimpanzee the kind of linguistic attainments that it has acquired as a result of being trained by human beings?

14. Even if, now and in the foreseeable future, the evidence remains definitely in favor of the position of the humanist and adverse to the position of the animalist, the difference in kind between men and apes, dolphins, or other animals may be only a superficial rather than a radical difference in kind.

14a. It is superficial if the power of conceptual thought uniquely present in men is possessed by them only because of their vastly superior degree of brain power.

14b. It is a radical difference in kind only if the power of conceptual thought uniquely present in man cannot be adequately explained in terms of brain power but must involve the positing of some other factor present in man and not present in other animals.[17]

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[17] For a fuller exposition of this matter, see *DOM,* pp. 27-35.

15. The solution of this problem—whether the difference in kind between man and other animals is superficial or radical—will never be found or even approached by means of experimental work on animals, but only through another kind of experimental work (on artificial intelligence) and through the construction of "thinking machines" which will simulate syntactical speech and be able to engage in conversation with human beings.[18]

To sum up: the confusion manifested by the animalists arises from three failures of understanding on their part.

In the first place, they fail to understand that the difference of man does not rest on comparative evidence of human and animal behavior *solely* in the sphere of communication or language.

In the second place, they fail to understand that, even in the sphere of language, the critical question to be answered is whether the linguistic performance of chimpanzees justifies and necessitates the attribution to them of the power of conceptual thought, as the syntactical speech of men does.

In the third place, they fail to understand that, until it can be proved that the difference in kind between men and other animals is radical rather than superficial (which for logical reasons may be forever impossible[19]), the existence of a merely superficial difference in kind between men and apes or other mammals in no way interrupts the continuity of nature since that continuity remains in the spectrum of degrees of underlying brain power, nor does it raise any new questions about the origin of the human species from ancestors shared with anthropoid apes, by natural causes operating in the evolutionary process. 🕮

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[18] Ibid., chaps. 12-14.

[19] Ibid., chap. 15.

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