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# Two fallacies in comparisons between humans and non-humans

Commentary on **Chapman & Huffman** on *Human Difference*

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**Abstract:** The hypothesis that humans are superior to non-humans by virtue of higher cognitive powers is often supported by two recurrent fallacies: (1) that any competence shown by humans but not by our closest living relatives (apes) must be unique to humans; and (2) that grades of intelligence can be inferred from behavior without regard to motivational structures.

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There is no room for doubt that most human cultural traditions have (1) taken humans to be superior to non-human animals in moral worth, that this has (2) rationalized disregard for non-human welfare and indeed extreme cruelty, and (3) been buttressed by assumptions of human intellectual superiority. Here I will point to two fallacies in reasoning that continue to sustain belief in human cognitive supremacy even among many scientifically literate people in the 21st century.

The first is the assumption that the tree of life resembles a tree not just in having branches, but in having a bottom and a top, where greater heights are associated with higher intelligence. On this picture, our closest living relatives, the apes, are assumed to be immediately below us in the ontogenetic cognitive hierarchy. This licenses an assumption that whatever we celebrate in ourselves as a cognitive endowment – for example, language characterized by large lexicons, reference to absent or hypothetical objects and events, and recursive syntax – if apes cannot seem to replicate it to our level, then no other animal can (Berwick and Chomsky 2015). Thus we conclude that we are unique bearers of the endowment in question.

Beginning from the assumption that humans are uniquely clever apes, we find the reasoning extended to supposing that apes are uniquely clever mammals, that mammals are uniquely clever vertebrates, and so on.

This ignores convergent evolution, which is ubiquitous in nature (McGhee 2011). The nearest living relatives of birds are lizards, who cannot fly. It obviously does not follow that flight is restricted to birds. Similarly, while it is true that even apes that have been painstakingly taught sign language or keyboard-based language have not displayed the facility with it that is

common among humans past early childhood, it does not follow that no other animals have language. It is now recognized by linguists that various other animals communicate about states of affairs that are outside their current perceptual fields (Bickerton 2014). A smaller set of non-humans – at least toothed whales, elephants, parrots and corvids – have enough variation in their signaling repertoires to encode both large lexicons and syntax (Ford 1991; Langbauer 2000; Pepperberg 2002; Saulitis et al. 2005; Soltis et al. 2005a, 2005b; Strager 1995). These same animals display complex enough social coordination that language would not be an implausibly expensive capacity for natural selection to have sustained in them. Prior to studying the patterns in their communications using deep learning algorithms, we have no direct evidence for language in these non-humans. But there is also no evidence against it.

A second fallacy is to assume that whatever we consider a sign of cognitive achievement in humans that non-humans don't generally do is something that they lack the capacity to do. This ignores the question of *motivation*. I noted above that even apes who have learned some human language do not use it as adolescent and adult humans do, to state and defend opinions and to tell stories about spatially or temporally distant or imaginary events (Anderson 2004; Penn et al. 2008). This is often assumed without further ado to reveal a limitation in their 'intelligence'. This is partly circular; as Chapman & Huffman point out, we tend to define 'intelligence' as denoting whatever we think most distinguishes the minds of humans. Consider that humans do not make and keep memory records of the scent traces of all their local conspecifics, despite our having the technological instruments to do so if we saw a point to it. Dogs might consequently regard us as revealing our stupidity, if they reasoned about humans as we typically reason about non-humans. Chimps and bonobos might not use language to construct ideologies and fictions – or for anything more than to express desires, as language-taught apes *do* do – because their motivational structure attaches no value to such activity. Story-telling is not *intrinsically* valuable; it is valuable to *us*. (And, again, we do not *know* that it isn't also valuable to orcas or elephants, and practiced by them.)

The metaphor of the great chain of being dies hard. But it is not scientific, and the cruelty and violence it encourages are heartbreaking.

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