Is language THE humanizing factor?[1,2]

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Chimps continue to plague our comfortable belief in human superiority. At the time of Darwin most people did not acknowledge even kinship; today, we have to accept the fact that we shared a common ancestor as little as possibly five million years ago, and still hold perhaps 99% of our genes in common. Yet there is clearly a difference between us. What is it? In behavior, almost nothing qualitative has withstood close scrutiny. Chimps make tools and war, show homosexuality, and can learn to communicate at some level in human sign language. One pygmy chimp has even shown a language capability equivalent to a human 2-year old. Does a gulf remain or has it been bridged by better knowledge? One factor that has been largely ignored is the simple difference in brain size. Humans have brains that average three times those of chimps. Can this alone explain the observed differences we now see between chimp and human?

Bickerton and Lieberman think not. They argue instead that language is the real difference between humans and other animals. Language of course requires a relatively large brain, although how large is never explicitly addressed, but both view brain organization as more important than sheer size. They can speculate then that Neanderthals and earlier archaic humans might not have had modern competency in language skills. This is a frustrating conclusion because most aspects of the organization of the brain can't be determined from fossil remains. Their general argument against brain size alone as the causative factor of human uniqueness is to question why brains did not increase in other animals before to such an extent. Actually brain increase has been a general evolutionary trend among many animals, particularly terrestrial vertebrates, despite the considerable energetic cost of a brain. If humans had to survive in thenatural world using appreciably the usual modes of competitive techniques instead of the unique sort that usually large brains conferred upon them, they would not have lasted as a thriving lineage for very long. Large brains slow a species' rate of increase in numbers; brains get large only when they can help a species to survive. In nature rapid growth, large body size, or sheer strength, none of which require much brain power, are often the mode of competitive interaction. Moreover, the way brains enable a species to compete successfully is so generalized that it is hard to envision two species, much less more, sharing this mode of competition locally for long. Intraspecific competition within our species results in either geographic separation or annihilation or enslavement of one group, never peaceful coexistence.

If language is the reason humans developed such large brains, then it must have been important very early, since even the oldest known hominids had relatively large brains for their size. Yet the evidence for language occurs only in relatively recent time. One has to conclude either that language was not the reason brains got large or that technological competence is not an adequate indicator of language competence. Either situation disagrees with the picture of human evolution developed by these authors or argues that larger brains than those in *Australopithecus* were necessary.

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[1]Contribution 107, Lothlorien Laboratory of Evolutionary Biology

[2]**Language and Species.**
Derek Bickerton. 1990. University of Chicago Press. x + 297 pp. Apparently acid-free paper. ISBN 0-226-04610-9. Hardbound. $24.95.

Uniquely Human: The Evolution of Speech, Thought, and Selfless Behavior.
Philip Lieberman. 1991. Harvard Univ. Press. 0 + 210 pp. Acid-free paper. ISBN 0-674-92182-8. Hardbound. $27.95.

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The arguments for the central role of language to human uniqueness are often weak although engagingly presented. Lieberman delivers a more biological analysis of the problem while Bickerton emphasizes the linguistic aspects. The two books complement one another well and both are worth reading. The comments below are directed at both, although both have not necessarily addressed each problem I raise. The books seem to be, however, in close agreement with each other.

Why does brain size *per se*.not hold the clue to human uniqueness? Presumably because hominids acquired modern-sized brains before they showed any signs of modern technological competence. This argument raises several questions, none of which are adequately handled:

--Why then did the brain become so large before any real advantage in terms of language evolved? Bickerton argues that language gave us consciousness, yet language is a relatively recent acquisition. Both grant better language ability in our ancestors than in chimps, but not much better. They claim that language appeared abruptly rather than evolving gradually. There is now no intermediate between a protolanguage and a true one. (But an intermediate stage isconceivable, so why exclude it: A saltational origin of any complex trait reeks of magic.) I suspect that ideas do not really come from language, which can be used to express new ideas but which is not required to formulate them (see below). However, as the authors note, language can influence how we think because it set limits on how we can express our thoughts. The fact that learning several very different languages early can increase general intelligence is intriguing, since many ideas never really are born because of an inability to explain them adequately to others.

--Is language a prerequisite for thought, for creativity, for consciousness? Modern humans vary less in their ability to learn how to speak than to learn how to think. As these authors note, language constrains the way one perceives the world. One filters out aspects of the world that are not important to one's culture. This fact argues against language being necessary for consciousness. The creative mind perceives the world in novel ways that may even be difficult to express in language. I am convinced that I do not think in words for the most part; I often find it difficult to translate a concept, particularly a novel one, into words, despite a good control over language. I have myself suggested (Maiorana, 1989) that language arose more as a tool for the tecnologist than for the artist; it is merely one way humans communicate. It is immensely practical and powerful as a means of conveying ideas; it is less powerful in conveying emotions. Cats seem to convey emotions about as well as our language does. Language is unlikely to be the one factor, if there is one, that makes us human.

--Why do some individuals perceive language better if heard whereas others perceive it best if seen? Whether being good in one mode precludes adeptness in the other has not been investigated by these authors and my ignorance of the field precludes me from stating what we know or don't know about this subject. From an evolutionary perspective, it is an interesting topic to explore. I am not completely convinced that the earliest language was in fact vocal; drawings may have been an easier way to express ideas before there were words.

--Why is language linked so causally to technological competence? Given true language, hominids presumably could convey more complex ideas and thus instruct others how to make a complex tool. However, economic factors may curtail interest in fashioning sophisticated and varied tools or artwork. When living conditions are marginal, creativity is suppressed. Whatever is adequate is used because there is little energy or time for fancy touches. Given the validity of this argument, it then becomes impossible to say when true language originated. Australopithecines may have talked to one another in limited fashion. The capacity for speech may have been nearly as sophisticated in the earliest *Homo*, although the range of sounds and thus the richness of language may have been much less because of structural limitations of the larynx that both authors point out.

In conclusion, although true language sets us distinctly apart from all other animals, it is not clear whether it is the basic difference or merely a consequence of possessing a uniquely large brain relative to body size. The attempts of these books to prove that language was the decisive factor in making us human have not been successful. I remain skeptical. Thoughtful reading of both, however, suggest new avenues to explore in chasing that rather elusive (non?)entity -- THE humanizing factor.

Perspectives on human warfare[1,2]

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War has been so long a part of the collective consciousness of humans that a time before its appearance seems inconceivable. Thus, we tend to study its varied manifestations instead of probing the reason why most humans (plus their closest relative, the chimp, and a few ants) are the only animals known to engage in 'warfare' as distinct from 'territorial defense'. Territorial defense, even by humans, is not necessarily warfare and it only appears to differ between humans and other animals because of the complexity of human social systems. In a sense, the need to maintain an individual space which, if broached, may lead to a physical fight, grades into defense of home and so on up to the entire world if a threat appears from outside. A territory of any scope is valuable because of its resources, in a broad sense. What resources may be valued, and to what degree, differ in different cases. The distinction between territorial defense and 'conquering warfare' (defense and aggression in political terms) is rarely made adequately clear in discussions of the causes of warfare and yet it should be because they ultimately have different causes. The latter is almost uniquely human whereas the former is evolutionarily continuous with other animals.

The study of the evolution of human warfare is akin to that of human sexuality. Both have unique aspects found nowhere else in the animal world of Earth, and both have origins lost in the unrecorded past of human history. Clear evidence for neither fossilizes well, so we are left with extrapolating from studies of humans (and possibly chimps) from the present and more recent past. Both aspects have undoubtedly altered over time as culture has become more elaborate and as populations have increased in size and have concentrated into villages, towns and cities.

Prolonged sexual activity of the kind now common to most humans is dangerous unless one is well protected from potential predators or destructive enemies of one's own species. Such elaborate attention and engagement in sexual activities requires leisure beyond securing an adequate diet. Given these prerequisites, one can perhaps conjecture that sex began preoccupying human activities only after habitual use of fire (Maiorana, 1989). Human warfare, like human sexuality, may have had its origin rather late in human history as a consequence of changing circumstances that set humans apart from other animals. However, the frequency of warfare by chimps relative to that by humans can't yet be estimated usefully.

A major problem plaguing studies of human evolution is the failure to realize that 'basic' behavior can evolve extremely rapidly -- within a rather few generations rather than over many millenia. We still search for elements of our behavior in other animals, and we certainly find them. We really are not long separated from them in terms of our mode of living, nor even long separated as a species. But, as a consequence, we fail to probe how much a change in brain size or stance or whatever, can lead to novel and unexpected changes in behavior. What preoccupies humans at present may be very much only a reflection of their current lifestyle or culture, either of which may change

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[1]Contribution 108, Lothlorien Laboratory of Evolutionary Biology

[2]**Aggression and War**: Their Biological and Social Basis.
Jo Groebel and **Robert A. Hinde** (editors). Cambridge Univ. Press. ix + 237 pp. ISBN 0-521-35356-4 hardbound, $49.50; ISBN 0-521-35971-X softbound $14.95.
The Anthropology of War.
Jonathan Haas (editor). Cambridge Univ. Press. xiv + 242 pp. ISBN 0-521-38042-1. Hardbound. $49.50.

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relatively suddenly with a change in environment. In other words, the origin of what we are trying to explain may not have very distant roots, but simply be a product of recent circumstances. Morphology is usually slower to change than behavior, yet even that in humans has altered significantly worldwide over the past 15 millenia.

The two books reviewed here are both collections of essays on the nature of human warfare. Although the two attack the problem from different perspectives, neither really addresses the question of the ultimate origin of warfare. We are provided instead with a reasonable treatment of the nature and proximate cause of extant styles of warfare. Both books are reactions against the "killer-instinct" viewpoint of warfare that was popularized by Robert Ardrey and Conrad Lorenz two decades earlier. Both convey the attitude that something as pervasive as war must somehow benefit the society which engages in it; war is not an inherited evil that cannot be eliminated from our behavior but one that may well vanish when the causes disappear. [This could be the case even if it were inherited; even instincts often depend on circumstances.] What then are these causes?

Groebel and Hinde focus on the broad biological, psychological, group and societal factors that lead to warfare. Theirs is a generalized treatment of the topic with a greater emphasis on individual aggression than on warfare *per se* and with little consideration of specific instances. In contrast, the papers in the Haas volume are specific case histories of cultures that do or do not fight, with the intent of unraveling the reasons why.

The two volumes ultimately disappointed me. Although many of the individual contributions were interesting, no synthesis emerged. Although I gained knowledge I failed to derive any greater understanding of warfare than I had initially. Warfare is still one of those few topics on which a great deal is written but little real understanding is achieved. Why this should be the case could profitably form the nucleus of another workshop on the topic.

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