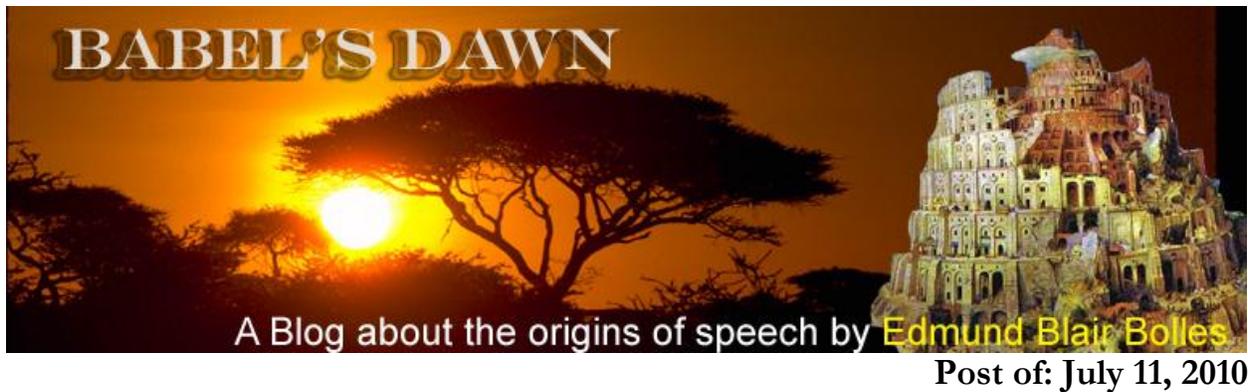


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## Are Humans Unique?



**Chimpanzees** are not known for their table manners, but they can learn to hold a spoon properly. See the story [here](#)

An intellectual dispute of interest to this blog has broken out in the *New Zealand Science Review*, and thanks to the Internet is available to readers in remotest New York. They're quarrelling over a variant on this blog's basic question: how did humans come to speak? They come at it from another angle, asking what is special about humans that lets us speak. One person ([David Penny](#), "[The Continuity of mind from Great Apes to Humans](#)") answers, nothing. Another ([Michael Corballis](#), "[The Giant Leap to Humankind](#)") says it was something. They mix it up good.

Penny is a theoretical biologist, and his argument is largely based on theory. Corballis is a psychologist, and his argument is based on human psychology.

Penny argues that evolutionary biology predicts "there is a continuous set of intermediate states in the mental abilities from an ape-human ancestor to modern humans." So he begins by

denying the possibility of a jump. Corballis argues that if you actually look at human behavior you see many jumps that separate us from apes.

Penny's paper is the longer of the two and makes a variety of arguments, the most interesting (and new to me) was based on the old 'child is the father of the man' theory. "We fully accept the continuity of mind from young children to adults," [p 65] Penny writes. He goes on to argue that experiments show that 2-year-old great apes are intellectually and socially very similar to 2-year-old children, "so is there, any difficulty, in principle, in accepting" the continuity of mind between a young ape and a human adult?

Corballis is not so quick to accept the proposition that there is never a discontinuity between infant and adult thinking. One difference that Penny concedes is the prolonged growth of human brains. Corballis proposes:

Prolonged growth may have supported the hierarchical structures necessary for recursive thinking. [Locke & Bogin \(2006\)](#) argue more specifically that the period of childhood, ranging from age 2½ to about 7 is unique to the genus *Homo*, including *Homo sapiens*, and is absent in apes and earlier hominins. This is the period during which children acquire fully grammatical language, mental time travel, and theory of mind. [62]

Locke & Bogin's paper was discussed in multiple posts (e.g., see [here](#), [here](#), and [here](#)) during the early days of this blog and I still consider it one of the most important papers ever discussed on *Babel's Dawn*, precisely because it identified two discontinuities that are unique to the human life cycle, childhood and adolescence. Childhood is a period of dependency that comes between weaning and the appearance of the first adult teeth. Adolescence is a period of dependency that follows sexual maturity.

Penny takes the concept of a discontinuity to refer to intelligence alone. He says we never see children suddenly "gain new mental powers" [66], but he says nothing about the well-known change in socialization that comes when children are about three. (Well-known to mothers anyway.) Socially, two years old are not particularly interested in other children of their age, but at three they suddenly start interacting. They become much more controllable as well. Linguistically, there is a great break between ages two and three when children switch to helping themselves wholesale to the language spoken around them. Grammatical language seems to appear from nowhere. It's only around age 4 that children get so they can successfully converse—staying on topic and switching roles between speaker and listener. Pathologically too, it is at age 3 that autism becomes undeniable. There may have been earlier signs, but at three it becomes clear that the deepening socialization going on with most children is not happening.

Penny is very hard on Chomsky, calling him an "anti-Darwinian" and quoting scornfully Chomsky's remark that "human language, it appears, is based on entirely different principles [from animal communication systems]." Penny scoffs, "'Entirely different principles,' indeed!" [65] Eventually, he goes beyond rhetorical exclamation points to list some things that seem similar between ape and human.

Penny did stop me short when he says that he would expect language to have started with "the 'words' (sounds) that chimpanzees use to communicate in nature" [67]. I thought by now everybody who sees continuity focuses on gestures because they are voluntary and used to draw attention to something. And Corballis, who is arguing for a discontinuity, says, "Manual gestures... provide the ideal platform for the evolution of language, because apes are highly manipulative creatures, capable of gestures that are both intentional and susceptible of learning" [61].

Penny seems to be such a believer in micro-steps that there is no room for the discontinuity in which a gestural language jumped from hands to lips. Oddly, I'm a gesture-skeptic too, and partly because of my dislike of that jump from the hands, but the chimpanzee vocal repertoire is no kind

of launching pad. Note too that one of the ways chimpanzee and human infants do differ is in their vocalizations. There is no continuity there.

Other components of language that Penny cites are: auditory (apes can make out syllables too), symbol usage (apes can use symbols), categorization (apes too). The same case was made a few years ago by Christine Kenneally in her book *The First Word*. Such reasoning makes it very hard to argue that language does not sit upon pre-existing powers, but has a hard time explaining why, if everything is already to hand, apes don't speak at least a bit.

Corballis points to three things—language, tools, and mental time travel—that distinguish humans from apes.

- *Language* uses sentences, while apes trained in sign language produce signals that "are devoid of syntax... parts of speech.. tenses ... moods... diathesis... in effect no sentences." [60]
- Apes do use some *tools*, but human tools differ in "number... variety... and combinatorial structure." Combinatorial structure is particularly striking, both in the ability to build machines, and the use of tools to make other tools.
- "*Mental time travel*" is "the ability to insert past or planned future episodes into consciousness" [61]. In other words, it's the ability to think about past or future events. But I doubt that anything so subjective is going to move Penny.

Penny concludes, "the main point just here is that the mental abilities for **nearly** all the components required by language are present in the great apes" [68; emphasis mine]. A couple of components that seem left out of the 'nearly all' are joint attention, the speech triangle, and the resultant syntax. He proceeds, "Emphasis could arbitrarily be selected on 'recursion' within our human languages, but this ability is already present in some birds songs." Even if that last very controversial statement is true, it does not address the continuity from ape to human. Since Corballis, Chomsky, and many other thinkers put so much emphasis on recursion, it strikes me that a fuller answer is warranted.

#### Links:

Photo story: <http://www.life.com/image/50416351>

David Penny: <http://awcmee.massey.ac.nz/people/dpenny/index.htm>

"The Continuity of mind from great apes to humans":

[http://nzas.rsnz.org/publish/archive/NZSR\\_67\\_2.pdf](http://nzas.rsnz.org/publish/archive/NZSR_67_2.pdf)

Michael Corballis: <http://www.psych.auckland.ac.nz/people/Corballis/Corballis.htm>

"The Giant Leap to Humankind": [http://nzas.rsnz.org/publish/archive/NZSR\\_67\\_2.pdf](http://nzas.rsnz.org/publish/archive/NZSR_67_2.pdf)

Locke and Bogin (2006):

<http://www.isrl.illinois.edu/~amag/langev/paper/locke05lifeHistoryBBS.html>

Old post #1: [http://ebbolles.typepad.com/babels\\_dawn/2007/01/scylla\\_and\\_char.html](http://ebbolles.typepad.com/babels_dawn/2007/01/scylla_and_char.html)

Old post #2: [http://ebbolles.typepad.com/babels\\_dawn/2007/01/the\\_persistent\\_.html](http://ebbolles.typepad.com/babels_dawn/2007/01/the_persistent_.html)

Old post #3: [http://www.babelsdawn.com/babels\\_dawn/2007/01/communication\\_t.html](http://www.babelsdawn.com/babels_dawn/2007/01/communication_t.html)

*The First Word*: <http://www.amazon.com/gp/product/0143113747?ie=UTF8&tag=tellingitcom-20&linkCode=xm2&camp=1789&creativeASIN=0143113747>