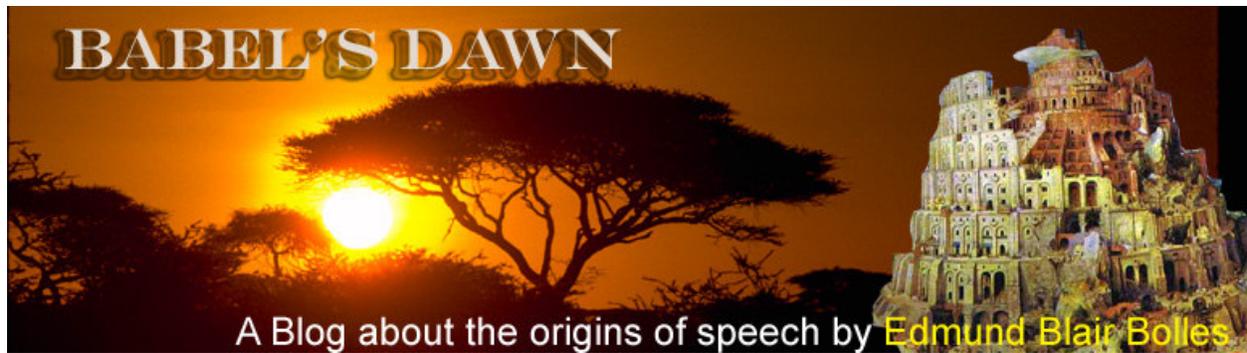


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Post of: August 30, 2009

## Three Years On: Voluntary Redirection of Attention



In the pre-digital days this ugly machine, the Movieola, was the secret of the movie's power. Using this machine, film editors could cut scenes, so that the movie forces our attention here and then there, turning a simple scene into a thoughtful story.

This blog's third anniversary is about to roll around, inspiring me to post a few general remarks about what I have learned about the relation between speaking and being human. There is

always the possibility that this blog is an exercise in futility, but it does seem to me that, thanks to this project, I have gained a much greater sense of what was critical to turning an ape into a speaking person. Three points in particular have caught me by surprise: one psychological, one sociological, and a third evolutionary.

Psychologically, we know by now that the difference between human and ape intellects is not as great as people used to say. Human brains are much bigger, but we are not as rational as we have boasted and animals are not as mechanical as we supposed. Speech begins at the intersection of human and animal abilities. It starts in any individual with a caregiver who already enjoys speech drawing a baby's attention to something. Attention itself is found throughout the world of mammals, but what is generally lacking is the ability to control and redirect attention. Speech is the solution to that one.

Attention comes in two forms: reflexive—as when we turn and look after hearing an unexpected sound, or noticing rapid motion—and deliberate—as when a monkey picks and eats berries off a limb. Speech seems to combine the two forms—words (and sometimes syntax) direct attention from X to Y, like reflexive attention, while sentences (and sometimes syntax) rest on deliberate attention to what the speech is about.

At its basic level, of seizing and redirecting attention, speech seems to be in total keeping with animal abilities, and suggests an explanation for why many animals can be controlled by vocalizations. Dogs, most famously, can learn to come and behave in a variety of ways by hearing vocal commands. Right here at the beginning we see something that appears to be true for language at all levels; it is easier to understand than to produce. Many animals can respond to their name, but they cannot speak the name themselves. People generally can understand words they never use themselves. Writers can appreciate works they themselves could not produce. And I know from personal experience that I can read books written in excellent French, but I can only produce a very bad French myself. Production is probably to be harder because directing attention and perceiving what we attend has scores, maybe even hundreds, of millions of years of evolutionary polish behind it.

Apes have some ability to direct the attention of others. They can slap the ground to catch the attention, and they make call sounds when they find food. The call sounds appear to be reflexive. At least one greedy chimpanzee has been observed in the wild trying to cover its mouth so as to muffle the call sound, like a person trying to smother a burp. So we can see right here what distinguishes human speech: the voluntary ability to direct attention to something other than oneself.

Immediately we can think of ways to direct attention without speech: point, draw a picture, nod with the eyes. But none of these activities are found among the great apes or other primates. So it turns out that the line that distinguishes speech from other, related activities in the animal world also distinguishes humanity in general from other animals. This control is a distinction that never occurred to me before I began the blog, but once stated seems quite obvious. To be human is to have the voluntary ability to direct one's own attention and the attention of one's fellows.

That last sentence provides some content for the commonplace suggestion that only humans can think about things. It sounds plausible, but what is *thinking about things*? Most of the answers are incomplete and off the mark. Many people say that thinking means using logic, but we are not a profoundly logical species while, under proper lab conditions, apes can use logic too. So why have humans done as well as we have? And why haven't apes done better? Whatever the explanation, it seems to lie outside the use of logic.

Others propose that humans can think symbolically, and many theories of language origins have bet the farm on this answer. There is some evidence that animals in the lab can use symbols too, but, more important, many thoughtful activities are not particularly symbolic. Story tellers, musicians, and skilled artisans think about their work but they don't think symbolically, at least not

in the strict sense that [Terrence Deacon](#) uses the term. The archaeological evidence is unambiguous: *Homo erectus* was capable of thinking more creatively than apes and produced tools that were more useful than anything previously produced. The fossil evidence is also clear: *Homo erectus* brains were considerably larger than previous primate brains. So it seems clear that *Homo erectus* was smarter than anything that had come along previously—perhaps even using some form of speech—but there is no conclusive evidence that *erectus* used symbols. So symbolic thought does not appear to be the breakthrough capacity that got us beyond the ape level of thought. (For a report on a controversial argument in defense of symbolic thought by *erectus*, see: [Abstract Thought Predates \*Homo sapiens\*](#)).

Thus, the standard answers are incomplete. You can think, without thinking logically or symbolically. They are also off the mark, because the answer does not lie in some abstraction that will encompass logic, symbolism and something else too.

Thinking, I am now persuaded, is the ability to change the focus of attention fruitfully. If you can think mathematically, you can redirect your attention to some other aspect of a problem. If you can tell a story, you know how to redirect your attention to some new story element. Thus, you can think without being logical or symbolic. You can be completely pragmatic, paying no attention to principles or overall theory, and think of a solution to a problem that has held your attention.

This definition suggests a new view of the ape's dilemma. They have the intellectual capacity to think logically, but they don't have the ability to take control of their power of attention. They can see a difficulty, and perhaps can solve it if the solution is strictly logical, but if it requires some kind of *non sequitur*—attend to this; now attend to that—their only hope of discovery is some kind of accident, and even then they will not be able to learn from the secret because they cannot think about what just happened. In other words, they cannot remember the first part of the problem and then redirect their attention to the accidental next step.

This argument changes the fundamental question of how language began. Instead of asking where syntax came from, or how did we come to use symbols, or how did we start using words, or even (a favorite of this blog) how did we start sharing information with one another, we have to wonder how did we gain voluntary control over our powers of attention.

One of the happy features of this line of reasoning is that it may be empirically testable, for it suggests what has been going on with our brain as it has gotten so much larger. We have been taking some control of our capacity to attend to things. That change should be visible in the brain's anatomy. It is a bit difficult to test immediately because attention is so poorly understood. Adding to the difficulty is that we tend to model brain activities on computers and computers don't attend to things. Attention transfers control of input from environment to the organism. Schools of behaviorism, cognitive psychology and artificial intelligence all take the input-processing-output model for granted and don't know where to look when studying an organism that actively judges inputs. There is, however, a great deal of clinical interest in attention disorders and perhaps out of that work can come enough knowledge to prove or disprove the proposition that our control of attention can account for a good chunk of the way our brain's differ from those of the apes.

Thanks to my three years on this blog I have concluded that humans only can voluntarily change the focus of their attention. Without that ability, speakers could not do more than name the object of their attention in the here and now, which is exactly how babies talk and what apes can learn to sign.

So why don't apes in the wild do at least that much? I'm putting the answer on hold because this post is already long enough. I'll get to the promised sociological and evolutionary material next time.

Links:

Terrence Deacon: <http://anthropology.berkeley.edu/deacon.html>

Abstract Thought Predates *Homo Sapiens*:

[http://www.babelsdawn.com/babels\\_dawn/2009/01/abstract-thought-predates-homo-sapiens.html](http://www.babelsdawn.com/babels_dawn/2009/01/abstract-thought-predates-homo-sapiens.html)