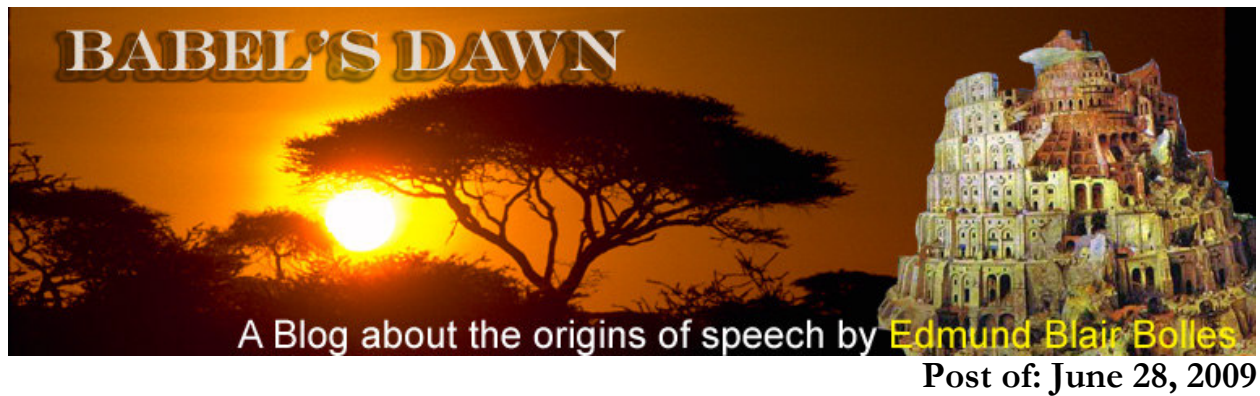
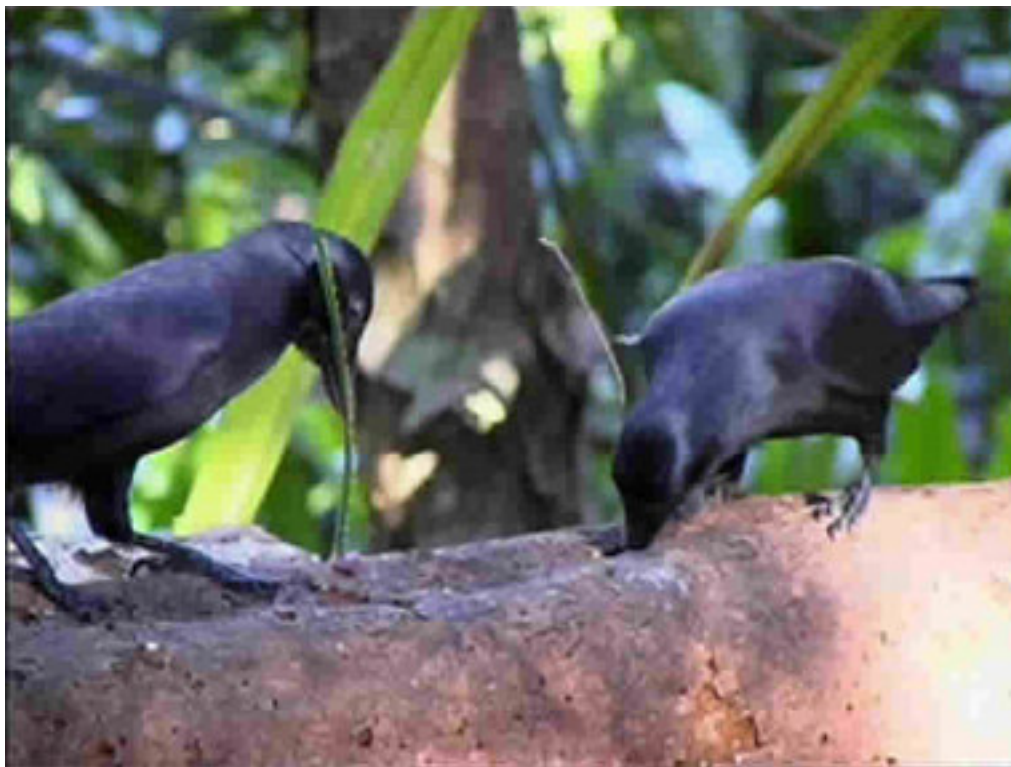


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Motivation and Speech



New Caledonian crows are smart enough to use tools in the wild. Like chimpanzees, they strip leaves and probe with the remains to catch insects.

Summer time is goof-around time, but I want to respond to a comment made this week by drawing attention to an essay published in the current *PNAS* by [Alex Kacelnik](#), “Tools for thought or thoughts for tools?” (extract [here](#)). It’s a meditation on tool use inspired by a paper (abstract [here](#)) reporting on crows and tools. The paper describes a housebred rook whose conspecifics do not normally use tools in the wild, but this rook did spontaneously create tools including shaping wire to form hooks, use different tools in a sequence, and other actions that suggest a sharp intelligence. The rook’s “cousin,” New Caledonian crows, are known to use tools habitually in the wild.

The finding is of interest to this blog because the rise of tool use is so important to the story of the human lineage. The rise of tools, language, and intelligence are commonly taken as working together. Kacelnik's paper examines another element, motivation.

Kacelnik considers three explanations for the unexpected ability of rooks to use tools:

1. The common ancestor of the rooks and New Caledonian crows was a tool user, but since then the rook lineage has lost the motivation to use tools but has kept the intelligence.
2. The common ancestor had the intelligence to use tools, and then the New Caledonian crow evolved the motivation.
3. Both species have the intelligence to use tools but the rooks do not normally use them because they lack the environmental pressures to motivate them.

This group of explanations intrigues me because we see the same problem with apes and humans. Humans are like the New Caledonian crows; we use tools naturally. The rooks are like the apes; they are smart enough to use tools, but don't do it as regularly as us. Experiments have also show that apes are intelligent enough to use language at least at the pidgin level, but they never do it in the wild.

Working on this blog has sold me completely on the notion that the central evolutionary events leading to speech were the ones that created a social interdependence that motivates us to share perceptions. That's why I was pleased to find that Kacelnik's essay cites [Michael Tomasello](#) point that it is the social structure of humans that uses collaboration and shared goals, not intelligence, that makes us use language. We have, says Kacelnik, "a unique motivation to share psychological states with others."

So one comment posted this week that overlooks the peculiar human psychology did irk me. It came in a lively defense of Derk Bickerton's book, and mainly I was glad to see the comments. Despite my grave doubts about his latest book, he's a hero of mine and has been for over 25 years. But one of the comments ([here](#)) included the note, "If the FOXP2 gene is responsible for language then where is my talking finch, gorilla, and ferret? Would perhaps language somehow not provide an advantage to those animals as it does to us humans?" I'm skipping over the fact that nobody says FOXP2 is "responsible for" language to address the more serious issue of the talking finch, gorilla, and ferret. Language seems so useful to us that we can suppose any species would benefit from it, but that overlooks the motivation issue. Gorillas, ferrets, and even finches lack social structures that permit collaboration and social sharing, so they have no motive to speak, no matter how well their brains and genes might be able to handle the task.

Links:

Alex Kacelnik: <http://users.ox.ac.uk/~kgroup/people/alexkacelnik.shtml>

Extract: <http://www.pnas.org/content/106/25/10071.extract>

Crow tools abstract: <http://www.pnas.org/content/106/25/10370.abstract>

Michael Tomasello: <http://email.eva.mpg.de/~tomas/>

Comment: http://www.babelsdawn.com/babels_dawn/2009/04/a-critics-chance-to-say-what-he-is-for.html?cid=6a00d83452aeca69e201157052c7f1970c#comment-6a00d83452aeca69e201157052c7f1970c