

I'm a believer

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Thom Scott-Phillips
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Recent research on the evolution of language has benefited from contributions from disciplines as diverse as linguistics, comparative psychology and computational biology. Much of this comparative research is motivated by the idea that, by modelling the communicative behaviour of our non-human kin, we can better understand the origins of human communication. Although Thom Scott-Phillips's *Speaking Our Minds* is (at 212 pages) a slim volume, it succeeds admirably in synthesizing the progress that has been made in this interdisciplinary field. The result is a valuable book that would make an excellent introduction to the subject. This is in spite of the fact that its central argument is questionable.

At the heart of Scott-Phillips's view is a distinction between two models of communication: the code model and the ostensive-inferential model. The former uses cognitively simple associative mechanisms to code and decode information. According to Scott-Phillips, it is the model of communication common to all non-human organisms, from quorum-sensing bacteria to the nonhuman great apes. It contrasts with the ostensive-inferential model that characterizes human communication. This is driven not by association but by communicators' abilities to act with, and to understand communicative intentions. For example, if I walk with an exaggerated limp as a way of telling you that I am injured, then I'm acting with the intention that my ostensive performance of this action will lead you to infer that I am injured.

This ostensive-inferential model is flexible and powerful, because once a hearer recognizes that a speaker is acting with communicative intent, the speaker can draw on any number of resources to provide evidence for the intended message. The cost of flexibility is the increasing demand on cognitive resources. Since acting with, as well as understanding, communicative intentions seems to require complex reasoning about others' psychological states, only those with developed abilities to reason about the minds of others can do it. The development of such abilities was, says Scott-Phillips, a key step in human evolution. Only humans developed ostensive-inferential communication, because only we lived in the complex social communities that required the development of what are known as "metapsychological" abilities. Once these evolved, our ancestors rapidly developed conventional signs to facilitate the interpretation of communicative intentions, and the grammatical tools for re-combining strings of such signs. Together these make up language.

The sections that follow the author's account of communicative intentions, on the likely stages of the conventionalization and grammaticalization of language, are compelling; as is the discussion of Chomsky's Universal Grammar, and of the extent to which human biological adaptations for language might include adaptations for the acquisition of syntactic knowledge. Scott-Phillips argues that if there are such adaptations, they must have emerged only after ostensive-inferential communication – because of selective pressure to increase the expressive potential of an already operating system of communication.

Nonetheless, key steps of the book's central argument might reasonably be disputed. Scott-Phillips skilfully and humorously develops the ideas of some central figures in the developing field of evolutionary pragmatics, including Dan Sperber and Deirdre Wilson (authors of the seminal *Relevance*, 1986) and Michael Tomasello, whose pioneering studies compare the gestural communication of human children and great apes. However, he is more interested in sketching out a big picture of the evolution of language than worrying about the details.

On Scott-Phillips's view, pre-verbal infants acquire language because they can attribute communicative intentions. On the standard account that he adopts, this requires entertaining particularly complex thoughts. If my goal is to get you to believe that I am injured, I could realize this in numerous non-communicative ways: for example, by limping in your presence and relying on your powers of perception. However, to communicate that I am injured I must not only (1) intend that (2) you form this belief, but (1) intend that (2) you believe that (3) I intend that (4) you believe that I am injured. This requires entertaining four levels of representation of mental states, or "fourth-order" mental state representation. Language acquisition therefore turns on the possibility that both our early hominin ancestors and pre-verbal children could entertain such complex thoughts.

The plausibility of this view was traditionally threatened by the finding that despite being able communicators, children under four seem not to possess the concept of belief that this metapsychology requires. However, Scott-Phillips argues, new research methods have shown that pre-verbal children do possess at least a rudimentary concept of belief. From this he hypothesizes that infants likely also possess as-yet-undiscovered metapsychological abilities; and he supports this claim with experimental evidence of the relevant abilities in adults. However, the fact that adults succeed in these tasks is not evidence that pre-verbal children would. For one thing, adults' possession of such capacities may be a consequence of their already having acquired language.

Scott-Phillips also argues that, unlike infants, apes are likely to lack the metapsychology required for ostensive-inferential communication. While he concedes that the relevant studies of ape abilities have not yet been made, he takes this to be "a collective acknowledgement . . . that great apes would fail such tasks". In fact, since the studies that Scott-Phillips identifies as relevant have been attempted on neither infants nor apes, the confident distinction that he draws between us and them may yet turn out to be misplaced.

These objections are not trivial, given the centrality of the claim that fourth-order mental state representations are a prerequisite for language. An alternative view is that the human capacity for complex metapsychology may be a product of language acquisition, and not a prerequisite for it. This idea has led some supporters of the ostensive-inferential view to reconsider whether it really requires the metapsychology that others suppose. About such views Scott-Phillips states only that "I have not been persuaded".