

## Language evolution: Sound meets gesture?

### From signal to symbol: The evolution of language

By Planer, R. and Sterelny, K.

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A molecular biologist, a historical linguist, and a developmental psychologist walk into a bar. This is *not* a joke and could instead well describe a social evening at a language evolution conference. Over the last 30 years and more, a plethora of disciplines has tried to find out how language originated and developed in our species. Scholarly contributions come from the humanities, social sciences, engineering and natural sciences. In particular, the many disciplines involved, to name just a few, are: philology, archeology, psychology, artificial life, computer science, physics, paleontology, and genetics. I imagine how granting agencies may dread funding proposals in language evolution: how can one assemble an evaluation panel with such diverse backgrounds?

Language evolution is a beautifully strange field. The last few decades have seen immense progress. At the same time, there are fundamental ongoing discussions on basic, definitional aspects. Does language evolution concern the biological substrates for language, its changes over time, or both? And what is actually *language*? Some have devoted their whole research career to language evolution (I am proudly one of those), while others—including famous linguists—argue that all efforts are vain and language origins are deeply incognizable.

Amidst all this interdisciplinary richness and chaos, a few scholars have ventured into trying to summarize accounts of language origins. Planer and Sterelny do exactly this in their recent book. Previous volumes and review papers vary at least along two dimensions: presenting one main versus multiple possible accounts of language, and basing them on purely empirical versus other literature. Planer and Sterelny's book positions itself halfway along both dimensions. The authors review and discuss some empirical papers but also strongly base their arguments on reviews and published philosophical discussions. Planer and Sterelny discuss alternative hypothesis for language origins and evolution but their clear, explicitly stated mission is to push forward the hypothesis they formulate. Notice that here I purposefully use the word "hypothesis" rather than "theory" because at present all accounts of language evolution need more empirical testing before they can be labeled "theories"; after all, also

Newtonian mechanics and evolution by natural selection were once hypotheses, later upgraded to theory after empirical testing.

Throughout seven dense chapters, and a final "sanity-check chapter", Planer and Sterelny present their overarching hypothesis for language origins and evolution. A few key elements of their hypothesized path from no language to modern human language stand out. Gesture was central to language origins, and constituted its first communicative channel. Most abilities underlying language were already present in human brains/minds for other purposes; an example of this reasoning is syntax, which would have been gradually exapted from action organization and activity planning (e.g., stone tools). Semantics and lexicon were supported by coordination and cooperation, especially needed in hunting. Finally, singing paved the way to a flexible vocal channel, and the transition from gesture-only to sound (with added multimodality) happened via our revolutionary ability to control fire. The end result is a well-thought and potentially convincing hypothesis; I disagree with parts of it, but I commend the authors for giving voice to so many different fields within the same hypothesis.

I particularly appreciated some aspects of the book. First, the authors are quite respectful of different views and hypotheses of language evolution. This politeness is not a given in a field where discussions can get fierce. Second, it was refreshing to see increased focus on archeology and anthropology; I believe we need more of these perspectives in the language evolution debate. Third, Planer and Sterelny stress the importance of hypotheses without gaps or miracles; this is particularly healthy for a field which, in the past, has sometimes featured just-so stories and post hoc explanations. Fourth, the authors take the biology-culture interplay seriously, which is a helpful approach to avoid unproductive dichotomies. Fifth, Planer and Sterelny's hypothesis partly reconciles gestural and vocal hypotheses of language evolution (while giving a clear primacy to gesture).

In contrast, some aspects of the book did not resonate with me. First, the writing style can be a bit heavy at times; some sentences and paragraphs could be shortened without loss of meaning. This way, the reader could better focus attention on key concepts. Second, while the authors admit they cannot do justice to the evolution of speech, I found the treatment of speech a bit too short. Planer and Sterelny devote about 2% of the book's pages to speech. Considering that speaking is such a frequent activity in most humans, a framework for language evolution should probably try to explain more why we are such chatty animals. Third, I would have appreciated some explicit, testable predictions stemming from the hypothesis. Obviously, it is not Planer and Sterelny's job to deliver ready-to-make experiments to the empiricists. However, this and

adjacent fields have particularly benefitted from predictions ready to be falsified; it would only help the authors' cause if they also entered this game. Fourth, most discussion on comparative animal work focused on primates (especially great apes and some New World monkeys). While phylogenetic proximity makes nonhuman primates clearly relevant to us, nonprimate model species in language evolution have tremendously increased over the last few years. Some of these animals—including elephants, aquatic mammals, bats, dogs, and so forth—do belong here. Notice that all these critiques surely stem from my background being different from the authors', and are meant constructively.

I appreciated how Planer and Sterelny concluded their book with humble words, writing that they “do not claim to have provided even a close approximation of a proper lineage explanation, taking us from an independently supported baseline identifying the communicative skills of the earliest hominins to language-equipped modern humans” (p. 222). Similarly, the authors show care, rigor and conscientiousness throughout the book, writing, for example, “If our speculations [...] are correct” (p. 65), or “It is time for a self-assessment. We make no claim that the account of the emergence of language developed in this book fully meets these criteria. For there are important aspects of language about which we have said little” (p. 214). These disclaimers

are important to read, particularly in 2022, a special year for language evolution research, when the three main societies engaging in the study of language evolution held a joint conference in Japan. If possible more than before, now we need the humbleness of Planer and Sterelny, rather than old sweeping statements on how a specific approach is completely irrelevant to language (evolution).

To conclude, the study of the origins and evolution of language is a complex mosaic. It engages a dozen of distinct disciplines and obviously none of them can arrogate to itself primacy nor complete explanatory power. Planer and Sterelny provide an intriguing account of language origins from the perspective of philosophy (of science), with a good dose of anthropology and cognitive science. Their book delivers one of the multiple tiles needed to reconstruct the mosaic of the origins and evolution of language.

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