

LANGUAGE

Me Tarzan, You Jane

Robert C. Berwick

In *The Descent of Man*, Darwin advanced a “Caruso” scenario for language’s origin: sexier singers got more mates, leading to language’s use for both communication and, crucially, thought (1). More than 140 years on, have we made any progress? Judging by *The Origins of Grammar*, not so much. James Hurford, an eminent Edinburgh University linguist, has been at the forefront of a recent revival of evolutionary thinking regarding the origin of language. The overarching principles of gradualism and continuity guide his account. He clearly means to stand on Darwin’s shoulders—evolution by natural selection via “numerous, successive, slight modifications.”

Hurford’s evolutionary story parallels the book’s three parts. First, from primate calls, prehumans pitched up with pairings of vocalized words and meanings; this “first shared lexicon” grew, word by word. Second, a burgeoning stock of single word-meaning pairs led to two-word constructions (including “Me Tarzan, you Jane”) along with an ability to learn new words and sentence constructions. Third, driven by expansions in computational capacity and the pressure of cultural needs for communication, the steady drumbeat of two-word constructions led to three-word constructions and on to Shakespeare.

Hurford insists that virtually every aspect of human language is, at heart, a cultural construct—reinvented anew as each child grows up in a particular language community, with very little in common from language to language aside from our shared language-learning capacity. Many linguists and cognitive scientists would disagree, arguing that our brain comes predisposed to eliminate as a potential human language a large range of otherwise logical possibilities.

Wide-ranging and often entertaining, Hurford’s three-part account is nonetheless just a story. Crucially, despite his unflagging commitment to Darwinism, he has missed even Darwin’s own solution to the problem of novelty, one readily applicable to language. For Hurford, gradualism and continuity entail changes of both form and function. But Darwin appreciated that there had to be discontinuities of function maintaining con-

tinuity of form. In *Origin of Species*, he singled out the transformation of swim bladders of fish into air-breathing lungs as a clear case of novel functions appearing as “wonderful metamorphoses” repurposing old forms (2).

Indeed, a relatively rapid emergence of language seems to square much better with the paleoarchaeological record. Whereas Hurford’s account demands a long, slow trek from symbolic activity and single words to language, unequivocal evidence of symbolic activity first appears associated with *Homo sapiens* (e.g., the engraved shells in Blombos cave, 77,000 years ago). Going back that far takes only 2600 generations, too little time for a slow trek.

In addition, Hurford repeatedly presents interpretations without providing data to support them: “It is quite possible that *Homo erectus*, perhaps for over a million years, had symbolic pre-syntactic communicative behaviour.” “The first evolutionary rudiments of language permitted somewhat larger group size.” “It is conceivable that the combined effects of increased group size, increased cooperation within groups, increased trust, and shared intentionality permitted some relaxation of genetic control.... Thus the first learned arbitrary symbols.” Doubtless, any of these claims could be correct. The real questions are whether any of them are true and how we might ever determine that.

To support his view that today’s complex languages evolved from simple ones, he discusses three extant “linguistic fossils”: Creole languages; a pair of hypersimplified languages (Pirahã, with fewer than 500 speakers in the Amazonian basin, and Riau, spoken by some 5 million urban Indonesians); and the trajectory of child language acquisition (adopting Haeckel’s “ontogeny recapitulates phylogeny”). However, the empirical basis for his accounts is questionable. Take Creoles: They have articles (e.g., “the” and “a”), whereas “more complex” languages such as Chinese or Russian lack them. Creole articles have a more irregular, complex distribution than those in “complex” French, Italian, or German. And questions in Creoles are formed roughly as in English, with question words (e.g., what) at the front of the sentences—another complexity not found in Chinese (3).

Biologists expecting a worked-out evolutionary model will walk away disappointed. Despite its subtitle, the book lacks explicit fitness calculations, survival and reproduction schedules, generation times, and, indeed, anything resembling the basics of population or behavioral genetics. Hurford reveals what does count for him as an evolutionary argument while explaining why prehuman vocabularies should get larger:

“Couching it in evolutionary terms, one would presumably assume there is some advantage to individuals in a group in having a large vocabulary.” However, evolutionary explanations typically demand far more than just an unproven assumption about advantage to individuals.

Tellingly for such an inherently historical science as evolution, the book contains very little about established hominin prehistory. There isn’t even an illustration of perhaps the single most striking fact about hominin evolution: whereas this clade once formed a bushy tree with many coexisting species, now there is only one lineage left, us. To be sure, Hurford does not seek to provide a historical explanation—he identifies his concern as “the ‘Why?’ and ‘How?’” of the origins of syntax. But history does matter. The available evidence points to a relatively recent appearance of symbolic activity in the human lineage, the adventitious convergence of old forms brought together for a new function just as Darwin suggested, roughly at the time of the last push of *Homo sapiens* out of Africa, 70,000 years ago. We can shed all of Hurford’s speculative baggage: There is no need for “symbolic behavior” in Australopithecines or even Neanderthals; no necessity for special pleading about Creole “simplicity” or eccentric “living fossil” languages; no call for language development to recapitulate phylogeny; and no difficulty reconciling the paradoxically long periods of apparent stasis in the paleoanthropological record with the observed bursts of functional innovation. All these empirical problems fade away, leaving us with a story altogether different from the one told in *The Origins of Grammar*.

References

1. C. Darwin, *The Descent of Man and Selection in Relation to Sex* (John Murray, London, 1871).
2. C. Darwin, *On the Origin of Species* (John Murray, London, 1859).
3. E. O. Aboh, N. Smith, Eds., *Complex Processes in New Languages* (John Benjamins, Philadelphia, 2009).

The reviewer is at the Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA 02139, USA. E mail: berwick@csail.mit.edu

The Origins of Grammar

Language in the Light of Evolution

by James R. Hurford

Oxford University Press, Oxford, 2012. 807 pp. \$65, £35. ISBN 9780199207879.

10.1126/science.1220733