## REVIEWS

Sverker Johansson. *Origins of Language: Constraints on Hypotheses*. Amsterdam: John Benjamins, 2005. 348p.

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Origins of Language: Constraints on Hypotheses, part of the series "Converging Evidence in Language and Communication Research (CELCR)," compiled by Sverker Johansson, a physicist at the University of Jönköping, Sweden, who also holds a master's degree in linguistics, offers a Darwinian perspective to the discussion of the origins of language and communication. In this twelve-chapter book-including figures, tables, a preface, references, and an index-Johansson brings together materials from many disparate fields, including findings from linguistics, as the first steps in his effort towards a synthesis for a deeper understanding of the evolution of language. Therefore, this cross-disciplinary introductory textbook, tailored to fit the author's first course in evolutionary linguistics—which cites evidence primarily from the non-linguistic fields of evolutionary biology, paleoanthropology, primatology, and neurology-will make for a different reading in linguistics because each chapter, in the form of a meta-analytical evolutionary research report concluded by a chapter summary (except for chapters 1 and 2), is solely data-driven: i.e., not theory-driven. The absence of historical comparisons, varied linguistic examples, intriguing theoretical frameworks on language theory, and interesting anecdotal evidence will create quite a different reading experience from, for example, Nicholas Ostler's Empires of the Word: A Language History of the World (NY: HarperCollins, 2005), another recent example in the areas of origins of language and language history. However, any full-fledged linguist will become rather concerned while reading Origins of Language: Constraints of Hypotheses due to the startling gaps and inaccuracies in the field of origins of language that Johansson reveals when comparing and contrasting the widely held findings and beliefs in linguistics as opposed to those in other relevant disciplines.

With Chapter 1: "Introduction" (1-4), Johansson sets the scene by reviewing the six main propositions why human beings are in many ways "unusual animals, with some peculiar adaptations" (1); in Chapter 2: "What Is Language?" (5-11), the author concludes that due to a lack of clear evolutionary transitional forms between non-language and language, linguistic researchers seem to have given up by either focusing exclusively on the non-evolutionary branch of linguistics called "Generative Grammar" or on the isolated research in "Cognitive Linguistics" which considers conceptual and attentional structures, such as image-schemas, figure/ground, trajectory/landmark, frames, and scripts, rather than researches humankind's general cognitive evolution. Chapter 3, "The Theory of Evolution" (13-40), reviews the general characteristics of the evolutionary process, such as "natural selection," "variation," "randomness," "mutation," etc. and their possibilities and limitations. In this chapter, Johansson attempts to isolate the factors, processes, and evolving systems that are relevant for the origins of language. Chapter 4, "Human Origins and Evolution" (41-76), provides the family tree—including illustrations and maps—of the speakers of language in time and space. Chapter 5, "Anatomical and Neurological Prerequisites" (77-117), answers the questions of what anatomical and neurological structures are considered necessary bases for the evolution of language and when our ancestors acquired them. Chapter 6, "Animal Communication in the Wild" (119-128), and Chapter 7, "Can Non-Humans Be Taught Language?" (129-142), provide evidence for the distinction between animal calls and language-like features; furthermore, various attempts to teach language to apes, dolphins, and parrots are analyzed in terms of which aspects of language are most accessible to non-humans. In Chapter 8, "Language, Mind, and Self" (143-156), Johansson presents findings from studies that looked into the relationship between mind and language; in the core chapter, Chapter 9, "Hypotheses of Language Origin" (157-192), the author tries to eliminate those linguistic hypotheses that are inconsistent with the available evidence by classifying them according to the five dimensions of "adaptation vs. spandrel," "early vs. late," "gradual vs. sudden," "speech first vs. gestures first," and "innate vs. learned grammar." Finally, Chapter 10, "Why Did Language Evolve?" (193-218), and Chapter 11: "Proto-Language" (219-242), examine which cultural and social structures are associated with the evolution of language, when those structures evolved, and what the transitional stages of language, from ape-like to human-like linguistic abilities, might have been.

In sum, Origins of Language: Constraints on Hypotheses presents a wake-up call for the discipline of linguistics to reassess its basic beliefs and strengthen its bond with sciences as opposed to the arts, the link that seemed to have been stronger throughout its history as a discipline. I recommend Johansson's work, as one of the texts in his first linguistics course, because it provides a good basis for the beginner in linguistics; it also can serve as a solid reference for the scholar. Since Johansson was able to collect evidence on the origins of language from relevant disciplines other than linguistics—evolutionary biology, paleoanthropology, primatology, neurology, etc.—against many popular existing linguistic theories of language, it ought to be each practicing and theoretical linguist's responsibility to take a good look at the data presented as counterevidence by Johansson and then, if found valid, accordingly adjust, revise, or abandon his/her own widely and long-held linguistic views on the origins of language. According to the two competing hypotheses on the origins of modern humans, the "Multiregional-Evolution-of-Humans Hypothesis" vs. the "Noah's Ark or Out-of-Africa Hypothesis," humans evolved either in separate regions of Earth, with some interconnectedness, after an initial worldwide migration of Africa two million years ago or left Africa in several migrations, the latest of them by modern humans who then supplanted all those earlier ones less than 100,000 years ago. So where are the linguistic connections to the African linguistic environment in our "Indo-European Family Tree of Languages"? <sup>\*</sup>