

The Origins of Language: An Introduction to Evolutionary Linguistics

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The scientific interest in the evolutionary origins of language has grown recently among both researchers from a wide array of fields and in the general reading public. Despite the widely recognized problem of access to evidence, the theoretical importance of the question itself prevents us from setting it aside. Every comprehensive theory of language, not to mention the related fields in the cognitive sciences, faces the question. If the findings from ongoing empirical work cannot at some point consider plausible hypotheses about evolutionary origins that are compatible in some way with the conceptual framework of this work then there is the possibility of a wider inconsistency. Thus, even though the evidence appears as remote, the research problem is irresistible.

The author comes to the topic from the field of language learning, in linguistics at the other end from theoretical and remote. This gives her a special vantage point (the first that the present reviewer has encountered as book author on the subject), perhaps in some ways an advantage, or perhaps not. We are inclined to lean toward the former because the main concern of inquiry into evolutionary antecedents is closely related to better understanding learning, or acquisition, capacity in our species.

The format of the book serves as a textbook for a graduate level course in the different branches of cognitive science, and at the same time can be of value to researchers who will appreciate a review of the current state of the field. For this purpose, and the first, the presentation of the competing hypotheses and points of view on the topics are up to date. On this point, readers might get the sensation that along the way the author shifts from favoring one or another of the proposals in contention (as opposed to consistently arguing for just one). Thus, considering the treatment of each one in turn we pause to reflect on the debates and try to predict the overall direction of the chapters. But aside from keeping us on our toes, the alternating arguments and presentation of evidence provide an even-handed introduction, as the title of the book announces.

A major theme of the book is devoted to better understanding the relationship between:

- the generation-to-generation learning and transmission of proto-linguistic and linguistic knowledge, and
- language evolution.

One might at first assume that the first process of unfolding (generation-to-generation transmission) is the strictly “cultural” as distinct from the second (evolution) that would be the “biological.” The “cultural” would be the external and the “biological” the internal. But this framing would not be a good way to begin.

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While the research problems of evolution evidently fall within the broader disciplines of biology, the study of cultural knowledge also involves domains of competence and information processing that are just as “internal.” Both kinds of trait in humans, cultural and evolutionary, rest upon, in different ways, cognitive substrates that are an inheritance from our lineage. In this regard, a more helpful distinction, that we will revisit, is that between kinds of knowledge and processing that are domain-general and domain-specific; and as we will see, the popular, informal, contrast between “culturally acquired” and “innate” is not especially helpful for our topic either.

For this theme in particular the book brings together in Chapter 10 the most pertinent threads, with the final figure: that of Mendívil-Giró’s (2019) model, originally titled: “The evolutionary relationship between two Faculties of Language.” The intervening chapters guide us through the different points of view toward a concluding discussion that takes the Mendívil-Giró figure as its reference. As a preview, one of the guidelines for following this theme will be to keep the concepts “language development,” “language change” and “language evolution” separate, at least to some extent, and provisionally. In other realms of study, and in everyday discourse, the meanings of “development,” “change” and “evolution” often overlap or even come to be interchangeable. In this book, readers will try to keep them in mind as different but ultimately related and interacting processes:

- language development – over the lifespan of individual language users, particularly in regard to children’s capability to acquire language.
- language change – typically we think of it in terms of recent historical time, since the emergence of fully formed language capacity in *H. sapiens*. But we can also apply the idea of change to the ancient epoch prior to the appearance of our species when primitive communicative ability advanced incrementally toward greater and greater complexity.
- language evolution – over geologic/evolutionary time that spans the periods corresponding to the diversification of biological species, and how knowledge of language, as we know it today, came to be formed as a cognitive faculty, biologically.

Chapter 1 begins with Charles Darwin and *The descent of man* ([1981]1871). Many years before our more complete understanding of the genetic mechanism of natural selection, Darwin’s speculation on the origins of language still forms part of current theorizing, regarding both analogous traits (of convergent evolution) and homologous traits. His contribution to the study of these important concepts is taken up again in chapters 3, 5 and the concluding 10. In addition, Darwin was the first to suggest the idea that the musical and linguistic competencies can be traced to a common proto-linguistic/proto-musical precursor capability in archaic humans (pre-sapiens). An inheritance of this once integrated cognitive structure, hypothetically, can be found in the modules that linguistic and musical competence share today.

The culmination of the evolution of language capacity coincided with the African emergence of *H. sapiens*, plausibly the former definitively defining, cognitively, the latter. Fully formed language acquisition capacity represented the crowning attainment of the evolving human mental architecture. All modern populations may have descended from a recent dispersal around only 70,000 years ago. Then, looking back to ancestral lineages, how should we frame the question about antecedents of this acquisition capacity in the greater animal kingdom, from the point of analogy and homology?

Chapter 2 is the necessary overview of the overall design features of language and its component subsystems, with Chapter 3 covering the purpose of language.

In regard to design, there are two dimensions:

- (1) The duality of patterning—How a small number of finite elements without meaning combine to systematically form a large lexicon and an infinite number of meaningful sentences.
- (2) Internal hierarchical structure of morphology and syntax—in parallel, the musical subsystem of speech (prosody) is structured according to its own hierarchical organization. Intricately interwoven in speech

and comprehension, the systems are represented separately, by hypothesis, with different evolutionary trajectories. For example, phonological knowledge is of a different kind than the knowledge of syntax; and even though both phonology and knowledge of prosodic structures are about patterns of sound, the underlying competence subsystems are probably not the same.

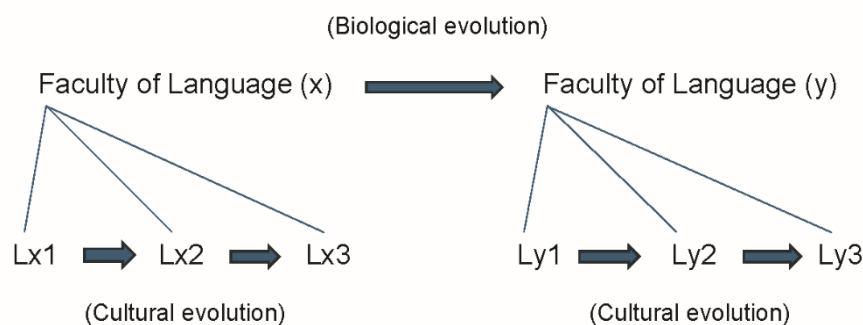
When considering purpose (Chapter 3), our attention shifts to the communicative function of language, important for the discussion of evolution as it brings to the forefront the *adaptationist hypothesis*. What was it in the environmental and communicative challenges that archaic humans faced that set the stage for selection pressures, relevant to expression and comprehension, that increased reproductive success? In Chapters 4 and 5 we continue with the topic of how language, in its formative pre-history (language-before-it-was-language), could have been shaped by the physical and socio-cultural environment.

Chapter 6 begins to pin down the relationship between language change and language evolution. Readers will take note that this review is also making an initial attempt to do this. The research from the field of psycholinguistics and child language development is the topic of Chapters 7 and 8.

Chapters 9 and 10 are the conclusion: how the evolution of communication (that other animals have also acquired via natural selection) led to a linguistic competence that is unique, by any metric. The concluding chapters hint that the idea of “led to” here may not be exactly correct (because of the “unique” part). This is the view of leading scholars in the field. On the other hand, the evidence gathered so far, indirect as all of it is, might suggest that the incremental evolution idea is actually more plausible, even as we accept that the language capacity of modern humans really is unique. The problem with the idea of exceptionality, then, is that modern human language is exceptional only in contrast to the communicative abilities of our *surviving* primate cousins.

The final passage of the book features the assessment of Mendívil-Giró’s model as Chapter 6 promised because it serves to help “put it all together,” subtitle of the concluding chapter.

Figure 1. The evolutionary relationship between two Faculties of Language: FL(x) and FL(y)



Slightly adapted from Dornbierer-Stuart’s adaptation of Mendívil-Giró (2019, Figure 5)

The first distinction between Faculty of Language-x (FLx) and Faculty of Language-y (FLy) that Mendívil-Giró calls to our attention is that the former spanned many hundreds of thousands, millions, of years. FLx corresponds to the biological evolution of the language capacity (faculty). FLy is recent, the modern language faculty of *Homo sapiens* that finally emerged in East and South Africa during the years prior to the great exodus of our species that then colonized the Old and New Worlds. Historical language change, corresponding to FLy, is the variation over time of specific languages and language families, all of which trace their lineage back to the African genesis of the fully formed language acquisition capacity, culminating result of biological evolution. Mendívil-Giró might say that the recent cultural-historical changes corresponding to FLy are all instantiations (without exception) of this culminating result of

biological evolution. Or to be more precise, the instantiations of FLy are of the language acquisition capacity of all human speech communities today.

Here we will consider a possible difference of viewpoint between the original figure in Mendívil-Giró (2019) and the way the book explains the “synthesis of biological and cultural evolution” (the adapted title that the author gives to the figure 10.4 on p. 150). The difference gives us a good opportunity to delve into the interesting debate on language evolution between *continuity* theory (that Dornbierer-Stuart appears to favor) and *discontinuity* theory (that Mendívil-Giró appears to favor). Both authors in this, unintended, exchange side-step the full implications of the difference, in both cases probably for space limitations, because it is complicated. This review will also only scratch the surface.

In chapter 10, the proposal of “synthesis of biological and cultural evolution” unambiguously belongs to the family of continuity theories. The chapters 1, 3, 8, 9, and 10 prominently cite the papers by Pinker and Jackendoff (see references below) as representative summaries. The possible continuity scenarios for an interaction between cultural learning/transmission and biological evolution all imply gradual emergence of a Faculty of Language and, very summarily, could have proceeded something like the following. Archaic humans (e.g. from the era of *H. heidelbergensis*) began to acquire (via cultural learning) the first approximations to word-like utterances and/or holistic expression. In the child generation some individuals appear with a greater predisposition to learn them, the trait (acquisition capability) conferring survival advantage in the social-communicative culture of our ancient ancestors. Over time, the trait was selected – successful, surviving, learners more likely to leave offspring. For example, during breastfeeding and “bedtime,” infants with a greater ability to correctly interpret intention in their mother’s vocalization would have been more likely to avoid predation and to survive to child-bearing age (Mehr & Krasnow, 2017). Over (evolutionary) time, all of the same would apply, in general, to an aptitude for merging protoword-like utterances to form two and three-word constituents and for segmenting holistic communication. Thus, cultural innovations gradually led to changes in the genome. Discontinuity theories, in contrast, argue against the above natural selection driven emergence of the Faculty of Language, seeking explanation rather in a kind of saltationist model (Hauser et al., 2002). The seminal Hauser et al. paper rejects the (continuity) hypothesis of a relationship of homology between the core grammar of modern language and protolanguage-type approximations that emerged in ancestral lineages (none of which have survived to the present, except that of *H. sapiens*). An important clarification on the point is made from the beginning, in Chapter 1, that the continuity hypothesis could cut across the division between Universal Grammar (UG)-oriented and Functionalist approaches to the question of evolutionary emergence of language. Both, in general, work on the problem from the point of view that the forces of natural selection played a central role. In addition, even on the question of so-called “nativism,” the fundamental difference between UG and Functionalism, here, is perhaps not so much about innate knowledge of language *per se*, but rather regarding the contribution of domain-specific versus domain-general capabilities.

In the manner of full disclosure, it should be mentioned that the present review is the third and final installment of a three part series on language evolution, the first two appearing as Francis (2024, 2025). Of the three books reviewed, *Origins of Language*, stands out for its clarity of exposition and coherent presentation of the central topics and ongoing controversy. This contribution to the study of origins is different in other ways that interested readers will find useful.

References

DARWIN, C., 1981[1871]. *The descent of man and selection in relation to sex*. Princeton: Princeton University Press.

FRANCIS, N., 2024. The evolution of communication and language in the voices of nature. *Biology & Philosophy*, 39, Article 11. <https://doi.org/10.1007/s10539-024-09947-z>

FRANCIS, N., 2025. Review of Steven Mithen, The language puzzle: Piecing together the six-million-year story of how words evolved. *Journal of Linguistics*, forthcoming.

HAUSER, M., CHOMSKY, N. & TECUMSEH FITCH, W., 2002. The faculty of language: What is it, who has it, and how did it evolve? *Science*, 298(5598), 1569–1579. <https://doi.org/10.1126/science.298.5598.1569>

MENDÍVIL-GIRÓ, J.-L., 2019. Did language evolve through language change? On language change, language evolution and grammaticalization theory. *Glossa: A Journal of General Linguistics*, 4(1), Article 124. <https://doi.org/10.5334/gjgl.895>

MEHR, S. A., KRASNOW, M. M., 2017. Parent-offspring conflict and the evolution of infant-directed song. *Evolution and Human Behavior*, 38(5), 674–684. <https://doi.org/10.1016/j.evolhumbehav.2016.12.005>

PINKER, S., 2013. Language as an adaptation to the cognitive niche. In M. H. Christiansen & S. Kirby (Eds.). *Language evolution*. Oxford: Oxford University Press, 16–37.

PINKER, S., JACKENDOFF, R., 2005. The faculty of language: What's special about it? *Cognition*, 95(2), 201–236. <https://doi.org/10.1016/j.cognition.2004.08.004>

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