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The evolution of (proto-)language: Focus on mechanisms



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This article introduces a special issue on mechanisms in language evolution research. It describes processes relevant for the emergence of protolanguage and the transition thereof to modern language. *Protolanguage* is one of the key terms in the field of language evolution, used to designate a hypothesised intermediate stage in the emergence of language present in extinct hominins: qualitatively different from non-human primate communication in possessing some, but not all, of the features that characterise modern language. Much debate in language evolution focuses on the exact delineation of these features, as well as the means whereby the transitions occurred: first from non-human primate communication systems to protolanguage, and then from protolanguage to modern language. In what follows, we first propose a comprehensive typology of protolanguage debates, taking into account the postulated structural organisation of protolanguage, its functions, and its communicative modality. This makes it possible to show how a specific focus on mechanisms and processes deemed relevant for the emergence of these features allows us to assess the explanatory scope of the existing theories of protolanguage.

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1. Introduction

Studying the evolution of language is notoriously troubled by a paucity of tangible evidence on its biological and socio-cultural origins. We can distinguish animal communication systems from modern-day languages, but scholars continue to disagree on whether or not the former have continuity with the latter, and whether such (dis)continuity results from biological (genetic, anatomical and neurocognitive) or sociocultural mechanisms, or a combination of both. Much, of course, depends on definitions. A useful way of dividing the territory between animal communication systems on the one hand and modern human language on the other is by proposing a middle-ground, and this aim is achieved by the construct of *protolanguage*: a hypothetical communication system that has some, but not all, features considered to be necessary for language.¹ (see [Section 3](#))

Although the concept of protolanguage is generally accepted in language evolution research (cf. e.g. reference works and overviews, e.g. [Fitch, 2010](#); [Tallerman, 2011](#)), opinions differ on what exactly constitutes the essential features of language, and which of them should be present in protolanguage. As we will demonstrate in this introduction, ongoing debates mostly focus on the structure (combinatorial vs. holistic), function (communicative vs. representational) and modality (speech-first, gesture-first, multimodal-first, pantomime-first) of protolanguage. In this issue, contributing authors concentrate on the mechanisms and processes that underlie the evolution of protolanguage. A focus on mechanisms provides new perspectives

¹ Note the difference from the standard use of the term *proto-language* in historical linguistics, where it denotes a reconstructed ancestor-language of a language group.

on the biological, cognitive and social processes involved in the evolutionary emergence of protolanguage and its transition to language.

In general, any identification of a mechanism involves a determination of the conditions whereby a change in a phenomenon occurs, which typically involves finding the causal factors that underlie specific outcomes.² While there exists a vast literature on what evolutionary mechanisms are and how they induce change (Bechtel, 2011; Campbell, 1974; Dennett, 1995; Lewontin, 1970; Machamer et al., 2000; Okasha, 2006), these discussions are mostly held within philosophy of science and evolutionary biology where they relate to general debates on the nature of natural selection. What scholars identify as a mechanism relevant to the evolution of (proto)language can be defined in a multiplicity of ways. As the contributors to the present special issue show, these conditions need not always and exclusively be biological, and beyond natural selection, we can identify cognitive and sociocultural mechanisms that underlie the evolutionary trajectory from animal communication systems to protolanguage and from protolanguage to modern language.

2. Protolanguage – a changing perspective

Traditional language origins literature, paradigmatically represented by the Enlightenment thinkers, already contains rich intuitions about a possible intermediate stage *en route* to a fully fledged language: the emergence of the latter was thought to have been preceded by ancient systems of communication and thought, such as “dance of gestures and steps” in the Mandeville-Condillac proposal or, as suggested by Herder, cries motivated by *innere Sprache* – our ancestors’ symbolic ability. However, the term “protolanguage” was first used in works today classified as “modern” language evolution literature: it was introduced by Gordon Hewes (1973) and later made popular by Derek Bickerton (1990: 122–125). On the latter account, it denoted a quasi-linguistic representational system existent and evolving possibly from *Homo habilis* (circa 2.4–1.5 million years ago) and *Homo erectus* (circa 1.9–0.2 mya) onward, which is characterised by the lack of morphosyntax and the presence of units equivalent to lexical items.

The idea of protolanguage found an influential opponent in Noam Chomsky, whose view of the language faculty as something uniquely human and radically different from animal communication systems (e.g. Chomsky, 1965) precluded a possible protolinguistic stage (e.g. Chomsky, 2011). Chomsky and co-workers (e.g. Hauser et al., 2002) now accept that many aspects of the Faculty of Language in the Broad Sense (FLB) – which includes the sensori-motor system and the conceptual-intentional system – have continuity with and thus at least partial evolutionary precedence in other hominins, non-human primates, and possibly other animals. This does not apply to the Faculty of Language in the Narrow Sense (FLN), which is not primarily characterised by a lexicon, but by the *syntactic* ability to recursively form potentially infinite combinatorial sets from finite lexical items – a capacity in turn attributable to a cognitive operator called *Merge*. Merge is a cognitive-computational procedure that enables such combinatorics, and it is assumed to be hardwired in the brain and genetically underpinned (Berwick and Chomsky, 2016). Since the possession of Merge is all-or-nothing, the Faculty of Language in the Narrow Sense (FLN) could not be preceded by a protolanguage.

In contrast, the mainstream view in language evolution is more gradualistic and assumes incremental growth of language (e.g. Pinker and Bloom, 1990; Jackendoff, 2002; Hurford, 2007; Arbib, 2012):

- from the initial point identified with the systems of communication and thought inherited from the LCA-c (the Last Common Ancestors humans shared with chimpanzees; Arbib, 2012);
- through the intermediate stage of hominin protolanguage, which on the one hand represented a qualitatively new form of communication (and thought) but on the other lacked in complexity and/or expressive power when compared to fully fledged language;
- the endpoint, i.e. modern language.

As for the mainstream, the last decade of the 20th century in language evolution research was dominated by generating scenarios of language emergence, in a way not dissimilar to traditional theorising about language origins (see Zywicki and Waciewicz, 2015, Chapter 3). The protolanguage concept was used as an important instrument in these attempts. Dunbar’s “grooming scenario” (1996), for example, whereby language emerged as a more efficient means of social grooming, emphasised that protolanguage must have originated as a vocal system and that “vocal grooming” was much more efficient than manual grooming for negotiating increasingly complex social relations in expanding hominin groups. But already in the 1990s and early 2000s there was a growing realization that it is difficult to squeeze the evolutionary emergence of such a complex adaptive system as language into the confines of a single scenario. More and more research was oriented toward uncovering constraints on existing scenarios (cf. Johansson, 2005; Waciewicz and Zywicki, 2012).

Related to this development has been the change of focus, from purely conceptual work to empirical work based on first-hand data collection (see e.g. Dediu and de Boer, 2016; Fitch, 2017). Language evolution as a field was already based on empirical findings, but this relation was to a large extent only vicarious. This has changed over the last decade, when

² Cf. e.g. Miłkowski (2016: 46) “While there are multiple definitions for the term mechanism, the core idea is that a mechanism is an organized system that comprises causally relevant components and operations (or activities). Component parts of the mechanism interact, and their organized operation contributes to the capacity of the mechanism to exhibit [a phenomenon] ϕ .”

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