



Editorial

Introduction to Evolving (Proto)Language/s



Abstract

Scholarly opinions vary on what language is, how it evolved, and from where or what it evolved. Long considered uniquely human, today scholars argue for evolutionary continuity between human language and animal communication systems. But while it is generally recognized that language is an evolving communication system, scholars continue to debate from which species language evolved, and what behavioral and cognitive features are the precursors to human language. To understand the nature of protolanguage, some look for homologs in gene functionality, brain areas, or anatomical structures such as the supralaryngeal vocal tract; others point toward primates, their gestural, vocal, multimodal, and in later evolving hominins also their pantomimic communication systems; and still others draw parallels between the musicality that characterizes language and the pitch found in the numerous sounds produced by animals. Accordingly, protolanguage theories today are multiple and diverse, and protolanguages might have also been diverse. This special issue on Evolving (Proto)Language/s for Lingua bundles several of the protolanguage theories that were put forward at the sixth edition of the Ways to Protolanguage conference series, held at the Calouste Gulbenkian Foundation in Lisbon, in 2019. Not aimed at surveying all the different ways there are to conceptualize, study, and model protolanguage/s, this issue provides interested readers with good overviews on the role played in current theorizing on protolanguage/s by (paleo)anthropology, genetics, physiology, developmental, evolutionary, ecological, and pragmatic research lines.

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Scholarly opinions vary on what language is, how it evolved, and from where or what it evolved. Long considered uniquely human, today scholars argue for evolutionary continuity between human language and animal communication systems. But while it is generally recognized that language is an evolving communication system, scholars continue to debate from which species language evolved, and what behavioral and cognitive features are the precursors to human language. To understand the nature of protolanguage, some look for homologs in gene functionality, brain areas, or anatomical structures such as the supralaryngeal vocal tract; others point toward primates, their gestural, vocal, multimodal, and in later evolving hominins also their pantomimic communication systems; and still others draw parallels between the musicality that characterizes language and the pitch found in the numerous sounds produced by animals. Accordingly, protolanguage theories today are multiple and diverse, and protolanguages might have also been diverse. Hence the title of our issue, Evolving (Proto)Language/s.

This special issue bundles several of the protolanguage theories put forward at the sixth edition of the Ways to Protolanguage conference series, held at the Calouste Gulbenkian Foundation in Lisbon, in 2019 (<https://sites.google.com/view/protolang-6>).

Hillert (2021) asks "How did Language Evolve in the Lineage of Higher Primates?" The author argues that neural properties found in monkeys and great apes became an integral part of the neural circuits relevant for lexical and sentence processing in hominin species. Hillert first surveys several genes associated with brain mass, neural differentiation, and synaptic development, and then compares the language-related brain areas in humans with the homologs found in non-human primates. Endocasts from *Homo erectus*, a diverse species that evolved some 2.4 million years ago, demonstrate significant cortical growth. The Acheulean toolmaking

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associated with these species, as well as signs of a symbolic and aesthetic mind, make the author conclude that the species was able to perform relatively complex cognitive computations at around two million years ago. From there onward, according to the Hillert, hominins that eventually included pre-archaic *Homo sapiens* species started to evolve the capacity for language.

McCune's (2021) paper is titled "Laryngeal Vocalization: Grunts as a Gateway to Language?" Grunts are laryngeal vocalizations that regularly form part of mammalian vocal repertoires where they are an initial reflex response to autonomic challenge such as physiological effort. In primates, grunts become co-opted for communicative use. Differences exist among humans, chimpanzees, and vervet monkeys in what regards mental representation and intersubjective response and interpretation to communicative usage of grunts. McCune demonstrates that the shift from autonomic to communicative grunting in human infants is preceded by attention grunts that are accompanied by focused looking, and followed by referential word use within one month after onset. The author makes the case for protolanguage also having relied on transitions from effort to communicative use of grunts and other forms of communication that enabled combining physiological and sensory events with mental representation and communication.

Podlipniak (2022) contributes an article titled "Pitch Syntax as Part of an Ancient Protolanguage." The author differentiates pitch syntax from rhythm syntax, phonological syntax, and language grammar. Pitch syntax is considered part of a musical protolanguage that enabled the communication of mental states and feelings. The author points toward changes in vocal tract innervations enabling voluntary control of F0, the fundamental frequency of harmonic sound, that he estimates to have occurred in the transition from *Homo erectus* to *Homo heidelbergensis*. The author distinguishes this protolanguage from a protolanguage that enabled the communication of propositional meaning. On Podlipniak's account, propositional and emotional protolanguage became combined into modern language through the Baldwin effect. Grammar incorporated recursive mechanisms of pitch syntax and combined them with propositional meaning transmitted by phonology.

Ferretti, Adornetti, and Chiera (2022) write on "Narrative Pantomime: a Protolanguage for Persuasive Communication." The authors take on a pragmatic approach to language that they, like other animal communication systems, understand as a communicative system used not only to transfer information, but to change the behaviour, beliefs and attitudes of others. What makes human language differ from animal communication systems is that the former evolved storytelling as an additional means to persuade others. Considering the structural constraints and the material conditions that allowed our hominin ancestors to tell stories, the authors identify pantomime as a likely candidate to evolve narrative-based persuasive communication. Its ability to represent events enabled pantomime to evolve as a protolanguage that preceded modern gestural and vocal language that is typified by the persuasive reciprocity of conversations.

Pleyer's (2023) article is on "The Role of Interactional and Cognitive Mechanisms in the Evolution of (Proto)language(s)". The author gives a pragmatic-interactionalist account of how language emerges from a "dialogic co-construction of structure and meaning in interaction." Interactional and cognitive mechanisms studied by the author for their role in bringing forth structure and meaning include interactive alignment, conceptual pacts, reuse and modification of prior utterances, resonance activation, micro-entrenchment, and local-level routinization and schematization. Pleyer understands protolanguage(s) from a constructionist and usage-based point of view. The transition from protolanguage to grammaticalized language resulted from entrenchment and conventionalization of these usage-based constructions. The author notes that in addition to developmental and evolutionary explanations, understanding language evolution requires socioculturally situated and praxis-based accounts of how meaning-making occurs during everyday communications.

Lipowska and Lipowski's (2022) paper review the "Emergence and Evolution of Language in Multi-Agent Systems". Computational modelling is used to consider language as a collective cultural phenomenon that emerges from populations of communicating agents. Language games since long demonstrate the spontaneous linguistic synchronization of horizontally interacting agents. Such models focus on the conventionalization of single words in one generation of learners. The models are now being complemented with simulations that investigate how learned skills can become transmitted by teachers to future generations of language learners. The authors point toward the challenges of the field in modelling aspects of language evolution such as mixing, contact, and migration.

Not aimed at surveying all the different ways there are to conceptualize, study, and model protolanguage/s, this issue provides interested readers with good overviews on the role played in current theorizing on protolanguage/s by (paleo)anthropology, genetics, physiology, developmental and cognitive psychology, evolutionary biology, ecological, and pragmatic research lines.

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