

Was there language outside *Homo sapiens*? A cognitive perspective

Francesco Ferretti

University of Rome "Roma Tre", Department of "Philosophy, Communication and Visual Arts", Via Ostiense 234 – 00146 Rome, Italy

e-mail: francesco.ferretti@uniroma3.it

The paper of Benítez-Burraco & Barceló-Coblijn (this volume) presented an explicit argumentative line and a number of implicit presuppositions that are the background to that argument. The explicit issue concerns what is to be learned from the discovery of FOXP2 in Neanderthals; the implicit issue regards what we mean by "language" when it is argued that language is one of the basic features of anatomically modern humans. In this commentary, we argue that the two authors' considerations on the explicit issue are convincing and justified, whereas we assert some reservations on the implicit assumptions of their proposal. Our idea is that, regardless of FOXP2, the question of whether language is a unique capability of *Homo sapiens* is more open than what Benítez-Burraco & Barceló-Coblijn were willing to recognize.

The two authors approached the explicit question with great caution regarding the evidence of FOXP2 in hominins other than *Homo sapiens*. We agree that the presence of FOXP2 in Neanderthals is not convincing proof that they had a language similar to ours. That said, the question whether it is possible to assign language to Neanderthals or to most archaic hominins remains open regardless of the presence of the language gene *par excellence*. FOXP2, indeed, can be considered the linguistic genotype only by assuming a precise theoretical model about the nature of human language. If one changes the interpretative model, the importance to be assigned to FOXP2 changes dramatically even in the case of *Homo sapiens*; not surprisingly, as we

shall see, the importance of FOXP2 is asserted predominantly by the heirs of the Chomskyan tradition. From these considerations emerges the point that the explicit issue posed by Benítez-Burraco & Barceló-Coblijn is strongly tied to the implicit one: the question of whether or not Neanderthals had language presupposes that the terms of comparison are clear. What exactly, then, did the authors mean by "language"?

Although Benítez-Burraco & Barceló-Coblijn's references to language were very generic (in the text, they just used expressions such as "all human languages appear to share some basic structural properties" or "all human beings are endowed with the same capacity for language"), the two authors actually seemed to have in mind a specific theoretical model. This model is evident in the conclusion of their article when they argued that "languages" that other hominins "plausibly spoke would have lacked some defining properties of human language, particularly, complex syntax, which is strongly based in recursive embedded structures." By this statement, the authors have shown their adherence to one of the most important theoretical models in the contemporary literature: Chomsky's Universal Grammar. Adherence to such a model fits well with the idea—dear to Descartes and to neo-Cartesians such as Chomsky—of the qualitative difference between humans and all other animals (hominins included, of course). One of the explanations that the advocates of Universal Grammar use to support such an idea is that language is an ability unique to our species. The argument of

uniqueness (the idea that human language complies with principles quite different from those found in any other form of communication) is one of the conceptions prevalent in cognitive science and is an implicit consequence of the argument carried out by the authors in their paper.

That said, the reference to FOXP2 in Neanderthals may be taken as evidence in favor of their language skills regardless of Universal Grammar. FOXP2, in addition to being at the basis of syntactic capacity, is also implicated in the processes of phonation (KE family, in which the gene was discovered for the first time, was affected not only by syntactic difficulty but also by a form of motor speech disorder). Is it possible to affirm from such a point of view the idea that Neanderthals had a language akin to ours?

Concerning vocal expression, Mithen (2005) stated that in Neanderthals, the hyoid bone, the hypoglossal channel, and the channel of the thoracic vertebrae, through which pass the nerves that control the diaphragm and respiration, are substantially similar to those present in modern humans. In spite of these similarities, however, Mithen's thesis is that there are "irrefutable evidences" that Neanderthals did not possess language in a proper sense. The main reason, according to Mithen, lies in the absence of symbolic artifacts in their culture. Now, why does the absence of symbolic artifacts represent "irrefutable" proof that Neanderthals were not able to speak? If it is plausible to argue that the presence of symbolic artifacts is proof of symbolic thought and also (albeit more controversially) that the presence of symbolic thought involves the existence of language, in our opinion it is not legitimate to argue that the absence of symbolic artifacts implies the absence of symbolic thought (and of language that underlies it). Using the Mithen's reasoning would be equivalent to arguing that the lack of a perspective on the depiction of reality (as was the case prior to the discovery of perspective in the Renaissance) should be considered as evidence of the inability of humans to perceive the world in perspective. We do not enter here into the details of Mithen's proposal. We remark only that the defense of the uniqueness

of human language can imply a cost that is too high to pay. Rejecting any form of relationship with the communication systems that have preceded it, human language appears to emerge as an "unexpected and sudden" fact (to quote the words of Tattersall [2008]) that Corballis (2011) defined as justifiably miraculous.

How does one give an account of a model of language in which its specific (and even unique) characteristic features can be successfully interpreted in a Darwinian, gradualistic, and continuistic perspective? In our opinion, a possible solution was offered by Corballis (2011) through the distinction between "language" and "speech." Corballis's (2011) idea was that "language evolved first as a system of manual gestures, shifting gradually through facial gestures to articulate speech. In this view language itself evolved well before the emergence of sapiens, a product of the Pleistocene rather than specifically of our own species" (p. 212). If the advent of speech can be legitimately considered an achievement of modern *sapiens*, gestural language can be extended to other hominins well beyond the Neanderthals. Corballis's idea was that the origin of language pertains to *Homo ergaster*. That said, the distinction between speech and language opens the way to a second set of considerations of great interest in contemporary research on language origins.

In addition to the analysis of the systems involved in speech, in fact, the relationship between human language and communication of extinct hominins could be analyzed with reference to the processing devices involved in the actual functioning of language (namely, the devices involved in the processes of linguistic production and comprehension). Much contemporary research is focused on the study of the cognitive systems that are believed to be at the basis of our language skills. The prevalent view in the contemporary debate, in effect, has been the idea that language is a form of exaptation (Gould & Vrba, 1982): a functional co-optation of processing systems originally evolved for other purposes in order to make communication more effective (Christiansen & Chater, 2008). Corballis (2011), for example, argued that recursion is a property

that language borrows from the functioning of the mind-reading and mental time travel systems. Gärdenfors (2003), another author involved in the discussion of the role of cognitive systems underlying the evolution of language, argued that the emergence and functioning of our language skills are closely dependent on the devices that make cooperation between individuals possible, along with those that allow individuals to anticipate the future. Regardless of the processing devices proposed by various scholars, it is clear that in this kind of research, the criteria used to compare the communication skills of *sapiens* with those of other hominins are totally different from that used in Chomskyan models. Within the cognitive perspective outlined here, posing the question whether other hominins had linguistic skills similar to ours means asking if they had cognitive systems akin to ours.

Although research on cognitive systems of our ancestral relatives may be considered too speculative, cognitive archaeology permits significant steps forward in this domain. The result of this research implies a significant change in the conception of human language with respect to the model of Universal Grammar. If, according to Chomsky and to neo-Cartesians, the essential characteristics of human language coincide with what makes humans unique compared to all the other animals (including other hominins), by focusing on the cognitive foundation of language it is possible to consider the specific characteristics of language without excluding what humans have in common with other species of hominins. Whatever the outcome of these investigations, a datum appears clear: Universal Grammar (the model implicitly

adopted by Benítez-Burraco and Barceló-Coblijn) is not an appropriate basis for comparing humans with other species of hominins. Chomsky's well-known aversion to the theory of evolution and its anathema toward the subject of the origin of language, on the other hand, should push anyone to look with suspicion on any attempt to use Universal Grammar as an useful tool for research in paleoanthropology. Putting aside Universal Grammar, our kinship with the communication of Neanderthals may be much closer than the reference to the presence of FOXP2 has shown.

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