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Against linguistic Cartesianism: Toward a naturalistic model of human language origins and functioning

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ABSTRACT

In spite of the fact that most models of language in cognitive science are naturalistic, many authors are skeptical of Darwinism, especially the idea that language may be an evolutionary adaptation. There is a conceptual obstacle at the basis of this skepticism: the connection with Cartesian tradition. To propose a genuinely naturalistic perspective, the models of language inspired by Cartesianism must give way to those tied to the Darwinian perspective. Hence, we propose a model of language origins and functioning based on two hypotheses: (a) the origin of human language is interpretable in reference to the grounding of language in context; (b) the capacities that ensure this grounding are connected to the motor foundation of human communication.

1. Introduction

The basic assumption of this paper is that a naturalistic model of language must be able to pass the tests of cognitive and evolutionary plausibility.[1] To be cognitively plausible, a model of language must conform to what we know of the nature and functioning of the systems involved in production and comprehension. To be plausible in terms of evolution, a model of language has to offer explanations about the origin and evolution of communication skills in line with a Darwinian framework of reference. The advent of cognitive science has marked a milestone in studies on language. Although the requirement of cognitive plausibility is unanimously accepted by the community of scholars, the situation is very different regarding evolutionary plausibility. In spite of the fact that most theoretical perspectives in cognitive science are naturalistic, many theoretical hypotheses are, in fact, skeptical regarding Darwinism (e.g., Fodor, 2008; Fodor and Piattelli-Palmarini, 2011), especially the idea that the topic of the origin and evolution of language is worth consideration (Chomsky, 1988). There is a specific conceptual obstacle at the base of the mistrust that many authors exhibit toward the study of language from an evolutionary perspective: the specter of Descartes that continues to hover in the models still prevalent in cognitive science. Our idea in this paper is that cognitive plausibility without evolutionary plausibility is not an adequate basis for a naturalistically founded model of language. To propose a genuinely naturalistic perspective, the models of language inspired by the Cartesian tradition must give way to those tied to the Darwinian perspective.

In this paper, we argue that one way to assess the evolutionary plausibility of a model of language is to evaluate it with respect to the origins of linguistic skills. In this regard, we propose two hypotheses: the idea that the origin of human verbal

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skills is interpretable by reference to the grounding (anchoring) of language in the context and the idea that the capacities that ensure such grounding have to do with the motor foundation of human communication. In support of our hypotheses, we bring three sets of considerations: (a) we analyze the theme of origins in reference to the thesis of the gestural foundation of language; (b) we assume that a specific type of gesture—grasping—represents an important specific case of the gestures involved in the advent of language; and (c) we argue that the emergence of language from a perspective based on gesture (and on the grasp gesture in particular) has its privileged place in tool-making during human evolution. Our idea in this paper is that the grasping gesture is an intrinsic constituent of human language and a powerful metaphor to analyze a property that is at the same time at the basis of language functioning and at the foundation of its origin: the grounding of language in the reality that it talks about.

2. The Cartesian style

As a good Cartesian, Chomsky has always expressed his complete aversion to the possibility of considering universal grammar (UG) as an adaptation of natural selection (see Chomsky, 1966; Hauser et al., 2014). The attack against Darwinism could not be clearer. Against gradualism, UG is an all-or-nothing phenomenon that has to be interpreted in terms of a *sudden* and *unexpected* fact, to use the words of Tattersall (2008) so often quoted by Chomsky (2006; for comments on this point, see Corballis, 2011, 2013). Against continuism, Chomsky argues that human language is characterized by principles entirely different from those that regulate animal communication. In perfect harmony with Descartes' thought, human language marks a "qualitative difference" between human beings and other animals. From this point of view, any attempt to analyze human verbal skills in comparison with animal communication is a waste of time (Chomsky, 1988).

In addition to these specific considerations, we believe that Chomsky's aversion to the theory of evolution has a more general basis. Although Chomsky's anti-Darwinism contrasts with some basic assumptions of the Darwinian hypothesis, in this paper we argue that Chomsky's difficulties with evolutionary theory are tied to the fact that UG is a device inside the mind completely detached from the surrounding environment. Despite Chomsky radically changing his conception of UG (from the first formulations of the 1950s to the recent minimalist perspective [Chomsky, 1995]), the nub of his thinking is still that language is a device that makes possible the combination of symbols whose functioning is completely independent of the relationship they establish with the reality they represent. Proposing a model of language completely detached from reality is equivalent to talking about the nature of an organism without referring to its relationship to its external environment. This is perhaps the greatest argument against naturalism used by Chomsky; the disembodied and detached nature of language that he proposes makes it a useful tool for disembodied angels, not for human beings in the flesh.

In supporting his own conception of language, Chomsky represents the more orthodox tradition within cognitive science. The idea that language competence is a device that analyzes the shape of symbols regardless of their content and the relationship between the uttered expression and its context is part of a broader conception of how to analyze the study of the mind in classical cognitive science. The idea that, to be properly scientific, the analysis of the mind should be driven by the principle of formality and by methodological solipsism (Fodor, 1980) continues to be very strong in some interpretative models based on the classical perspective despite the fact that the computer metaphor that inspired them is now in sharp decline. The price of such an abstract view of language is very important for our purpose because it presupposes a specific way of conceiving human communication skills.

To defend strongly the idea that language cannot be the product of natural selection, Chomsky denies the thesis (sensible as well as highly intuitive) that language is a tool of communication that evolved under selective pressures to communicate in a more effective way (Berwick et al., 2013; Chomsky, 1988; Hauser et al., 2002). One of the reasons for Chomsky's anti-evolutionism lies in his view that language is not an adaptation because, above all, it is not an adaptation for communication. Chomsky's thesis, in fact, is that language is primarily a tool for thought and not for communication. Pinker and Jackendoff (2005) considered Chomsky's argument on this point "surprising," although, like Chomsky, they are also representatives of the generativist model. In their opinion, indeed, UG presupposes a model of language strongly tied to the communicative function. According to Pinker and Jackendoff, one of the principles behind Chomsky's proposal—the idea that language is linked to the ability to combine sounds and meanings—would totally fail without reference to the communicative function of language; in other words, "The only way to make sense of the fact that humans are equipped with a way to map between meaning and vocally produced sound is that it allows one person to get meaning into a second person's head by making a sound with his or her vocal tract" (Pinker and Jackendoff, 2005: 225). Obviously, language is not only a means to express thoughts but is also a constitutive tool of thought (Carruthers, 2002). That said, however, the point is that the primary adaptation of language "is communication, with enhanced thought as an additional benefit" (Pinker and Jackendoff, 2005: 225). The adaptive function of language, according to Pinker and Bloom (1990: 710) is given by the fact that "language shows signs of design for the communication of propositional structures over a serial channel."

2.1. Embracing the code model

Arguments of this kind have led Pinker and Jackendoff (2005; Pinker and Bloom, 1990) to embrace a compatibilist thesis. Chomsky's model of language is consistent with the theory of evolution because the only way to explain the complexity of UG is by reference to natural selection. That said, assuming that the attempt deployed by Pinker and Bloom (1990) makes