Language Sciences 50 (2015) 127–132

Contents lists available at ScienceDirect

Language Sciences

journal homepage: www.elsevier.com/locate/langsci

Beyond Humboldt's problem: reflections on biolinguistics and its relation to generative grammar

Cedric Boeckx [a,b,*]

[a] Catalan Institute for Advanced Studies (ICREA), Spain
[b] Universitat de Barcelona, Spain

ARTICLE INFO

Article history:
Received 29 December 2014
Received in revised form 16 February 2015
Accepted 19 February 2015
Available online 13 March 2015

Keywords:
Humboldt's problemm
Biolinguistics
Generative grammar
Broca's problem
Mind/brain

ABSTRACT

Numerous authors treat the term 'biolinguistics' as synonymous with the generative enterprise. Although undeniably Chomskyan in orientation, biolinguistics should not be equated with generative grammar, as the latter does not often seek to go beyond the level of cognition and establish linking hypotheses with the brain. This article attempts to clarify the nature of biolinguistics, highlighting departures from the research agenda routinely assumed by generative practitioners.

1. What does it mean to be "Chomskyan"?

Consider as point of departure the following statement by Chomsky (2010): "I am particularly interested in language but as a kind of window into the nature of cognitive systems, systems of thought, interpretation and planning." Now ask yourself to what extent work in generative grammar, or theoretical linguistics as a whole, has been moved by this interest, as opposed to, say, an interest in the details of particular languages/grammars. Another way of asking this question — a perspective I owe to my interactions with Marc Hauser — would be to ask what experts in allied disciplines interested in "the nature of cognitive systems, systems of thought, interpretation and planning" can derive from the specialized linguistic literature.

Some years ago Norbert Hornstein and I wrote about "the varying aims of linguistic theory" (Boeckx and Hornstein, 2007). We observed that "during its short history, the aims and methods of the [Generative] program [for linguistic theory] have changed, as is to be expected of any scientific approach to natural phenomena." We recognized three periods or phases within the generative enterprise, which we understood as follows:

> The phases can be (roughly) identified in terms of the different goals that generativists set for themselves; each bringing with it different standards of success and suggesting (somewhat) different research agendas. All three goals are still with us and animate related yet different kinds of linguistic investigation. Thus, getting some clarity on these historical periods might also serve to clarify current practice. The three phases, or periods that we wish to consider can be called (i) the Combinatoric, (ii) the Cognitive, and (iii) the Minimalist.

* Department of General Linguistics, Universitat de Barcelona Gran Via de les Corts Catalanes, 585 08007 Barcelona Spain.
E-mail address: cedric.boeckx@ub.edu.

http://dx.doi.org/10.1016/j.langsci.2015.02.002
0388-0001/

It seems to me now that the major division lies between phase (i) and phase (ii). Phase (iii) at this point looks more to me as a phase that demands us to choose between the aims of phase (i) and the aims of phase (ii). It's the phase we are in now as a field. With the introductory chapter of *Aspects of the theory of syntax* it became crystal clear that (as Bresnan, 2011 put it), "the goal of MIT linguists was to infer the nature of the mind's capacity for language from the structure of human language". Whereas *Syntactic Structures* could be read as an application of discrete mathematics to language, opening up new vistas in the study of formal grammar, *Aspects* made clear that formalization, and indeed the study of languages/grammars was not an end in itself. The goal was rather to reverse-engineer the structure of language to discover the mind that made it possible in the first place. In this sense, generative linguistics was cartesian, adhering to the belief that the study of language can serve as a window onto the mind. The mind, of course, is what the brain does, as Pinker (1997) put it. Accordingly, the study of language is ultimately an attempt to shed light on the nature, development, and origin of a biological organ. The focus is ultimately on what Eric Lenneberg called the biological foundations of language. As Chomsky has pointed out on numerous occasions, linguistics, studied from a generative perspective, "is really theoretical biology" (Sklar 1968:217). To make this commitment explicit, let's call the enterprise *biolinguistics*.

The question I'd like to ask in this section is, How strong is this commitment?

I think that it is fair to say that the general impression — to be sure, rarely stated explicitly — is that theoretical linguistics is biology "at a suitable level of abstraction" (Boeckx and Piattelli-Palmarini, 2005, 462); oftentimes so abstract a level that any attempt at a rapprochement, at a more concretely biological investigation seemed too difficult, or premature, and therefore non-advisable. Consider, for example, the following statement by Berwick (2011):

> In recent years, there has been a resurgence of activity surrounding bio-linguistics along with a parallel, renewed interest in the connections between language and evolution. To be sure, from one standpoint it has often been said, quite correctly, that linguistic science just is biology: the study, however abstract, of a particular, apparently species-specific human trait: knowledge of language. But beyond this immediate point, how might linguistics and biology, especially evolutionary biology, inform one another? How does one go about making a proper evolutionary argument? What can genomics and evolutionary biology tell us now about language, and what might be out of reach, now, or out of reach forever, and why?

Consider also the few occurrences of the word biology (or its derivatives) in the chapter in the *Cambridge Companion to Noam Chomsky* written by Howard Lasnik, entitled "Grammar, Levels, and Biology" (Lasnik, 2005).[1] Despite the fact that it is part of the title, the word 'biology' occurs only a few times in the whole article, mainly in passages that I reproduce here:

> For a half century, Noam Chomsky has been developing a theory of language that deals with these two questions [What is knowledge of language? and How is that knowledge acquired?], by positing explicit [i.e., generative] formulations of human language capacity in terms of a productive 'computational' system, most of whose properties are present in advance of experience, 'wired in' in the structure of the human brain. Thus Chomsky conceives of his enterprise as part of psychology, ultimately biology. (p. 60)

> Explanatory adequacy in Chomsky's sense concerns language acquisition. Theories that seek to attain explanatory adequacy must posit some innate structure in the mind. This is surely indisputable; while a human being can learn language, a rock, or a gerbil, cannot. The research question, ultimately a question of biology, concerns just what this innate structure is. (p. 62)

> The levels [of representation] are part of 'universal grammar', a wired in part of the 'language acquisition device' that constitutes part of a human being's genetic endowment. Of course, the linguist does not know in advance of research what the levels are. Determining them is a scientific question, one of psychology, the theoretical biology of the mind. (p. 64)

Reading these passages, one is compelled to endorse the statement made by Akeel Bilgrami and Carol Rovane later on in the very book that contains Lasnik's chapter:

> Though eventual integration with biology is the goal, it is a distant goal. In the interim, scientists work with the data and theoretical resources available to them, at a level of description and explanation which it allows them. They have the scientific goals of describing and explaining the language faculty which is present in the entire species as a biological endowment, but at a level of description and explanation which in the interim is bound to be a cognitive and computational level, with the properties of internality, universality, innateness, domain-specificity, among others, all of which Chomsky's own successive theories of grammar over the last few decades have exemplified. (p. 182)

For much of its history, generative grammar has been somewhat ambiguous about its relation with biology: while taking it very seriously as its ultimate focus, it has treated the biological endowment responsible for our language faculty with an

[1] An anonymous reviewer points out that Lasnik's article is by no means an exception, and claims that numerous other examples could be provided. I tend to agree with this intuition, but I have not attempted to carry out a systematic survey. I focus on Lasnik's article precisely because the term 'biology' is a crucial part of the title, and also because it is aimed at a broad audience.