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On the innate building blocks of language and scientific explanation

1 Introduction

Although Haspelmath's target article does not explicitly say it, the conception of languages (and of linguistics as a science) that the author presents is the same as the one found in Saussure's *Cours de linguistique generale* (Saussure 1916): Languages are social constructs and linguistics is a social science.[1] This view is not demonstrably wrong in and of itself, but I do believe that it is an incomplete and insufficient foundation on which to build a comprehensive science of language.

By establishing a Saussurean notion of languages, Haspelmath effectively hints that the naturalistic and internalist conception of language developed by generative grammar (GG) does not represent progress in the evolution of our discipline. I will argue here that Haspelmath's assessment of GG is inadequate, because it is based on a misconception of the scientific nature of GG and of the assumptions under which it operates.

In short, Haspelmath's argument is that for GG to make sense, it should be true that "grammatical systems are constructed from a rich set of innate building blocks of universal grammar" (§ 3). Given that a rich innate grammatical blueprint is biologically implausible (and has even been challenged within Chomsky's minimalist approach), Haspelmath's conclusion is that GG cannot contribute to the study of human language and has largely failed, whereas the functionalist approach is more appropriate, in that it is based on the functional-adaptive explanation of the universals discovered through the comparison of languages described in their own terms. But note that Haspelmath assumes that GG and functional linguistics offer alternative or competing answers to the same questions,

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1 According to Haspelmath, languages are "historically accidental cultural attributes of human populations" (§ 7).

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whereas the truth is that these traditions raise different questions partly because they have different methodologies and, above all, different objects of study.

2 Is the faculty of language a "rich innate grammar blueprint"?

In a recent blog post (dlc.hypotheses.org/2282) Haspelmath suggests that a basic assumption of GG (and, therefore, the main source of its alleged insufficiency) is the idea "that there is a set of innate building blocks of grammar of which all languages are composed, just as all stuff is made of the chemical elements".[2]

The author notes that although such a vision is incompatible with Chomsky's minimalist programme, many generative grammarians operate with this assumption, even if they do not say so, and indeed perhaps don't realize they are making it (a bit like those Japanese soldiers who defended their positions on remote islands years after the end of the Second World War). I think Haspelmath is right when he claims that what he calls "the natural-kinds programme" is incompatible with the minimalist approach, but I think he is wrong when he claims that current generative grammarians are inconsistent in continuing to use the mainstream generative model of grammatical theory. The explanation for this conclusion is that Haspelmath's interpretation of the presuppositions of generative grammar in terms of the "natural-kinds programme" is too simplistic, sort of a straw man.

According to Haspelmath, the natural-kinds programme "works with hypothetical innate building blocks of languages", and if one does not want to claim that "we are born with a rich innate grammar blueprint, one must accept that each language has its own categories" (§1). But this is too restrictive an alternative, as I hope to show.

Haspelmath seems to attribute to the typical generative grammarian the belief that universal grammar (UG) is some kind of preformed "grammatical homunculus" which then develops with little change to form "organisms" (languages). Yet this is not the case at all. In fact, generative grammarians do not assume that there is a "rich innate grammar blueprint" and that languages are composed of "innate building blocks of grammar". What they assume is that, if the capacity of language is innate (as Haspelmath also admits: "everyone accepts the existence of biocognitive prerequisites for language" § 6.5), then it would be very surprising that this capacity did not channel, condition or restrict the design space available to children, who have to acquire the language of their environment. As I will

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2 Which is why Haspelmath refers to that approach as a Mendeleyevian or Bakerian one, after Baker's (2001) comparison between chemical elements and linguistic parameters.

discuss below, Haspelmath (like many other externalist authors) dissociates human language (a natural instinct) from languages (social conventions) by implying that the biological properties of the former do not determine the properties of the latter (see footnote 1 of the target article).

That the capacity to learn language is special is an objective fact, not an assumption, in the sense that the task of learning the mother tongue is not like the task of learning to play chess or the piano. All normally constituted human beings learn their first language in a short (and early) period, regardless of social and educational environment, family income, and the degree of attention received from parents or caregivers. On the other hand, a specific kind of dedication, as well as systematic and explicit stimuli, is needed to learn how to perform a checkmate or to play a Mozart piano sonata. Of course, skills that are not specific to these tasks are used in learning chess or the piano, but such general skills are not enough to explain the development of language in children (although it is undoubtedly the case that nonspecific skills are also used to learn languages). Therefore, it is legitimate to speak of a capacity, an instinct, of language, whereas it makes little sense to speak of the capacity -or instinct- for chess or playing the piano. But if the capacity of language is innate, it is evident that the brain and the cognitive structures that support language development impose a certain structural uniformity on the knowledge systems (I-languages) finally obtained.

In this sense, Haspelmath's notion of "human linguisticality" ("the instinct to communicate, to imitate and to extract patterns from observed speech signals", Haspelmath 2020: 3), is insufficient to explain the structure of human languages: Many other organisms have the same instinct to communicate, to imitate, and to extract patterns from sequential signals, but they don't speak like humans do. As GG has revealed, the principles of human syntax (and therefore of the construction of compositional meaning) are not based on linear sequences (although this is indeed the evidence to which children are exposed), but on hierarchical structures that are beyond the computational power of other organisms that have an instinct to communicate and that can mimic sophisticated sequential patterns (see Berwick et al. 2011).

In this sense, GG is not an alternative to the social conception of languages, but a specific branch of cognitive science, which anyone is free to practice or not.[3]

The only basic assumption of GG is strictly methodological: Human language must be studied with the methodology of natural sciences, that is, with the hypothetico-deductive model. This assumption has no substantive content: It is

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[3] GG is not based on a creed or, of course, on the opinions, beliefs, or revelations of a single person, however influential that person is. And no, its extension and influence cannot be explained as the uncritical acceptance of thousands of researchers across the planet.

not assumed that languages should have innate components, nor that all languages should be composed of the same pieces, nor that there are innate grammatical constructions (if that notion has any sense). The only thing that is presupposed (and I think it is not controversial) is that what enables people to speak and understand any language is a knowledge system that people possess (their I-languages). Since all people (except pathological cases), and only people, are capable of possessing such knowledge systems, it is assumed that the study of these systems is part of the study of human nature and that, therefore, they must be approached with the same methodology as the study of other knowledge systems (such as memory or vision), both of humans and other organisms. In the absence of a prior delimitation of the mind–body boundary, this knowledge system must be addressed in exactly the same way as any other body organ.

So far, these are the assumptions common to the practice of GG. The remainder is *discoveries*, regardless of whether they are well understood or properly formulated. The objective of this branch of cognitive science is to construct theoretical models of these knowledge systems, and to submit such models to empirical falsification by any means, as in any other area of natural science. If, as a consequence of this work, proposals for certain "innate building blocks" emerge, these may be considered discoveries (if reasonably confirmed) or hypotheses to be falsified, but not initial assumptions of the theory.

3 Language universals: Mental grammars versus social grammars

As I have pointed out elsewhere (Mendívil-Giró 2018), as early as 1965 Chomsky argued that the grammar of a particular language had to be "supplemented by a universal grammar that expresses the deep-seated regularities which, being universal, are omitted from the grammar itself" (Chomsky 1965: 6). According to him "the main task of linguistic theory must be to develop an account of linguistic universals" that reveals "the properties of any generative grammar" and is not "falsified by the diversity of languages" (1965: 27–28). So, Chomsky does not refer to properties common to all languages (in the style of Greenberg's universals), but to properties *common to the grammars that generate languages*: Regularities "need not be stated in the grammar" of a language, but "only in general linguistic theory as part of the definition of the notion 'human language'" (Chomsky 1965: 117).

Generative grammarians build models of "mental grammars". Haspelmath contrasts this approach with the description of languages as "social rule systems"

(or "social grammars") which, according to him, are the only ones whose description can be "nonaprioristic" or "framework-free" (§ 5.1).

I have nothing to object to in this, but it should be noted that we are then changing the object of study. As Haspelmath puts it, the object of study of functional comparative linguistics is not knowledge of language (mental grammars), but the product of that knowledge, the result of its use for social interaction and communication. Such an objective is legitimate and interesting, but alien to GG and its research questions. From its origins to the present time, GG does not aim to describe or explain how languages are used for certain purposes, how they change over time, how they vary depending on social, geographical or climatic factors, or why there are more or fewer right-headed languages than left-headed ones (although all of these are interesting questions).

The distinction between "mental grammars" and "social grammars" clearly shows the difference between these two research programs. The object of study of comparative functional linguistics is not mental objects, knowledge systems, but social and cultural objects, that is, it is an externalist approach. Such an approach suggests that languages are outside of minds and brains (they are social objects in Saussure's sense) and that people can learn and use them, transmit them from generation to generation, etc. From this point of view, an inductive approach to linguistic universals is expected, since the notion of human language is itself inductive. From the generativist point of view, this is an incomplete (and insufficient) vision. The internalist perspective implies the construction of theoretical models of mental grammars, with the essential objective of helping to understand what their structure is, how they develop in the organism and, ideally, how they are implemented in the brain (and how the brain evolved to develop the capacity of language). From this point of view, the approach is not inductive, but deductive: From language to languages, and not from languages to language (see Mendívil-Giró 2012 for a development of this idea).

Therefore, I think that Haspelmath judges the merits of GG based on how it can help an objective description of "social grammars" (and with a "common sense" terminology based on phonetic or conceptual substance), an objective to which GG is not oriented and for which, logically, it is not adequate.

When generative grammarians compare languages, they do not really compare social grammars, but rather (theoretical models of) mental grammars. This is very different from the type of comparison that Haspelmath advocates, and the universals that are revealed are not substantive, but formal (in Chomsky's sense). The objective is not, therefore, to find the common innate building blocks that form each language (an expression that is meaningless in this context), but the common principles that limit or channel the development of each knowledge system that we call 'I-language'.

4 Language and language externalization

A central argument of the target article is the idea that the description of particular languages (p-linguistics) is not necessarily relevant to general linguistics (or 'g-linguistics'), because "particular languages are to a large extent historically accidental cultural attributes of human populations, and they vary enormously just like other aspects of cultures" (§ 7). But this is correct only if we identify (or confuse) "mental grammars" and "social grammars". If we do not make this identification, we must acknowledge that only some properties of particular languages are historical accidents, but not all. We must exclude all the properties which are not subject to historical change.

In fact, from the generativist point of view, the object of study of functional comparative linguistics (social grammars) corresponds to the product of language externalization (usually for communication). Indeed, as Chomsky has repeatedly argued (Berwick and Chomsky 2011; Chomsky 2007), language diversity probably occurs in the externalization of language for communication (at the interface between, on one hand, the computational system that constructs thought in interaction with the conceptual system and, on the other, the sensorimotor system). The idea is that the externalization interface, which serves as the connection between the internal use of language and the sensorimotor system, is developed through learning from the environment, and is thus susceptible to historical change and group diversification.

Languages undoubtedly have a cultural component (the externalization interface), but they are not merely social or cultural objects. They are complex cognitive objects in which biology and culture are mixed. Hence, a language includes not only a cultural component (internalized from the environment), but also all the principles and entities that constitute the human faculty of language. In this sense, each language is a specific state of the language faculty.

It is no coincidence that from the externalist point of view, languages tend to be seen as collections of constructions (including morphemes, words, and phrases). But the internalist point of view postulates that this is an incomplete vision, and that these "constructions" do not exhaust what a language is, but rather correspond to the cultural component of languages that people use for the externalization of language (see Mendívil-Giró 2019 for references and discussion).

Of course, the products of language externalization for communication are the data that generative grammarians use as essential clues in their task of constructing theoretical models of mental grammars (which in themselves are inaccessible), and hence the literature on descriptive and comparative linguistics is

very useful for researchers of this type. But, as I have already noted, these social objects are not the object of study of GG, but only a (privileged) access route to it.

If we accept Haspelmath's externalist approach, it is necessary to share the statement that different languages do not have the same building blocks, but it should be clear that we are talking about the building blocks of language externalization, not about the principles and mechanisms that determine the structure of the human faculty of language (that is, that determine how the conceptual–intentional, the computational, and the sensorimotor systems interact with each other to form mental grammars), and which constitute the object of study of the internalist programme.

5 Innate building blocks as natural kinds

As I have already pointed out, a central assumption of the target article is that the methodology of GG only makes sense if there are innate building blocks of language that can be considered natural kinds. In Haspelmath's words, "natural kinds are categories or classes of entities that exist in nature independently of any scientific observation" (§ 4.3). He mentions chemical elements, subatomic particles, and natural species (although admitting that the latter is controversial) as typical examples of natural kinds, and he adds that natural kinds "are given in advance of observations, and are thus available *a priori*". Again according to Haspelmath, generativist innate building blocks would include both architectures (for example, the distinction between computation and spell-out) and features, categories and constraints. Thus, Hasplemath attributes to generative grammarians the belief that syntactic restrictions (take C-command), lexical categories (take Noun) and features (take Person) are entities that exist in nature and are given in advance of observations. From this point of view, the task of generative grammarians would be analogous to digging in the earth to find a certain mineral, something which is obviously absurd if that mineral does not exist.

But it is very difficult to imagine in what sense notions like C-command, Noun, or Person are natural kinds, even if we were to assume that they were universal and innate. They are cognitive entities; they are not made of cells or molecules. They can be conceived of as products of the interaction between certain cognitive systems and brain processes, and for this reason it is expected that they are biologically conditioned. But the notion that these entities are not natural kinds does not imply that they are necessarily conventional social constructs, as Haspelmath suggests.

Thus, the objective of generative grammarians is not to look for grammatical structures hidden in the brain, but to build increasingly better linguistic theories

(that is, empirically adequate models of mental grammars). Towards this end, generative grammarians postulate the existence of entities, principles or structures, as in any inquiry that follows the hypothetico-deductive model. Such entities may or may not be natural kinds, and may or may not be innate. The linguist (qua linguist) cannot know. When certain entities, principles, or structures postulated in a theory resist comparison with other theories (of mental grammars), and at the same time are not very likely to have been learned from the environment, it is possible to end up postulating that they are innate.[4]

As I have already pointed out, Haspelmath notes that it is strange that there are still "traditional" generative grammarians, since the minimalist Chomsky has, supposedly, now renounced the idea of the existence of a "rich innate grammar blueprint" for the sake of evolutionary adequacy ("Darwin's problem"). But, obviously, Chomsky does not have the ability to simplify people's mental grammars, nor can he give up assumptions that he has never defended (that is, that grammatical constructions, case systems, demonstratives, inflection or any other possible building blocks of languages are innate natural kinds).

When generative grammarians construct a theoretical model of a mental grammar, they do so by including in their model all the necessary and sufficient components of the faculty of language, that is, their object of study is the well-known faculty of language in the broad sense (FLB), not just the FL in the narrow sense (FLN). Hauser et al.'s (2002) distinction between FLB and FLN is an attempt to clarify the problem of linguistic specificity within human cognition, and to facilitate comparative studies with other species, mainly in the area of the study of the evolution of the FL. But it is not intended that the object of study of generative grammarians be reduced or limited to FLN (let alone to *Merge*).

If the object of study is the FLB, then generative grammarians, in the construction of theories of languages (models of mental grammars), introduce into their theories those elements and principles necessary to account for the form and meaning of linguistic expressions, independently of whether these are innate or not, language-specific or not, human-specific or not. Only the comparison with other (models of) mental grammars and with models of other human cognitive organs can help to decide if these postulated elements or principles are generalizable (or perhaps universal). Therefore, the success or failure of the work of generative grammarians does not depend on whether or not there are innate building blocks, but on whether or not their models are capable of predicting

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4 Which does not necessarily imply that they are genetically encoded: They may be the result of epigenetic processes, developmental factors, or simple consequences of natural laws or general principles of computation.

(in the simplest and most empirically adequate way) the form and meaning of the expressions of the analyzed languages.

Of course, given that the capacity of language is partly innate, it would be very strange if the comparison of various models of mental grammars did not reveal common aspects of design, that is, "common building blocks". But these building blocks cannot be identified with morphemes, words or constructions, which are units of language externalization. Building blocks will surely be elements of the interacting conceptual–intentional, sensorimotor, and computational systems, without prejudging whether they are innate and language-specific or not.

6 Conclusion

Haspelmath criticizes linguists who believe that the study of nominalization in Russian may be relevant to understanding nominalization in English, because that would only be possible "if 'nominalization' is somehow part of the innate grammar blueprint". If it is not, then "it could be that Russian is entirely irrelevant to understanding English" (Haspelmath § 5.2). But it is not necessary to believe that nominalization is a part of UG (or a natural kind) to understand that the study of nominalization in Russian may be relevant to the study of nominalization in English, since both languages are different ways of externalizing the same faculty of language.

Haspelmath's model (like Saussure's model before) assumes that languages exist outside of people's brains. But that is not the case. The only "linguistic things" that exist outside of brains are, typically, acoustic stimuli (a certain type of noise) that in themselves lack syntax, phonology, and semantics. There are no phonemes, person features, or case dependencies in sound waves. It is therefore impossible for the brain to acquire syntactic, phonological or semantic units from the acoustic stimuli it perceives. Of course, critical differences in acoustic stimuli cause differences in the knowledge systems (I-languages or mental grammars) that eventually develop, but it is still wrong to assume that languages are systems of social conventions that are transmitted from generation to generation, such as rules of courtesy or techniques for making utensils.

Perhaps human language (as a cognitive organ) is indeed a natural kind, but if so languages are simply superficial variations of the same kind.

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