PERSPECTIVES

What is really wrong with universal grammar (Commentary on Behme)

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Ambridge, Pine, and Lieven (2014; AP&L) identify three problems with universal grammar (UG), namely: linking, data coverage, and redundancy, and argue for an alternative approach to child language acquisition. Behme (2014) aims to make a stronger case against UG. She attempts to show, by combining AP&L's arguments with evidence from developmental psychology and formal linguistics, that UG should be rejected. In this commentary, I argue that Behme's article does not present strong enough evidence to reject UG. Although Behme has pointed out some problems for UG theorists to consider, she fails to pinpoint where UG has really gone wrong. I then try to make clear what the fatal problem with UG is.

Keywords: universal grammar, subjacency, research method, scientific theory, evidence

1. Introduction. In their 2014 target article, Ambridge, Pine, and Lieven (AP&L) identified three problems with universal grammar (UG) as assumed in many theories of child language acquisition, namely: linking, data coverage, and redundancy, and on that basis they argue for an alternative approach to this field. In her commentary on their article, Behme (2014) aims to make a stronger case against UG. By combining AP&L's arguments with evidence from developmental psychology and formal linguistics, she attempts to show that UG should be rejected. In this commentary, I take it a step further. I first discuss how effective the arguments that Behme offers are, and argue that these arguments are far from sufficient to reject UG. I then try to explicate what is really wrong with UG.[1]

2. The effectiveness of behme's arguments. AP&L discuss five core cases: (i) syntactic categories, (ii) basic morphosyntax, (iii) structure dependence, (iv) subjacency, and (v) the binding principles. They argue that in each case UG suffers from one or more of the three problems: linking, data coverage, and redundancy, with the last one being the most widespread problem. But their position on UG is quite mild, as they state that their own proposals 'do not constitute rival explanations to those offered by UG accounts', and that the latter are in general 'faithful redescriptions … occasionally they diverge and risk hindering the learning process' (AP&L 2014:e81).

Perhaps AP&L were too 'conciliatory' to take 'a firmer stand against UG proposals' (Behme 2014:e97). Even if they did conclude that UG should be rejected, it is doubtful that such a conclusion could be accepted by UG theorists, for at least two reasons. First, UG theorists could counterargue that AP&L's own proposals suffer from a host of problems,[2] and hence that they are not better, or at least not clearly better, than UG accounts. Second, even if AP&L could show conclusively that UG is redundant in the five cases they investigate, UG theorists could present other cases and argue that UG is needed there, a point well made by Behme (p. e99).

[1] I adopt the definition of UG given by AP&L: 'a set of categories (e.g. noun, verb), constraints/principles (e.g. structure dependence, subjacency, the binding principles), and parameters (e.g. head direction, V2) that are innate (i.e. that are genetically encoded and do not have to be learned or constructed through interaction with the environment)' (p. e54).

[2] Indeed, Pearl (2014:e109, e113) discusses many problems with AP&L's own proposals.

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Behme has a more ambitious aim; she tries to 'provide suggestions that could put an end to a fruitless debate that has occupied language acquisition research far too long' (p. e97). Her conclusion is that UG should be abandoned and other approaches to language acquisition should be taken: 'the Chomskyan orthodoxy has outlived its usefulness and … a refocus of language acquisition research is long overdue' (p. e104). She reaches this conclusion by combining AP&L's arguments with evidence from developmental psychology and formal linguistics. Her arguments are problematic, however. Behme says that results in developmental psychology 'STRONGLY SUGGEST that children rely simultaneously on several general-purpose mechanisms when they learn language' (p. e100, emphasis added). But this is far from sufficient to refute UG, in which 'ONE genetically specified mechanism (or set of mechanisms) accounts for the acquisition of every possible human language', which Behme describes as the 'Chomskyan orthodoxy' (pp. e99–e100): some UG theorists might argue that results in developmental psychology strongly suggest that UG exists.

Behme's appeal to formal linguistics is also problematic. She cites work by Jerrold Katz and others and claims that UG is internally incoherent:

> If language is (i) a biological organ … , then it is finite. If language is (ii) a collection of potentially infinitely many sentences or expressions … , then finite human brains can at best instantiate a very small part of language. And if language is (iii) an abstract object … , then the nature of the relationship between language and brains needs to be explained. Any view claiming that language is (i), (ii), and (iii) is internally incoherent and should be rejected for this reason. (p. e104)

But UG theorists would hardly accept this accusation of incoherence. Chomsky distinguishes between E-language and I-language: the former refers to public language, which is a potentially infinite set of sentences, and the latter to internalized language, which is a finite representation capable of generating infinitely many sentences. There is therefore no incoherence here in the eye of UG theorists.

Behme also blames UG for lacking mathematical precision. But this cannot hurt UG very much. UG theorists might argue that UG is quite precise, as in, for example, the definition of subjacency. And even if UG is not precise enough, there is no reason why it cannot be made more precise. Lacking mathematical precision cannot be a reason for rejecting UG.

So, while Behme's article points out many problems with UG, these problems are not severe enough to reject it. I do not think that Behme has spotted what is really wrong with UG.[3] I try to explicate UG's fatal problem in the next section.

3. WHAT IS REALLY WRONG WITH UG. I submit that the fatal problem with UG lies in the method of finding it. To illustrate this method, let us examine how subjacency, a representative principle in UG, was formulated. In the 1960s and early 1970s, some linguists noticed that the movement of words in sentences is constrained, and so formulated some such constraints. Take, for example, the following ungrammatical sentences.

(1) *John$_i$ appears [$_{CP}$ it is likely [$_{IP}$ t$_i$ to win]].
(2) *Which way$_i$ do you wonder [$_{CP}$ why [$_{IP}$ John went t$_i$]]?
(3) *What$_i$ did John make [$_{NP}$ the claim [$_{CP}$ that Mary owns t$_i$]]?

These examples were analyzed as involving movement that violated the following constraints, respectively: the SPECIFIED SUBJECT CONDITION, the WH-ISLAND CONDITION, and the COMPLEX NP CONDITION. These three constraints were later generalized into SUBJACENCY, which states that movement cannot cross more than one bounding node,

[3] This applies also to AP&L.

where bounding nodes are IP and NP. Of course, UG theorists do not say that this version of subjacency is the final one, but they think that the ultimate version can be obtained by considering more language data and making relevant revisions. The method used by UG theorists can thus be summarized as follows.

(4) UG THEORISTS' METHOD: Having found certain interesting grammatical data, posit some general principles that explain them; revise the principles if necessary.

This research method looks innocuous, but it is in fact rather wrong. To see the problem, let us examine two seemingly analogous cases of trying to discover the laws of certain phenomena.

First, consider the behavior of free-falling heavy bodies. After some observations, one can discover that two heavy bodies released from the same height will take the same amount of time to reach the ground, and that the greater the height, the greater the fall time. So, there is a definite relationship between the height and the fall time in a free fall. By observing a sufficient number of falls of such bodies and measuring the heights from which the bodies fall and the time taken for them to reach the ground, one can get a law governing such falls, which is $h = 1/2gt^2$ (height = one-half gravity × the time of falling squared).

Now consider the behavior of falling live birds. Birds released from certain heights will also reach the ground in certain amounts of time. Suppose that someone, call him the 'naive scientist', tries to study the fall of live birds, just based on observed heights and fall times. He has the corresponding data before him and conjures up an ingenious formula that can explain the data obtained so far. But is this the law of bird-fall? The answer is clearly 'No'. This is because the fall time of a bird depends not only on the height from which it is released, but also on an indefinite number of other factors, such as whether the bird wants to fly, whether it is ill, whether it is hungry, whether it is injured, whether there is an eagle hovering in the sky, how much strength the bird can use to flap its wings, and so on and so forth. It is therefore impossible to work out the law of bird-fall MERELY by measuring the heights and the fall times, and it would be completely wrong to do this. A correct way of trying to find the law of bird-fall would be to consider the factors just mentioned and to construct models containing these factors, making idealizations if necessary.

Now, the method used by UG theorists in obtaining subjacency is the same as the one used by the naive scientist in discovering the law of bird-fall. In the naive scientist's case, no matter how many falls of birds he observes, the formula he obtains on that basis cannot be called the law of bird-fall. In the case of subjacency, no matter how many sentences in how many languages UG theorists have examined, the version of subjacency posited on the basis of those data cannot be regarded as the law governing the movement of words in human sentences. It is impossible to find the ultimate version of subjacency in this way. A correct way forward would be to consider relevant factors that determine subjacency, which is supposed to be the innate constraint on movement of words in sentences. What the constraint on movement of words in sentences is depends ultimately on a person's brain structure. Factors that determine this constraint are likely to include: memory, attention, information-retrieval speed, information-processing speed, and so forth. Exactly what the factors are is an empirical issue. But this would be a correct way of finding subjacency. It is simply wrong to try to find it merely on the basis of some grammatical and ungrammatical sentences in various languages.

UG theorists hypothesize a variety of innate language universals, which include not only syntactic principles (including economy principles and principles of efficient com-

putation posited in the MINIMALIST PROGRAM) but also lexical categories, functional categories, and parameters. These are obtained using the same method as that used in formulating subjacency. No real innate language universals can be found using this method. If there are any real innate language universals at all, they have to be discovered by other means, for example, by constructing models containing relevant causal factors.

4. CONCLUSION. UG theorists employ a particular research method: they try to obtain innate language universals on the basis of some grammatical and ungrammatical sentences in one or more languages. This method is wrong, and it cannot lead to the discovery of any real innate language universal. A correct way forward would be to determine some relevant causal factors, construct corresponding models, and carry out relevant research.

It is often argued that UG is just like standard scientific theories, all being limited by available evidence. But as the preceding text has made clear, not all theories limited by available evidence are scientific or correct/sensible (consider, for example, the naive theory of bird-fall discussed above). Arguments for UG have also been made stating that UG theorists do consider evidence from psychology and brain sciences, but these are just empty talk, because the formulation of UG principles and other putative universals is not BASED on such evidence. UG theorists have tried to find support for UG by discussing optional/perfect design of language, the distinction between language in the broad sense (FLB) and the narrow sense (FLN), three factors in language design, biolinguistics, the poverty of the stimulus, and so on. These discussions might, or do, make a lot of sense, but UG theorists' research method is wrong, and it is therefore impossible to find the real, innate UG (if it exists) using this method.

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