

Challenging Chomskyan Linguistics: The Case of Pirahã

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Chomsky's theory of language is an accomplishment of the highest order, by any standards. A set of ideas that can excite and occupy some of the brightest minds in the world for over 5 decades, and give them all a sense of communality and feeling that they are engaged in an asymptotic approximation to the Truth, over this entire period of time, must be taken very seriously.

What are the components of this theory? There are 2 fundamental ideas: (1) there are components of the form of grammars that are arbitrary from the perspective of meaning and computation (in some senses), but which form a regular and elegant subsystem that underlies the interpretation and physical manifestation of language, and (2) these components are part of our genetic endowment as *Homo sapiens* with no real explanation in standard Darwinian theory. Also important to Chomsky's theory in principle and in practice is the idea that communication and the sociocultural milieu from which language might be argued to have emerged really have very little, perhaps nothing, to do with the core components of these genetically carried grammatical principles, labelled Universal Grammar (UG).

In recent years, Chomsky has referred to UG as simply whatever the true theory is about the biological capabilities of humans for language. But this is neither a good summary of the praxis of Chomskyan theory, nor of Chomsky's own writings on UG. Certainly it is not a useful indication of what his followers have been doing for years. UG in most studies is a set of highly specific grammatical constraints, principles, and parameters that ultimately determine how all human grammars will be for adult speakers, and how these grammars will be acquired as the first grammars of children learning them.

In a heavily cited article from *Science*, Chomsky and his co-authors, Marc Hauser and Tecumseh Fitch, have suggested a single, greater feature of form that could underlie all the various principles of UG. This essential feature, they claim, is *recursion*. Although in that paper they neither define recursion nor say what predictions a recursive versus a nonrecursive grammar of a language might make, their paper has sparked a huge debate.

Recursion is a property of algorithms generally. In its application to linguistics, it implies that one unit (word, phrase, or sentence) appears in another unit of the same type. So 'John's brother's house' shows the appearance of the noun phrase 'brother's house' inside (at the position of 'x') the larger noun phrase 'John's x.' Or 'The man who is tall is here' contains the sentence 'who is tall' inside the larger sentence 'The man is here.' As a further example we have 'truck driver' which contains the two words 'truck' and 'drive' inside a single larger word.

Because of my field research, I was in the Amazon during the initial appearance and debate of this article. I could not have been more unaware of the international discussion it had provoked. I was concerned rather with something which I thought was unrelated to just about anything that had been done in linguistics for 50-plus years – whether culture can be causally implicated in the grammar of natural languages. In 2004, I had been stimulated by the appearance in *Science* of a paper about Pirahã numerosity, written by my good friend, Peter Gordon of Columbia University, who had conducted field research with me on this subject a decade prior to the publication of his article. My reaction to Gordon's article was that it was largely correct, except for its purported explanation of the lack of counting in Pirahã. Gordon concluded that the explanation for the absence of counting was the absence of number words, a Whorfian proposal that appealed to a number of neo-Whorfian researchers, such as Stephen Levinson and his team at the Max Planck Institute for Psycholinguistics in Nijmegen.

It seemed to me that this explanation begged the question because (1) it failed to account for the fact that other languages lacking number words counted and tallied just fine and (2) it failed to provide any connection between Pirahã numerosity and other intriguing aspects of its grammar.

In 2005, I published an article of roughly 23,000 words in the journal *Current Anthropology*, in which I argued first that Pirahã lacked number words, counting, grammatical number, perfect tenses, quantifiers, color words, and embedding (I did not use the buzz word 'recursion' at that time, because I was still unaware of the debate, until the final revisions of the article just before it went to press – but the claim is in fact that Pirahã lacks recursion). I next argued that all of these facts followed from a Pirahã cultural constraint that I termed the 'immediacy of experience' constraint: *declarative Pirahã utterances contain only assertions related directly to the moment of speech, either experienced (i.e., seen, overheard, deduced) by the speaker or as witnessed by someone alive during the lifetime of the speaker.*

I argued further that this was evidence that culture could indeed be causally implicated in grammars, playing even an architectonic role in shaping grammars as wholes.

This has been hugely controversial, much more so than I anticipated. I claimed and still believe that the absence of recursion in Pirahã and the role of culture in determining the shape of the grammar were incompatible with Chomskyan theory and thereby falsified it. Chomsky has, unsurprisingly, not accepted this conclusion, nor have any of his followers. Several researchers have, on the other hand.

Further experimentation has been and is being conducted (by researchers from MIT and the University of Manchester) that is consistent with my assertions and publications are scheduled to appear as early as 2008 reporting these results.

References

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