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No syntax saltation in language evolution

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ABSTRACT

Much of the recent literature within the Minimalist/biolinguistic paradigm argues that the core language faculty, or more specifically 'narrow syntax', arose abruptly and rather recently, certainly within the last 100,000 years. The proposed syntax saltation is taken to be the result of a minor mutation, giving rise to the Merge operation which creates hierarchical structures. Moreover, externalization – using language for communication – is claimed to be a development subsequent to the use of language purely for internal thought. I argue against these claims, both on language-internal grounds, using evidence from the lexicon and from syntactic displacement, and on the basis of the archaeological findings.

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1. Narrow syntax: saltation and recent externalization

It has become axiomatic in much recent Minimalist/Biolinguistic work that 'narrow syntax' is a saltation, a sudden evolutionary step. Its contents are also proposed to be very limited: 'the Minimalist Program posits that the human syntactic engine consists of just two components: (1) words and word features; and (2) a single, simple recursive operation, Merge, that glues together words and word complexes into larger units' (Berwick, 2011:69). The relevant literature envisages an abrupt appearance of the Merge operation, which is then able to combine lexical items for the first time, creating hierarchical structure: 'It seems that the language system developed quite suddenly' Chomsky (2012:23). Moreover, although the species *Homo sapiens* emerges around 200 kya (thousand years ago), Minimalist theorizing proposes that language is much more recent, perhaps not occurring until around 150 thousand years later; for example, Berwick and Chomsky (2011:27) suggest that 'the generative procedure [i.e. Merge, *MT*] […] emerged some time in the 50,000–100,000 year range […] presumably involving some slight rewiring of the brain'; see also Berwick et al. (2013), Piattelli-Palmarini (2010) for remarks in the same vein.

Following from these ideas is the claim that 'externalization' (communicating with others) is a secondary phenomenon, appearing only after solely internal uses of language: '[T]he earliest stage of language would have been … a language of thought, available for use internally' (Chomsky, 2010:55). The argument is that Merge applied first to internal thought, and was adaptive because it enabled complex thought processes such as planning and problem-solving. Whatever genetic mutation gave rise to Merge was transmissible to offspring, implying that a community of language-users could form, so '[a]t that stage, there would be an advantage to externalization' (Chomsky, 2010:59). Berwick (2011:67) also states – though without citing any specific literature – that 'all recent relevant biological and evolutionary research leads to the conclusion that the process of externalization is secondary, subsequent to conceptualization and the core principles of human syntax'; see also

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Berwick et al. (2013:91). Various arguments against this position are advanced by Jackendoff (2011), and will not be repeated here. The current paper argues that two pivotal aspects of language, the lexicon and syntactic displacement, only come about via externalization.

I challenge both the idea that there was a recent syntax saltation, and the idea that the language faculty initially arose to support thought. I also defend a gradualist approach to the evolution of syntax. Berwick (2011:70) states that 'One does not need to advance incremental, adaptationist arguments with intermediate steps between some protolanguage and full natural language to explain much, perhaps all, of natural language's specific design'. I argue that with respect to both the lexicon and syntactic displacement, this is exactly what we do need to argue: both are crucially subject to incremental growth. Under this scenario, forms of protolanguage used for communication became increasingly more sophisticated, and though Merge as applied to lexical items is an essential development, it was merely one of many steps along the way to fully-fledged syntax – and probably not even the final step.

Section 2 discusses the evolution of the lexicon, arguing that it must evolve gradually via externalization, rather than being formed directly from 'conceptual atoms'. Section 3 turns to syntactic displacement, arguing that this too evolves gradually in the process of communication between speakers. Section 4 examines proposals that language is a very recent development, in the light of archaeological and related evidence concerning symbolic activities and a 'merge' operation, and concludes that neither recentness nor an abrupt emergence of language are supported. Section 5 is a brief conclusion. In what follows, for brevity in referring to the relevant body of Minimalist/Biolinguistic literature here, I will sometimes refer to its tenets on language evolution as the 'strong minimalist thesis' (SMT), after Berwick and Chomsky (2011:30).[1]

2. Conceptual atoms and the evolution of the lexicon

The lexicon must be the critical starting point in building the syntactic engine, since without lexical items, there is nothing to merge. Berwick & Chomsky suggest that 'the evolution of language [reduces] to the emergence of […] Merge, the evolution of conceptual atoms of the lexicon' (2011:30) as well as the link to conceptual systems and the mode of externalization. I assume that what is meant by 'conceptual atoms' is some set of basic concepts which either constitute, form a part of, or are precursors to lexical items. (These are, in fact, three distinct logical possibilities, but as far as I can see, the SMT is silent as to which position is adopted.) Minimalist discussions of the evolution of the lexicon do not, however, seem to differentiate clearly between 'conceptual atoms' and lexical items. For instance, Chomsky (2010:57) mentions 'concepts and lexical items (to the extent that they differ – […] far from a simple question)'; and Chomsky (2012:27) suggests that 'we have no reason to believe that there's any difference between lexical items and concepts'.

But in fact, conceptual atoms are clearly *not* equivalent to lexical items (see also Bouchard, 2013; Hurford, 2012: ch. 2). Hominins certainly had concepts of *some* kind before they had language; the evidence is that concepts (again, of some kind) clearly occur in other primates (and indeed, many other animals). Concepts in other animals are wholly private, in the sense that they are not influenced by the concepts of conspecifics; they have a largely innate basis, though developing and becoming sharper in ontogeny. For instance, as is well known, infant vervet monkeys have a concept of each of the three main predator classes (eagles, snakes, leopards), or perhaps a concept of the specific dangers posed by each predator, since they have to adopt differing avoidance strategies in each case. All these concepts are honed by experience, and they receive vocal expression in the form of distinct alarm calls. But these are nothing like words, not least because their usage lacks displacement in the (semantic) sense of Hockett (1960): it is restricted to the immediate present, and no alarm call can be used to discuss the concept of each predator in the abstract. It is possible that the specifically human type of concepts on which lexical entries are based have developed *through* the use of (externalized) language, as suggested by Bickerton (2009: ch. 10). As Hurford (2012:153) expresses it, 'public use affects private concepts'. Nonetheless, private concepts remain, essentially, private, and agreement between individuals as to their meaning is neither required nor, of course, generally possible.

The current mainstream Minimalist account of language evolution (e.g. Chomsky, 2010, 2012) is that a single ancestral hominin underwent a critical rewiring of the brain which led to the Merge operation applying to concepts for the first time.[2] Initially, this process was solely internal, but it gave rise to richer thought processes and better problem-solving abilities, which would be adaptive. As Bouchard (2013:42) notes, though, 'it remains to be shown how a putative language of thought is selectively advantageous compared to non-linguistic thinking'.[3] In other words, we are given no evidence that our first

[1] It should be made clear that not all work in this paradigm agrees with the saltationist views critiqued here. See, for instance, Benítez-Burraco and Longa (2010), Boeckx (2013), Balari and Lorenzo (2013). And not all practitioners of Minimalism eschew the concept of protolanguage: see van Gelderen (2009) for support of the idea. Clark (2013) in fact argues that Minimalist accounts are also consistent with a gradualist perspective on language evolution.

[2] Boeckx (2013), in contrast, attributes the human-specific changes to the emergence of a new neuronal 'workspace', which 'emphasizes the role of distributed neurons with long-distance connections' (2013:17). Noting that a cognitive 'merge' operation is primitive (as does Jackendoff, 2011), Boeckx suggests that Merge is not a linguistic innovation. Rather, the key event is the lifting of an internal constraint against combining any type of concept with another. Nonetheless, this does not produce the crucial linkage of concept and percept ('the mental image of an acoustic/visual material element', Bouchard, 2013:68) that is needed to form linguistic signs: see note 3.

[3] Bouchard (2013: ch.1) argues extensively against the primacy of thought, or purely internalized language, in evolution. A major problem is that, since signs in language-as-we-know-it link *signifiants* (acoustic/gestural images) and *signifiés* (concepts), 'the onus is upon proponents of a stage of a strictly internal language to explain why the *signifiants* of that early stage were not of a similar substance, and to tell us what they possibly could have been made of' (2013:44).

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