

# Mememes shape brains shape mememes

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## Abstract

Christiansen and Chater's arguments share with memetics the idea that language is an evolving organism, and that brain capacities shape language by influencing the fitness of memes, although memetics also claims that memes in turn shape brains. Their rejection of meme theory is based on falsely claiming that memes must be consciously selected by sighted watchmakers.

Christiansen and Chater argue that features of the human brain have shaped language and that language itself is akin to an organism. This view is remarkably similar to that which emerges from memetics, and yet they summarily reject the views of meme-theorists. I shall explore the similarities and differences between memetics and their view, and argue that their rejection of memetics is misplaced.

In what sense is language an organism? Christiansen and Chater are slightly equivocal in answering this question. Although, in the abstract, they claim to 'view language itself as a complex and interdependent "organism"' the quotation marks are a clue to their ambivalence, for later they claim that 'Following Darwin (1900), we argue that it is useful metaphorically to view languages as "organisms,"' (p 2), and then repeat this metaphorical claim.

Darwin (1874) himself does not use the word "metaphor". He discusses parallels, homologies, and analogies, and writes of the struggle for life amongst words and grammatical forms, claiming that "The survival and preservation of certain favoured words in the struggle for existence is natural selection. (1874 p. 91 italics mine). My reading of Darwin is that he thought languages and organisms were similar because they both evolve by the processes of selection and modification with descent.

For memetics, too, the similarity is not metaphorical. The foundation of memetics (Dawkins 1976) is to apply universal Darwinism beyond biology. That is, memetics begins with the idea that information in culture is copied from person to person with variation and selection, and is therefore a replicator, just as genes are replicators. The term meme was coined to make this claim explicit; not primarily as an analogy with 'gene' but as an example of another replicator operating on the same fundamental mechanisms.

Language is, on this view, a vast complex of memes, interconnected and co-evolved, and hence like a biological organism. This is not a metaphor; rather, biological organisms and languages are both complexes of replicators that are copied, protected, and work together for the same reason; their constituent replicators thrive better within the complex than they could outside it. In this sense, then, Christiansen and Chater propose a weaker version of the claims made by both Darwin and memetics.

Is language a parasite? Christiansen and Chater refer to it as a "beneficial parasite". I have, similarly, called it a parasite turned symbiont. Indeed I have argued the same for all of culture (Blackmore 1999, 2001): once imitation attained high enough fidelity memes were let loose, and then spread and evolved, using human brains as their copying machinery. This happened, as Dennett (1995) emphasises, not for our benefit but for the benefit of the memes themselves. Christiansen and Chater point out that parasites and their hosts often co-adapt, with the parasite becoming less dangerous, but how dangerous was language when it began? I have argued that memes might have killed us off because of the burden they put on brain size, development, and energy use. If so then we were lucky to pull through so that the brain and its parasite could begin to adapt to each other. They are now so

well adapted that we cannot live without culture and language, and it is easy to make the mistake of thinking that language evolved for our benefit, rather than its own.

Christiansen and Chater's main claim is that language did not shape the brain, but the reverse. They may have pushed this argument too far since much physical adaptation has clearly occurred, e.g. in the restructuring of the larynx to improve articulation. Memetics implies that the effects work both ways, as memplexes and biological organisms compete and co-evolve. Memes can shape genes; for example, memes with higher fidelity are more successful, and clearer articulation makes for higher fidelity, so that the spread of machinery capable of that articulation is then favoured (this is an example of 'memetic drive', or the co-evolution of a replicator with its replicating machinery, Blackmore 1999, 2001). Also genes can shape memes, with memes that fit well to existing human brains having an advantage – as Christiansen and Chater describe.

Defending their view that biological adaptation to language is negligible, Christiansen and Chater cite the fact that when two species with different rates of adaptation enter a symbiotic relationship, the faster evolving one adapts to the slower one, but not the reverse. This may be so today, but we should not assume, from the speed of language change we observe now, that language memes always evolved much faster than genes. Indeed evolutionary processes generally begin slowly and accelerate. Models of meme-gene coevolution using increasing rates of memetic change have shown that a transition occurs at a certain relative rate of change, with gene evolution then effectively ceasing (Bull, Holland and Blackmore, 2000). It is therefore possible that early language memes did cause changes in human genes even though they no longer do so.

From these comparisons, it seems that Christiansen and Chater's views are, in important respects, similar to those of memetics. Why then do they so firmly reject the views "described by memetheorists"?

I think the reason they give is spurious, and has prevented them from seeing the potential value of memetics in explaining language evolution. They argue that memes are "created or selected by deliberate choice" whereas the constraints operating on linguistic structures are those "of which people have no conscious awareness". But this is not a defensible distinction. We humans may think that we are conscious, creative, "sighted watchmakers" but this arrogance is just part of the dualist illusion that we are not mere living machines but are inner selves with consciousness and free will (Blackmore 1999, Dennett 1991). One advantage of memetics is that it rejects this illusion and even tries to explain how it comes about. Humans are the product of two competing replicators: biological creativity results from the evolutionary algorithm operating on one of those replicators, and human creativity from the same algorithm operating on the other (Blackmore 2007). Language is just one of the products of this blindly creative combination.

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