

# Much ado about (almost) nothing: recursion and the simplicity of language

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For just over ten years there has been a continuing debate about the thesis of Hauser, Chomsky and Fitch that recursion is a unique design feature of human languages, associated with a compositional 'Merge' operation, and the property of generating 'a discrete infinity'. There has been much speculation about the genetic introduction of recursion in the Paleolithic era, and counter-arguments that recursion developed with the development of broader cognitive abilities and the introduction of writing. The discussion has seen different qualities of argumentation, often without further definition of recursion, or with recursion taken to be variously nested self-embedding, iterative (left or right, head or tail) recursion or even simply any hierarchical pattern.

In this talk I claim that recursion in the strict sense of nested self-embedding is not a central design feature but rather peripheral to all varieties of language, particularly spoken language, and largely restricted to certain registers of writing, a memory enhanced modality. I review the various kinds of recursion which have been suggested for natural language constructions, referring mainly to German and English, and demonstrate that linear rather than hierarchical patterning is pervasive through all levels of language, from phonology and prosody through morphology (word formation and inflection) and sentence syntax, and that several grammatical structures which have previously been modelled with rather powerful 'Move' or transformational devices can easily be modelled by regular languages.

Linear, iterative patterns are not restricted to human languages, and in conclusion I adopt the idea that recursion developed in languages in parallel with general cognitive developments in logical and mathematical thinking and their requirements for memory-enhanced modality, i.e. writing and rehearsed speech. Further, I propose that a unique and far more central design feature of languages is the concept of rank, i.e. differently structured strata in languages from phonology to discourse, as a generalisation of Hockett's design feature of 'duality' and Martinet's 'double articulation' of language.