

What seems to be unique about human recursion?

Cem Bozsahin,
Cognitive Science
Middle East Tech. University

We know from theoretical linguistics that syntax requires no more (and no less) than the resource management mechanisms of an embedded push-down automaton. Theories such as CCG, TAG and G/HPSG are quite explicit about how recursion in data meets recursion in the respective theory. Generative grammar took another route, to claim that syntactic recursion is the most unique human capacity, i.e. an operation of the mind for syntax, perhaps allowing other cognitive tasks to scaffold. This must be natural recursion, narrowly construed. Is it recursion by name, or recursion by value, and what kind of value? It is difficult to determine from generative literature, but other theories are more explicit.

It matters to know. Natural recursion in syntax is recursion by linguistic value, which is not syntactic in nature but semantic. Lexicon seems to afford only a certain kind of recursion as well, with no restriction on the amount. Syntax-specific recursion cannot be recursion by name as the term is understood in theoretical computer science. Recursion by name is probably not natural because of its infinite typeability. Recursion by value seems not to be species-specific. And human recursion is not syntax-specific. Therefore we can question what mechanism can bring out natural recursion, in humans and in close cousins of ours, and which one does the scaffolding.

Bio: Cem Bozsahin is professor of Cognitive Science at the Informatics Institute of Middle East Technical University (ODTU), Ankara. He works permanently at ODTU, and temporarily worked at Ohio University, Bogazici University, and Edinburgh University, on computational linguistics, theoretical linguistics, AI, and philosophy of cognitive science.