On the Emergence of Grammar and Image Schemas:

A Cognitive Linguistic View

Kazumi Taniguchi
Kyoto University
taniguchi.kazumi.8n@kyoto-u.ac.jp

Keywords: action grammar, image schema, container, linking, construction

This paper presents a cognitive-linguistic approach to the issue of "syntactic hierarchy" and its evolution studied mainly in generative grammar, and offers a plausible picture of how humans have developed the abilities of combining symbols to form complex constructions.

Since generative grammar has been reducing its central construct of "Universal Grammar (UG)" to simpler operations, UG as it assumes currently approximates some domain-general cognitive abilities. One of such moves can be seen in "action grammar," which hypothesizes the motor origin of syntax (Greenfield 1991, Fujita 2017). It claims that syntactic hierarchies are rooted in the strategies of combining multiple objects into a united whole, like nesting cups. According to Greenfield (1991), the combining strategies of objects develop from "pairing" of two objects to "pot" and "subassembly" of multiple objects. In a generative-grammar view (Fujita 2017), such combining strategies give rise to what they call "merge," as part of hard-wired innate UG, which produces syntactic hierarchy.

Noteworthy enough, the idea of action grammar is compatible with the cognitive-linguistic view of embodiment, especially of image schemas that are recurrent patterns extracted from sensori-motor experiences (Johnson 1987); in the case of seriating objects, what underlie is the "container" schema. However, the container schema and inference patterns it evokes are not so self-evident as they seem; one needs to recognize the relative sizes of objects (the container should be bigger than the content), the relationship of inclusion, the dependency of the content's location on the container and so on to utilize the schema. In fact, Greenfield (1991) suggests the possibilities of non-successful instances of pairings, as we can see younger children and animals try to put a big object into a small container. This leads us to assume that the container schema is acquired in a heuristic way through trial-and-error experiences of combining objects of different sizes (cf. Fragaszy et al. 2002), and that the container schema is not available until later stages of development and evolution; primitive syntagmatic relations between items are rather accounted for by "linking" schema.

This paper demonstrates the assumption observed above in terms of usage-based, construction-grammar view of syntactic development (Tomasello 2003) where constructions are extracted from specific chunks composed of multiple lexical item. In light of this, what appears to be "syntactic hierarchy" is brought only after one establishes constructions which function as containers to accommodate lexical items, not only in ontogenetic but in phylogenetic terms. The present paper will show that the sensori-motor development from the linking schema to the container schema correlates with emergence of grammar, through close examinations of the results of experiments concerning nesting cups presented so far (Greenfield 1991, Fragaszy et al. 2002 and so forth).

References

Fragaszy, D., A. Galloway, J. Johnson-Pynn and K. Brakke (2002) "The sources of skill in seriating cups in children, monkeys and apes," Developmental Sciences 5-1, 118-131.

Fujita, K. (2017) "On the parallel evolution of syntax and lexicon: A Merge-only view," Journal of Neurolinguistics 43, 178-192.

Greenfield, P. M. (1991). "Language, tools, and brain: the ontogeny and phylogeny of hierarchically organized sequential behavior," Behavioral and Brain Sciences 14, 531-595.

Johnson, M. (1987) The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason, University of Chicago Press.

Tomasello, M. (2003). Constructing a Language: A Usage-Based Theory of Language Acquisition, Harvard University Press.