Shared Intentionality and the Emergence of Sentence Types in Natural and Artificial Languages

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From a cognitive linguistic perspective, this presentation explores the role of shared intentionality in the evolutionary emergence of sentences and examines the adequacy of the argument by analyzing the results of our previous experiments with artificial languages.

In a cognitive linguistic framework, the study of language evolution mainly focuses on the emergence of symbols via iconicity. Expressions with high iconicity such as ideophones or gestures are considered key to the origin of language (Haiman). The symbols assumed in these studies are mostly lexical items. While cognitive grammar presupposes continuity between lexicon and grammar (Langacker), sentence types have their own characteristics as symbolic assemblies. This presentation explores the emergence of the sentential meaning paired with the form of a declarative sentence. As a link between words and sentences, I focused on the semantics of holophrases, or words that function as sentences. A study in Japanese linguistics points out the distinction between holophrases used to demand existence (e.g., shouting “Water!” when you want water) and holophrases used to confirm existence (e.g., shouting “Water!” when you see water and are moved by its existence). In addition, it is argued that the semantic structure of the latter type leads to a declarative sentence with a predicate and grounding elements (e.g., auxiliaries) that show how the speaker conceives the predicated event (Onoe). Onoe’s argument presupposes a monologue. However, I demonstrate that, once used in a dialogue, a holophrase to confirm existence establishes joint attention for shared intentionality, that is, a type of joint attention that can be established only by humans (Gomez et al., Tomasello). Moreover, I propose that shared intentionality leads to sentential meaning.

To determine the adequacy of this proposal, I adopted a constructive approach to language. In this experimental approach, we let robots, simulated agents (Hashimoto & Ikegami), or humans (Galantuccti) interact through artificial communication systems and observe how communication structures emerge (Scott-Phillips & Kirby). In most studies in this field, communication systems transmit information. However, we conducted experiments with robots (Uno et al., 2011) and humans (Uno et al., 2012) in which we blocked the transmission of ordinary information and made them communicate for communication itself to introduce shared intentionality. Consequently, we observed new usages of artificial communication systems. That is, the perspectives of the robot or the human “speaker” were displayed in the “utterances” and were utilized to sustain the “listener’s” communication. This observation may be regarded as an emergence of a sentence with grounding elements, that is, a declarative sentence.

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