Finding the Universal in and around Variation

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Across a sample of languages, in and on (and their equivalents) are amongst the earliest words that a child will begin to produce (Johnston & Slobin 1979; Slobin 1982). This early use suggests the salience of containment and support relations as a potential cognitive universal (cf., Piaget & Inhelder 1967), a suggestion that may be further strengthened amongst Western researchers by the natural coherence that they, like other native speakers, tend to attribute to the spatial concepts encoded in their languages. However, a closer look at the semantics of spatial relational terms across languages raises two problems with this interpretation. First, containment and support relations, as encoded in the English words in and on, do not emerge as coherent named concepts across a broader sample of languages (Bowerman & Choi 2001; Levinson & Meira 2003). Second, there is wide variation in the range of spatial relational situations that may be described by translation equivalents of in and on (Bowerman & Choi 2001; Feist 2008, 2013; Gentner & Bowerman 2009; Zhang, Segalowitz, & Gatbonton 2011; inter alia), suggesting that what “counts as” containment or support differs substantially from language to language.

The existence of languages that do not encode a distinction between containment and support in their spatial relational terms has long been noted. As a case in point, the Korean distinction between tight and loose fit crosscuts the containment/support distinction, categorizing both a Lego on a Lego stack and a cassette in a cassette case as examples of tight fit (Bowerman & Choi 2001). The coherence of support as a universally salient concept has been similarly contradicted by cross-linguistic evidence. Across their sample of nine unrelated languages, Levinson and Meira (2003) found evidence for a small set of universal conceptual “attractors” — but support relations were split across two of the attractors, with relations involving small, movable figure objects supported by relatively low ground objects (such as a cup on a table) clustering with a different set of scenes from the scenes clustered with relations involving larger, more elevated figures (such as a tree on top of a hill). These results suggest that there is not a unitary support concept that is cross-linguistically valid.

Finally, close examination of the uses of spatial language in English and Mandarin reveals that the details of the concepts of containment and support themselves may likewise vary across cultures (Feist & Zhang 2016). Like English, Mandarin encodes a contrast between terms encoding containment and terms encoding support. However, the uses of this set of terms differ from the uses of related English spatial terms, particularly with respect to the categorization of part-whole relations and of figures which are partially embedded in a ground (Zhang et al. 2011). Indeed, looking at descriptions of 71 pictures in the two languages for which there was high within-language agreement on the applicable spatial term, Zhang and her colleagues (2011)
found that 20% were categorized differently by the two languages, suggesting that the contrasts encoded in the languages, while related, are drawing upon different conceptual information regarding the nature of containment and support.

Along with the striking variation that has been noted in the meanings of spatial relational terms, there is compelling evidence that languages may overlay lexicalized distinctions upon a universal conceptual space. In addition to the universal “attractors” and the attendant conceptual space noted by Levinson and Meira (2003), Feist (2008) found that spatial descriptions across 24 languages could be fit to a two-dimensional similarity space structured by the ground’s ability to control the location of the figure and by the relative vertical positions of the two objects, suggesting that languages may encode distinctions along dimensions that are universally salient. Taken together, these findings point to a set of broad universal constraints on the conceptual distinctions encoded in spatial language.

Comparison of the evidence of cross-linguistic variation and the suggestion of conceptual universals highlights a gap in our knowledge about spatial reference. Whereas fine-grained studies of the semantics of individual spatial relational terms has revealed much about cross-linguistic variation in the encoding of meaning, more coarse-grained studies of the conceptual space suggest constraints on that variation. To truly understand the nature of both the variation and the constraints, it is important to understand how the constraints function within the spatial reference systems of individual languages, hence bringing together the strengths and insights from both lines of research.

One universal of human experience is the need to note, remember, and communicate about the locations of objects in the environment. One of the most compelling observations about spatial language is that there is a stark contrast between the native speaker’s intuition that the categories encoded in their language are conceptually basic (and, hence, potentially universal), and the prodigious cross-linguistic variation in the mapping of words to spatial situations. One of the most interesting challenges for us is to understand why.

References


