Sage Reference

Encyclopedia of Language Development

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The representation of motion and space is a fundamental human cognitive ability. All languages encode motion through a variety of devices including verbs (*enter* and *roll*) and prepositions (*into, out*, and *of*). Motion terms are acquired early by language-learning children around the world, often on the basis of very few exposures. As detailed below, the acquisition of motion expressions is characterized by both universal and language-specific features.

Languages analyze motion as the displacement of an object (figure) with respect to a reference object (ground). Additionally, languages may specify the path of motion (*to the forest* or *up*) and the manner of motion (*rolling* or *spinning*). It is widely recognized that these and other linguistic-motion primitives correspond to a set of prelinguistic, probably universal, conceptual-motion primitives that constrain both the nature and the acquisition of motion vocabulary across languages. Several sources of evidence support this position. First, some basic motion concepts are already available early on: Infants in the first year of life can reason about paths and manners of motion and know quite a lot about several types of motion events (such as moving into containers and behind occluders). Second, children's earliest motion expressions such as *up* and *down* are rapidly generalized to a wide range of events that share an abstract spatial similarity in a way that suggests preestablished underlying cognitive categories.

Third, there are specific cases in which the way children acquire motion terms has been shown to be closely tied to the way children process motion nonlinguistically. For instance, children across different languages tend to use fewer path expressions referring to the source of motion (*out* and *off*) compared to the end point of motion (*into* and *onto*); relatedly, children tend to make more specific meaning distinctions when they acquire new path-end point expressions compared to source expressions. This asymmetry is closely tied to a cognitive-attentional bias that prioritizes end points over sources in both children and adults: For instance, children are more likely to notice changes in a motion event if the change involves the end point (going into a box versus a pot) compared to the source (going out of a box versus a pot). Fourth, categories such as figure, ground, path, and manner of motion characterize the spontaneous gesture systems (home sign) of deaf children from different cultures, even though these children have not been exposed to a conventional language system. This fact suggests that broad motion concepts precede and guide the acquisition of the expression of motion.

Despite being rooted in a shared conceptual inventory, the encoding of motion varies considerably cross-linguistically. A prominent example is the encoding of path and manner of motion. Some languages such as English, German, Russian, and Chinese prefer to encode manner information in the verb and path information in prepositions or other elements outside the main verb (e.g., *The bottle floated into the cave*). By contrast, other languages such as Modern Greek, Spanish, French, or Turkish often encode path information in the verb and express manner of motion in optional modifiers (*The bottle entered the cave [floating]*). These cross-linguistic differences have implications for the way motion language is acquired because children quick-

ly grasp and follow language-specific patterns for the expression of motion.

For instance, English learners encode path concepts in prepositions such as *in* and *out*, while Greek and Spanish learners encode them in verbs with meanings such as *enter* and *exit.* Furthermore, language-specific preferences for encoding motion information affect how newly encountered motion terms are interpreted. When presented with a novel intransitive motion verb (*She's kradding*), English-speaking children and adults interpret it as a manner verb, but Greek-speaking children and adults interpret it as a path verb, thereby following the verb lexicalization biases of their language. These language-specific verb biases are present as early as the age of 3 and have been documented in a variety of languages.

Lexicalization biases in the domain of motion are subject to syntactic constraints in guiding the interpretation of new predicates: When presented with a novel transitive motion verb (*She's kradding the tree*), very young children from diverse language backgrounds interpret the verb as encoding path. Thus, the semantic (relational-path) implications of the transitive frame trump verb lexicalization biases. In more mature learners, verb lexicalization biases interact with syntax to produce motion verb conjectures: Transitivity leads adults to reliably adopt path conjectures in languages such as Greek or Spanish, where the transitive syntactic frame is consistent with the path-oriented verb lexicalization biases of the language, but in a language such as English, where the transitive frame contradicts the manner-oriented verb biases, adults are ambivalent between mannerand path-based verb construals.

The presence of cross-linguistic variation in motion encoding raises the question of whether the way motion concepts get expressed in language affects non-linguistic cognition. If so, children's attention might be guided toward those motion categories that are systematically encoded in their native tongue. Existing evidence argues against this possibility. For instance, despite the cross-linguistic differences in the encoding of manner and path of motion described above, memory and categorization of motion events proceed identically in children (and adults) from different linguistic communities. The precise relationship between children's linguistic and cognitive representation of motion remains a fruitful avenue for future research.

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See Also:

- Aspect
- Conceptual Foundations of Early Word Learning
- Event Perception and Language Development
- Home Sign
- Spatial Cognition and Language Development
- Thinking for Speaking

Further Readings

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