Cross-linguistic Varieties in the Coding of Multiply-specified Trajectories

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This experimental study examines the descriptions of motion events with a multiply-specified trajectory, such as a cat jumping out of the box (Source) and up (Direction) onto the chair (Goal) or a man jumping down (Direction) off the table (Source) onto the chair (Goal). These events contain three trajectory elements, i.e. Source, Goal, and Direction. Numerous cognitive studies on motion events have been conducted to explore coding patterns of motion events in various languages (Talmy, 1991, Matsumoto, 2017); however, little attention has been paid to how complexity of motion trajectories can affect the coding patterns or event segmentations, which are possibly influenced by language-specific lexicalization and universal constraints (cf. Bohnemeyer et al., 2007).

We collected cross-linguistic data through a video-based experiment with five target languages: Japanese and Italian (which are "Head path-coding languages" according to Matsumoto (2017)), English, Russian and Hungarian (which are "Head-external path-coding languages"). Participants (15 native speakers for each language group) were asked to verbally describe various motion events presented to them in video clips. This study analyzed motion events with four multiply-specified trajectories, all of which have a Source (FROM.ON or OUT.OF), a Goal (TO.ON or TO.IN), and a Direction (UP or DOWN) specified, plus the Manner of JUMPING. We focus on how each semantic component is encoded in each language from the perspective of reference rate, encoding positions and coding patterns.

The results showed that speakers used a limited number of sentences expressing all semantic components (i.e., Manner as well as Source, Goal and Direction), with ratio varying among languages (Japanese: 38.3%, Italian: 1.6%, English: 15.0%, Russian: 1.6%, and Hungarian: 48.3%). Comparing the reference rate of each path semantic component in each language, we found that Goal was mentioned most frequently in all five languages with an average of 93.0%, followed by Source with an average of 74.0%. On the other hand, Direction was expressed the least with an average of 28.0%.

Our findings support the saliency of Goal (Ikegami, 1987) and does not support the salience of vertical direction found in our earlier experiment (Matsumoto, 2013). We argue that low reference to vertical Direction in this experiment relates to its inferability of Direction. Jumping involves initial upward motion and downward motion due to gravity. Together with real-world knowledge about the relative height of a table and a chair, or the common location of boxes for cats (used in the video scenes); Direction is inferable and the reference to Direction is unnecessary.

Our findings also show the language-specific factors influencing expressions of Direction. Japanese demonstrated a higher reference rate (53,3%) in comparison to Italian due to the existence due to the existence of compound verbs in Japanese. The higher reference rate in Hungarian 58.3% over English 18.3%, and Russian 1.7% is related to the availability and preferred use of directional preverb, which is expected to be used to represent telic events.

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