

Can viewpoint and gesture prime spatiotemporal metaphor use?: The function of gestural metaphoric iconicity in resolving linguistic ambiguity

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Experimental work has shown that spatial experience motivates spatiotemporal metaphor use. The experience of, or thinking about motion primes TIME IS EGO MOVING THROUGH SPACE, whereas the experience of stasis primes TIME IS MOTION PAST EGO (Boroditsky and Ramscar 2002; Matlock, Ramscar, and Boroditsky 2005). While it has been demonstrated that the experience of the *individual herself*, as well as her observation of *other individuals*, cause her to think about time in terms of a particular metaphor, the effects of observing her *interlocutor* have not yet been investigated. Furthermore, although it has been shown that speakers modify gestures in response to varying addressee locations (Özyürek 2000), it remains unknown how conversational viewpoint mediates the influence of gesture on the addressee at the conceptual level.

This study investigates the use of a co-speech gesture which is iconically congruent with either the ego-motion variant (gesture away from the speaker) or the temporal-motion variant (gesture towards the speaker). One hundred twenty participants in Baltimore, Maryland were asked an ambiguous question, which elicits different responses (“Monday” or “Friday”) depending on with which metaphor the participant is thinking. One-third of the subjects were asked the test question in conjunction with one, the other, or neither of the gestures. Given the naturally complementary information in speech and gesture, the semantically-contentful gesture combined with the ambiguous spoken component constitutes a “growth-point” (McNeill and Duncan 2000), providing an unambiguous interpretation. Half of the participants were asked in a position of joint viewpoint and half in opposition.

We predicted that the iconicity of the gestures would prime participants to answer the ambiguous question congruent to the spatiotemporal metaphor conveyed by the gesture; the “away” gesture should prime ego-motion and the “towards” gesture should prime temporal-motion. Additionally, because the gestures are performed by the speaker from her perspective, when speaking face-to-face a gesture away from the *speaker* is iconic from *her* perspective for ego-motion, but it is iconic from the *addressee’s* perspective for temporal-motion. Therefore we predicted that if listeners adopt the viewpoint of their interlocutor, they would provide responses congruent with the gesture from the interlocutor’s viewpoint.

Results were analyzed using a Helmert-coded multiple logistic regression. Gesture was found to significantly improve the fit of the model ($p = 0.01$), due to the contribution of both gesture direction and overall presence/absence of gesture. The “towards” gesture is less likely to elicit a “Friday” response (odds ratio = -1.61); the “no gesture” control is more likely to elicit a “Friday” response (odds ratio = 1.32). The overall model prediction accuracy rate was 77.5%.

We find the predicted correlation between gesture direction and response to the test question: gestures away from the speaker correlate with ego-motion responses while gestures towards the speaker correlate with temporal-motion. No difference in the viewpoint conditions indicates that participants are maintaining their interlocutor’s viewpoint. The effects of gesture suggest participants are attending to motion within the conversational context as relevant to the conceptual semantics of the question, even in the absence of overtly accessible iconicity.

References

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