When a stone tries to climb up a slope: The influence of perceived and linguistically induced animacy on reference

Jorrig Vogels, Emiel Krahmer, & Alfons Maes (Tilburg University)

j.vogels@uvt.nl

Perceptual animacy; Linguistic animacy; Reference; Story retelling; Dutch

Animacy has strong influences on language production. People are more likely to talk about animate entities than about inanimate entities, and animacy has been found to affect a range of grammatical phenomena, such as passivization, the dative alternation, and case marking. Furthermore, there is evidence that animacy affects the choice of referring expressions: Animate beings are more often referred to with pronouns (Dahl & Fraurud, 1996; Fukumura & Van Gompel, 2010). Animacy may be so pervasive in language because beings that, like ourselves, can act upon their environment, and have goals, intentions and mental states, are much more important to us than lifeless objects. Most linguistic studies on animacy treat these properties only implicitly, presupposing an animate entity for an animate lexical item (e.g. 'scout'), and an inanimate entity for an inanimate lexical item (e.g. 'stone'). However, we sometimes perceive inanimate entities as animate (and perhaps also the other way around). According to the perception literature, purely visual information, such as movements of simple geometric objects (e.g. a sudden change in speed), can induce a strong and immediate percept of animacy (e.g. Scholl & Tremoulet, 2000).

In the present study, we raise the question whether an entity's perceived animacy influences the way people refer to it, or whether reference is only affected by the animacy associated with lexical items. In a pilot study, we presented 12 Dutch-speaking participants with 20 animations of geometric objects. The movements of one target figure in each animation were manipulated such that they gave rise to either an animate percept (self-propelled movement; e.g. climbing up a slope) or an inanimate percept (movement caused by an external (invisible) force such as gravity; e.g. rolling down a slope). To make repeated reference possible, each animation consisted of an intransitive action of the target figure, followed by a transitive action (interaction with competitor figures) and another intransitive action. To control for agency, the target figure could be either the agent or the patient in the transitive action, which was crossed with the perceptual animacy of the intransitive actions. Each target figure was given a linguistic label, either animate (e.g. 'scout') or inanimate (e.g. 'stone'). The participants' task was to retell the animations, using the given labels for the target figure. We investigated whether the target figure was made the subject of the transitive action, and whether the target figure was referred to using attenuated expressions (pronouns and zeros) in the final intransitive action. We analyzed the data using logit mixed models.

The results suggest that linguistically induced animacy affects both grammatical function and referring expression production: There were more subject references when the label was animate (74%), than when it was inanimate (44%), $\beta = 1.45$, $p < .001$. In addition, there were more pronoun references when the label was animate (88%), than when it was inanimate (67%), $\beta = 1.63$, $p < .01$. Perceptual animacy did not have a significant effect on either grammatical function or pronoun use. However, we found effects of perceptual agency: There were more subject references to agentive figures (82% vs. 40%, $\beta = 2.54$, $p < .001$). For pronoun use, there was a significant interaction with linguistic animacy ($\beta = 2.30$, $p < .05$), the effect of linguistic animacy being larger for agents than for patients. These findings provide evidence that linguistically induced animacy is more important in reference than an entity's perceived animacy. However, effects of perceptual animacy may be more subtle and might have been masked by perceptual agency. In a follow-up study, we pretested the materials for perceived animacy and adjusted some animations to be more clearly animate or inanimate. In addition, we only had target figures that were agentive in the transitive event. Results will be presented at the conference.

References

Dahl, Ö., & Fraurud, K. (1996). Animacy in Grammar and Discourse. In T. Fretheim & J. Gundel (Eds.), *Reference and Referent Accessibility (pp. 47-64). Amsterdam: John Benjamins.*

Fukumura, K., & van Gompel, R. P. G. (2010). The effect of animacy on the choice of referring expression. *Language and Cognitive Processes, 1-33.*

Scholl, B. J., & Tremoulet, P. D. (2000). Perceptual causality and animacy. *Trends in Cognitive Sciences, 4(8), 299-309.*