Overview

What we know: Semantic systems vary across languages, but may be constrained by structure in the world.

Previous research: Malt et al. (2008) asked speakers of English, Spanish, Japanese, and Belgian Dutch to name video clips of an individual locomoting on a treadmill. Across all four languages, naming patterns respected the distinction between walking and running, suggesting a universal semantic constraint based on a biomechanical discontinuity.

Our contribution: We replicate Malt et al.’s findings using a more complex, naturalistic stimulus set and show that they generalize to additional languages (Mandarin and Korean) and dialects (Netherlands Dutch), with a notable caveat: in at least one case, naming crosscuts the proposed “universal” boundary.

Previous research

Malt et al. found cross-language commonalities in the naming of locomotion, presumably reflecting the biomechanical discontinuity between walking and running:

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Prediction: “...we predict that few languages crosscut the biomechanical distinction, by, for instance, having a verb grouping fast walks with slow runs and segregating those from slower walks and faster runs.” (p. 238)

Locomotion in the wild

Does the clear-cut distinction observed by Malt et al. for highly controlled stimuli generalize to more complex, natural stimuli?

Locomotion language in the wild:
Biomechanical constraints and caveats

Alexandra Carstensen, Kevin J. Holmes, Aagje van der Meer, and Terry Regier

Department of Psychology, Department of Linguistics, Cognitive Science Program, University of California, Berkeley

Abstract

We tested four languages, naming patterns respected the general pattern. Our study

Method: From a set of 7740 natural movie clips (Nishimoto et al., 2011), we identified 616 clips containing clear examples of human locomotion. Native speakers of English, Spanish, Japanese, Mandarin, Korean, and Belgian and Netherlands Dutch (n = 3 consultants per language) selected a name for each clip from their language’s set of basic-level locomotion terms (taken from Malt et al. or identified in pilot work).

Results: Broadly, we replicated Malt et al.’s findings for the languages they examined, and found additionally that naming in Mandarin, Korean, and Netherlands Dutch converged with the general pattern.

Figure details:

- Clips are sorted by the relatively fine-grained Dutch categories (Belgian and Netherlands Dutch combined) to form a rough walk-run continuum.
- We excluded clips to which walking and running verbs were assigned by different speakers of the same language (13% of clips). Requiring unanimous within-language agreement provides a strong test of cross-language differences.

Summary of results: All six languages shift from walking to running at roughly the same point (see dotted region), with no verbs clearly straddling the walk-run boundary.

Case study: Dutch open

Despite the overall consistency across languages, we noticed that, contrary to prediction, Dutch appears to mark an intermediate speed in disputed cases (defined as clips that were classified as walking by one language and running by another; 14% of clips). In disputed cases, Dutch open (otherwise a walking verb) crosscuts the walk-run boundary—an exception to the proposed universal pattern:

Conclusions

The walk-run distinction observed by Malt et al. generalizes to more complex, natural locomotion events and additional languages, consistent with a universal semantic constraint based on a biomechanical discontinuity.

However, we identify a case in which naming patterns crosscut the walk-run boundary, suggesting that this discontinuity reflects a soft, rather than hard, constraint on the naming of locomotion across languages.

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Selected references


Contact

abc@berkeley.edu
amwcvandermeer@berkeley.edu