Universals and variation in spatial language and cognition: Evidence from Chichewa

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Overview

Question: Does language shape spatial cognition?

Existing evidence: Mixed—some studies find that spatial cognition varies in line with native language; others find that it does not.

Proposal: Spatial cognition has universal tendencies that are modulated somewhat by language.

Our contribution: We support this proposal with evidence from Chichewa, a Bantu language of southeast Africa.

Language and thought

Speakers of different languages talk about the world differently, but do they think about it differently?

There are two major views on this question...

Univeralist: Speakers share a universal conceptual repertoire. Relativist: Speakers of different languages think about the world differently.

...how can we discriminate between them?

Background

What we know

Prior work | Khetarpal et al. compared linguistic (naming) and nonlinguistic (sorting) spatial categorization in speakers of English and Dutch.

Results | They found that sorting was similar across languages, but nonetheless varied in line with the sorter’s native language.

Implications | There are universal tendencies of spatial cognition, which are modulated by language.

What we don’t know

Cultural confound? Are these commonalities indicative of universal tendencies in spatial cognition or perhaps a byproduct of shared culture between speakers of English and Dutch?

Our study | To answer this question, we conducted an analogous study with speakers of Chichewa.

Methods

Speakers of Chichewa, English, and Dutch:
• Sorted spatial scenes by similarity
• Named spatial scenes in their native language

Edit distance

Both naming and sorting partition the scenes into groups; to compare language and thought we need to measure the (dis)similarity of two partitions.

Edit distance is such a measure.

Speaking vs. thinking

For each sort, we measured:
• edit distance (ED) to the Chichewa spatial system
• edit distance to the English spatial system

Difference score: ED(Chichewa) - ED(English)

Selected references


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