Language restructuring cognition: The case for space

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Frames of Reference

"coordinate systems used to compute and specify the location of objects with respect to other objects"

Long thought of as an integral part of human neurology, this study seeks to show linguistic and cultural influences on frames of reference

Specifically, it seeks to show that there are several possible FoRs a person may use, but that language and culture determine which of these a person tends to use.

3 Proposed Frames of Reference

Relative
In the relative FoR, the viewer's perspective is used, giving rise to terms such as "right"

Absolute
In the absolute FoR, an external framework is applied. Terms like North are used here.

Intrinsic
In the Intrinsic FoR, spatial references are made without respect to the viewer or any external system.

Relative: The fork is left of the spoon
Absolute: The fork is north of the spoon
Intrinsic: The fork is at the nose of the spoon
Experiments

3 experiments, comparing Dutch speakers to Tzeltal speakers

“Chips task”

“Eric’s Maze”

“Transitive Inference Test”

The Chips Test

Results

The Dutch seemed to overwhelmingly select the Relative option.

The Tzeltal showed more variance.

Overall the Tzeltal had a strongly absolute showing

Interpretation

Dutch speakers use the Relative FoR.

Tzeltal speakers use both the Relative and Absolute systems, but use the Absolute system more often
Conclusions

“The work reviewed here suggests that linguistic diversity aligns with cognitive diversity, as shown in people’s language-independent solutions to spatial tasks”

This is what the authors had to say, and it seems to support strong Whorfian claims

But...

...as we discussed in class, the delay between the input and output could be a confounding variable in this study. Since the participants have to remember what was present in order to replicate it, it could just be that they use words to remember the relationship, and not that the words actually affected how they perceived it initially