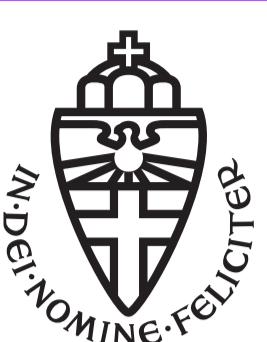


# Spatial metaphors in antonym pairs across sign languages

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## Introduction

*Do spatial metaphors reflect valence across sign languages?*

↑ UP is GOOD  
↓ DOWN is BAD

### Dataset

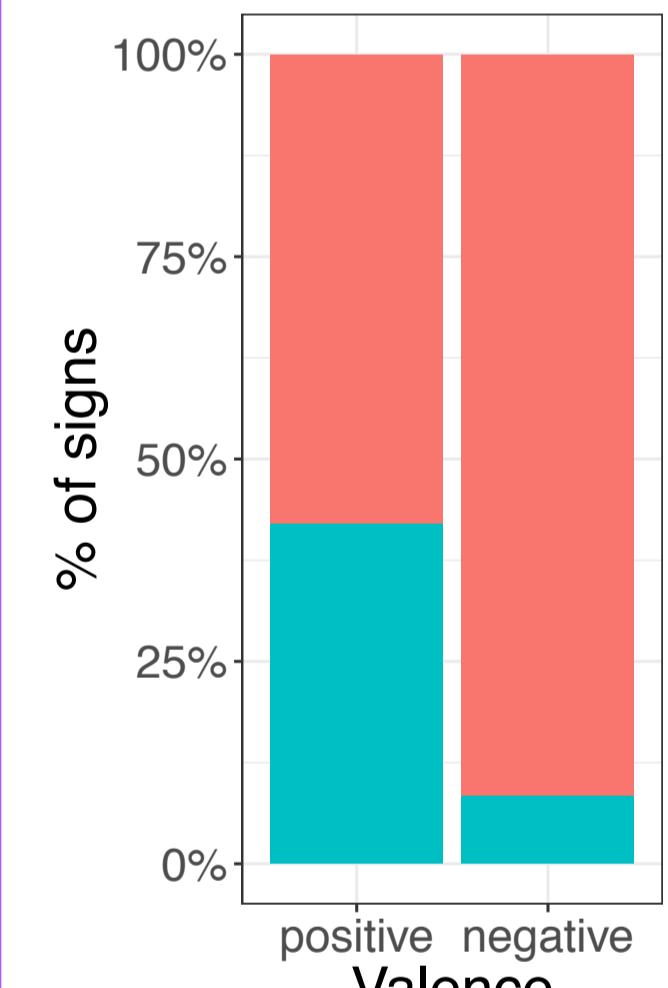
Spread the Sign:

- 27 sign languages
- 779 signs (antonyms)
- + = 426
- = 353

## Vertical

Positive valence → upwards movement

$$\chi^2(1) = 43.053$$



Direction

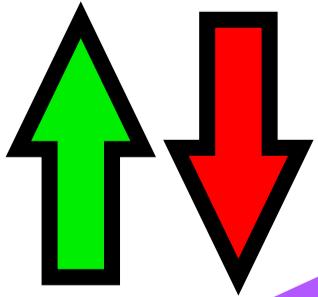
down

up

positive negative

Valence

Our results show that spatial metaphors reflect positive vs. negative valence in property sign antonym pairs across sign languages



UP is GOOD



**GOOD**  
good, happy, alive, ...

## Vertical & sagittal movement reflects valence in antonyms

**BAD**  
bad, sad, dead, ...

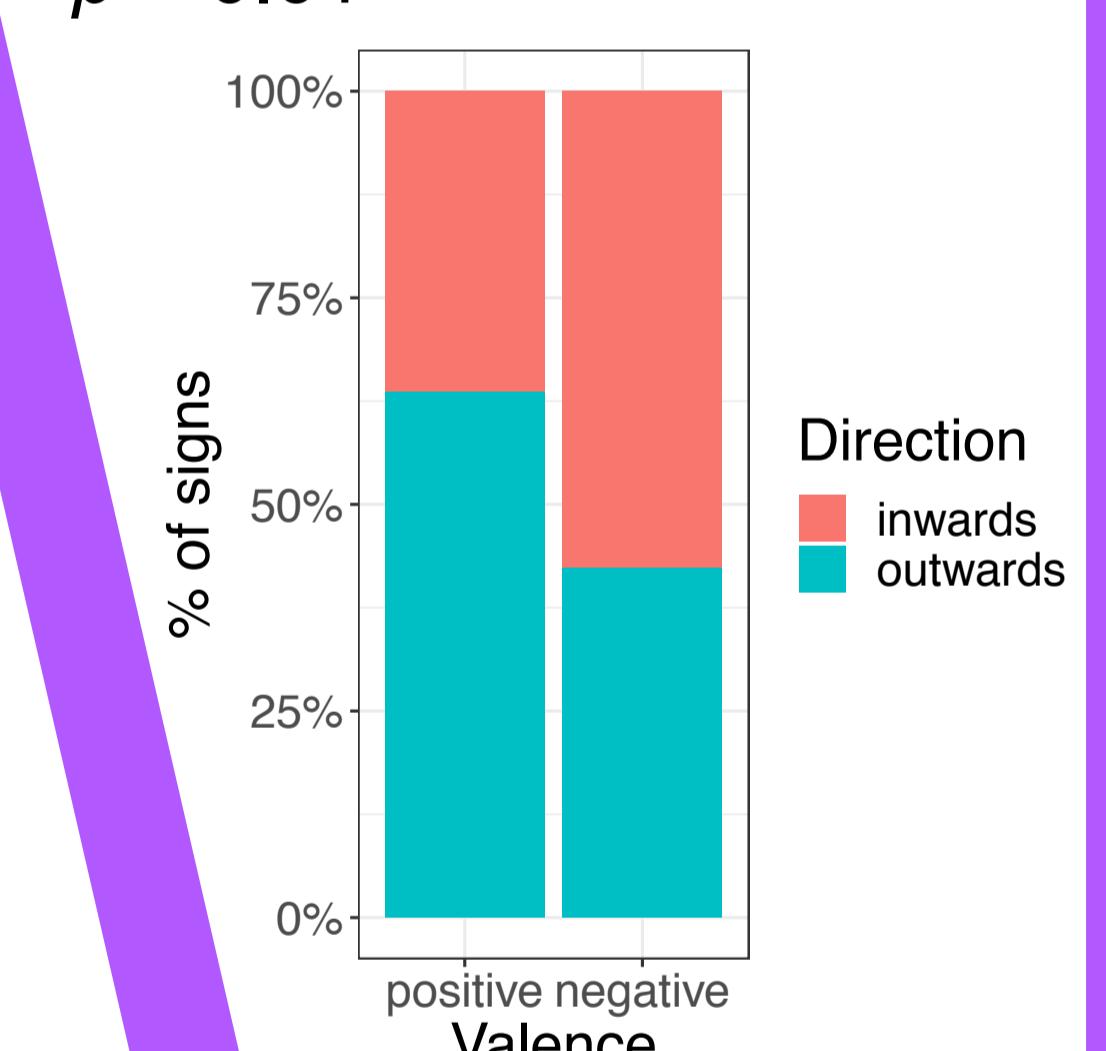


## Sagittal

Positive valence → outwards movement

$$\chi^2(1) = 8.9434$$

p < 0.01



Direction

inwards

outwards

## Summary

**Upwards and outwards movement is more often associated with positive valence**

OpenPose analysis shows correlations between manual sign height, valence and time

Valence:  $\beta = 3.0257$ ;  $t(33706.9428) = 6.475^{***}$ ,  
Time:  $\beta = -18.8648$ ;  $t(33697.6658) = -16.484^{***}$

OUT is GOOD