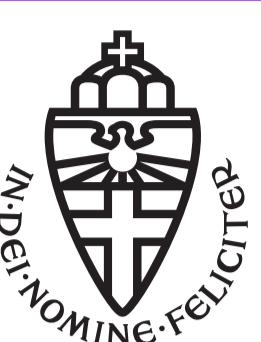


Spatial metaphors in antonym pairs across sign languages

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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

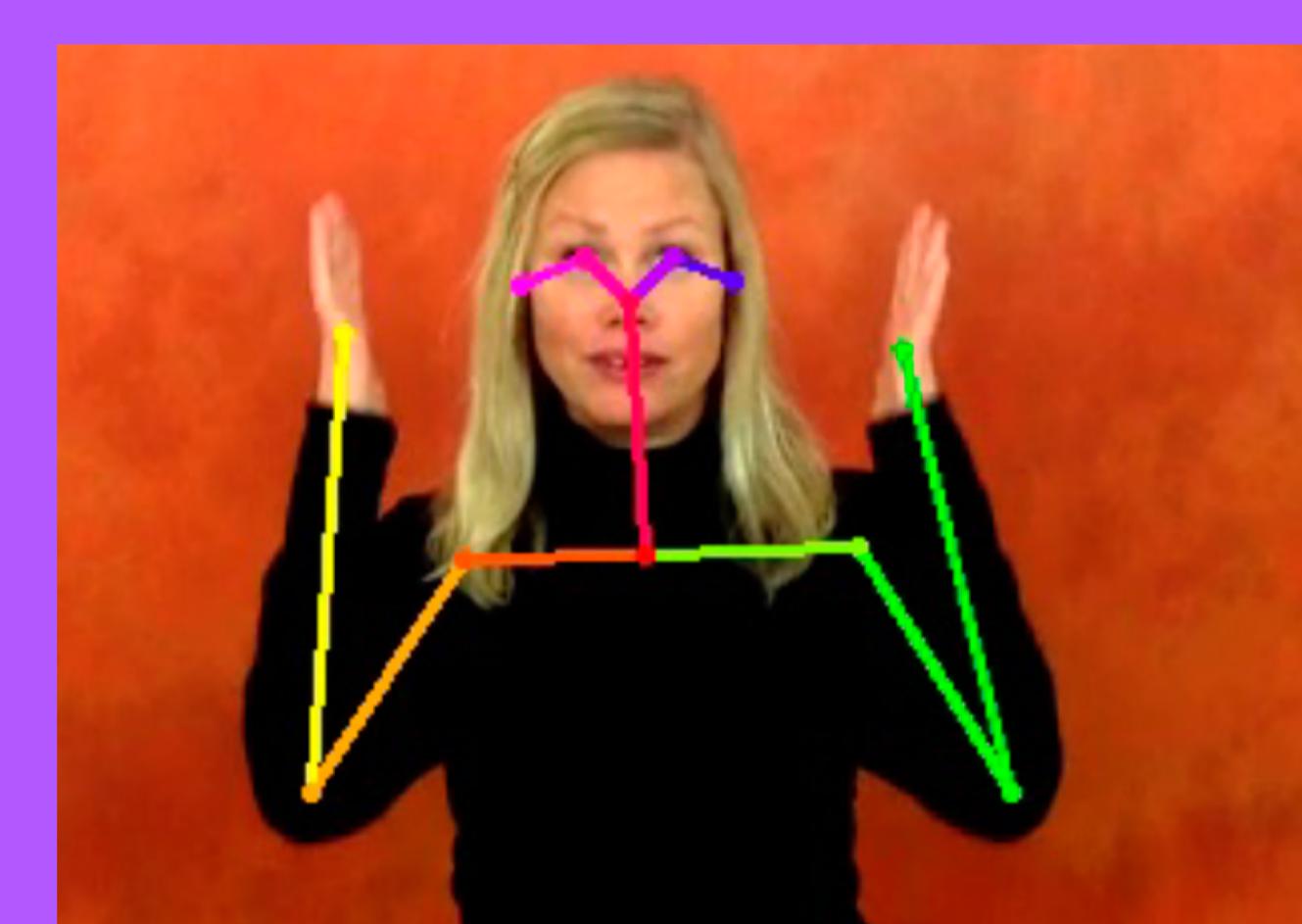


GOOD
good, happy, alive, ...

Methodology

OpenPose

- Automatic sign height
- Height per sign frame



Manual coding

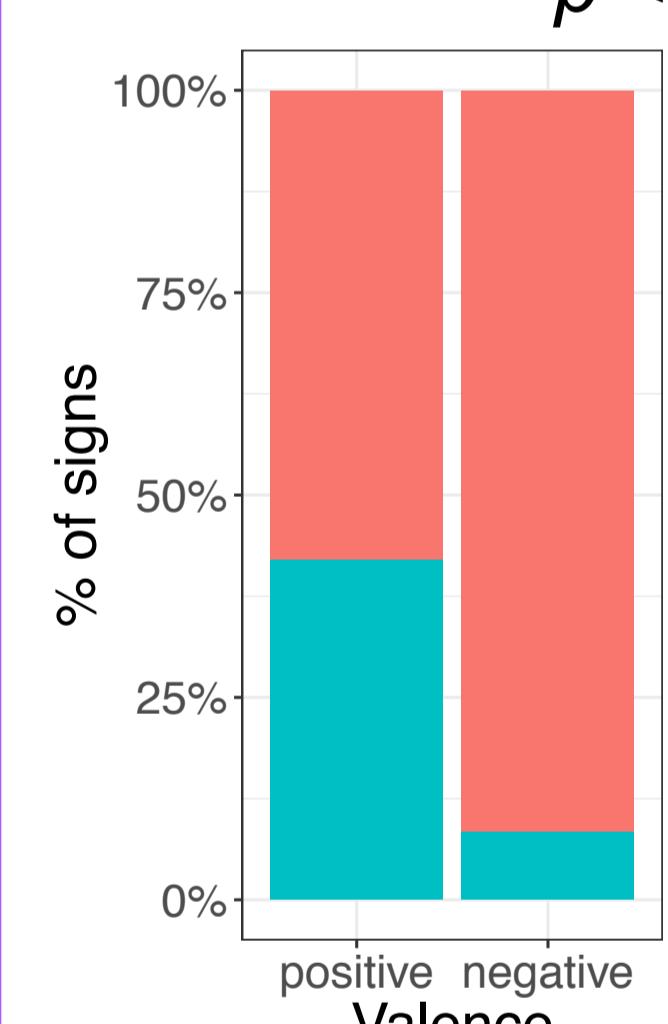
- Coding movements:
y: up ~ down
z: in ~ out

Vertical

Positive valence → upwards movement

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

$p < 0.0001$



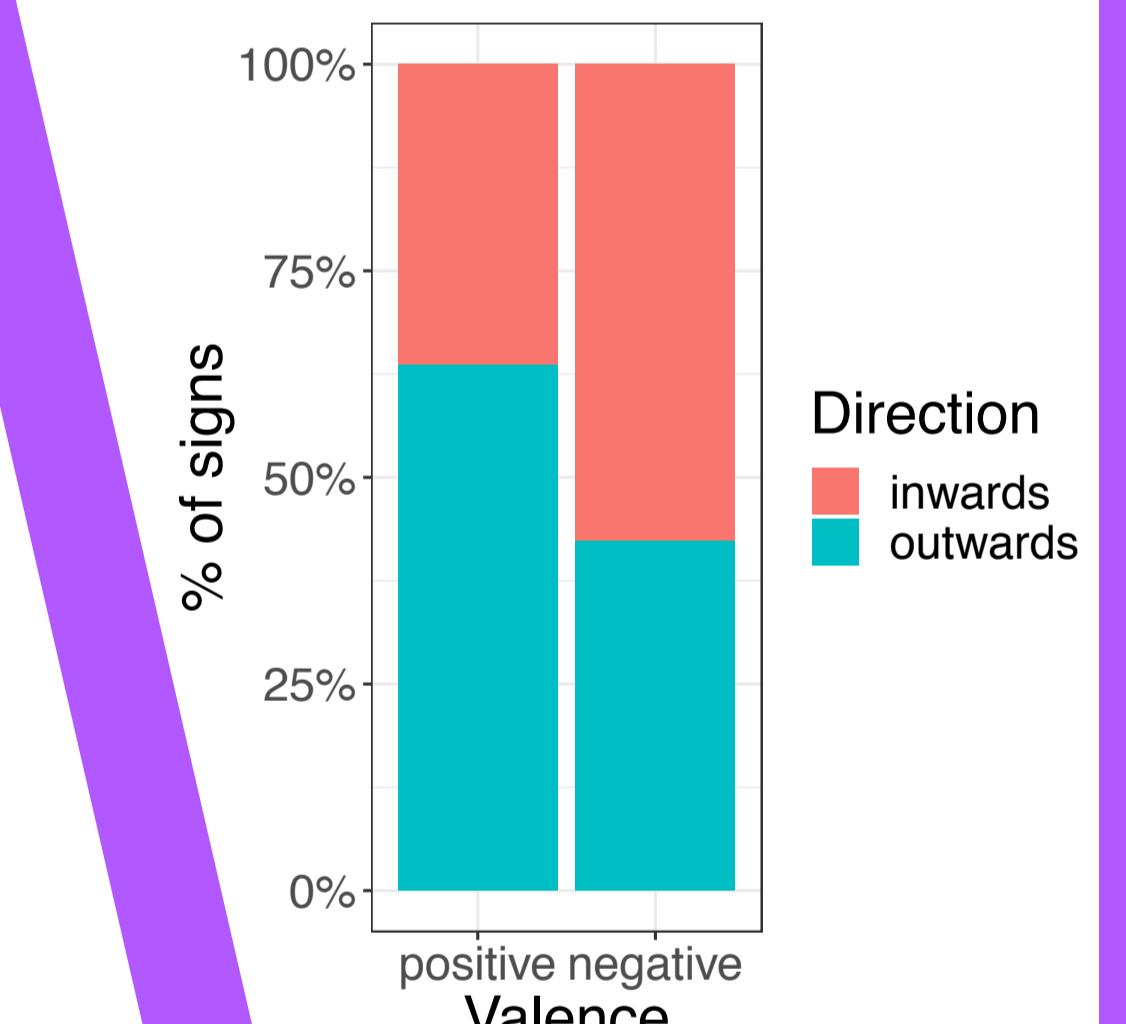
Vertical & sagittal movement reflects valence in antonyms

BAD
bad, sad, dead, ...

Sagittal
Positive valence → outwards movement

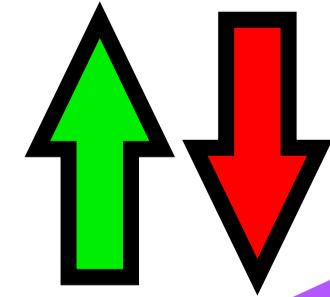
$$\chi^2(1) = 8.9434$$

$p < 0.01$



Summary

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



UP is GOOD

Upwards and outwards movement is more often associated with positive valence

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

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

OUT is GOOD