

# Metaphorical height contrasts across sign languages and in cross-signing

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***"Is space used to convey valence across sign languages?"***

## Data & Methodology

### Dataset 1

786 property signs (positive vs. negative)  
27 sign languages<sup>1</sup>

### Dataset 2

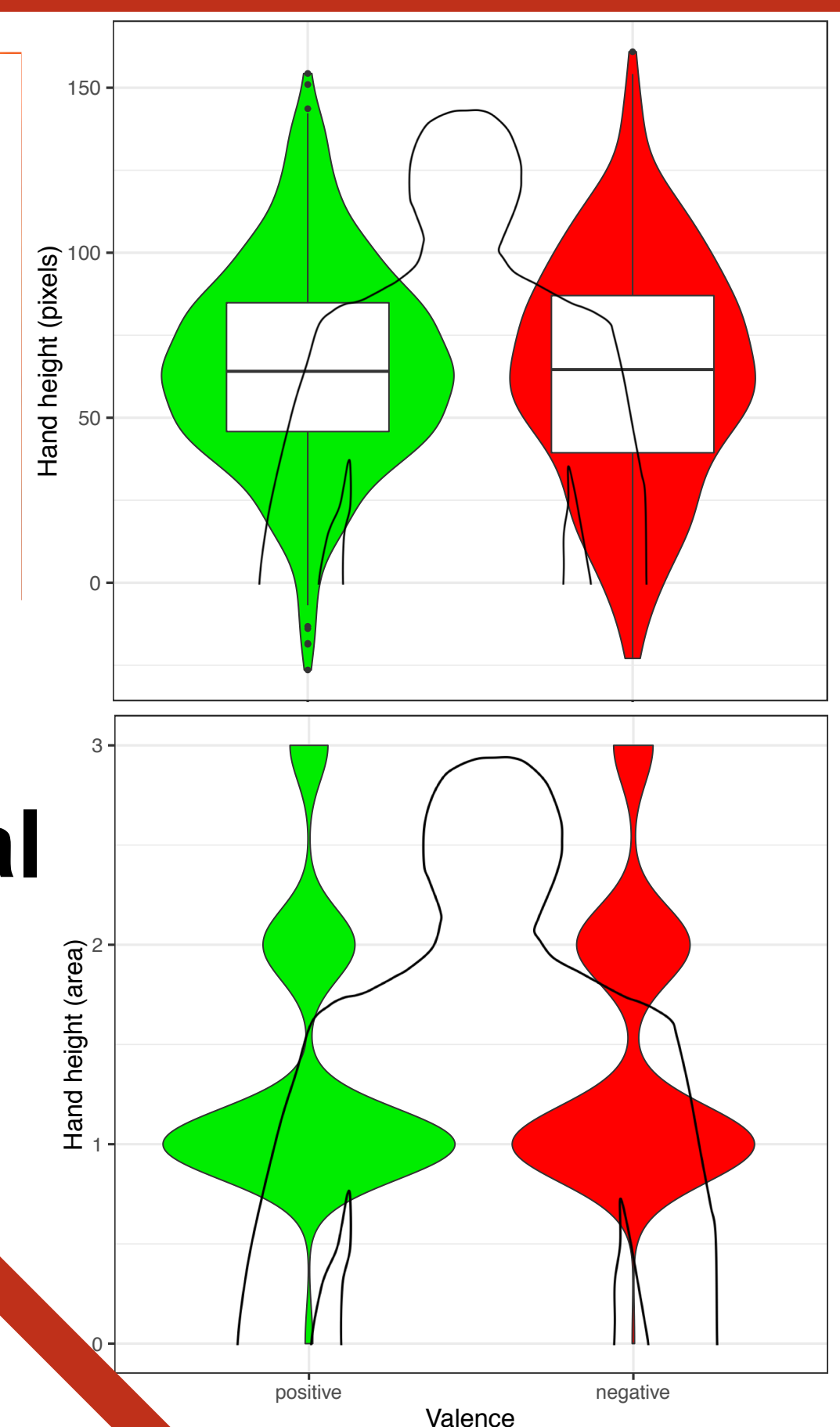
15 mins of cross-signing  
(NGT ~ Chinese SL)

### Analyses

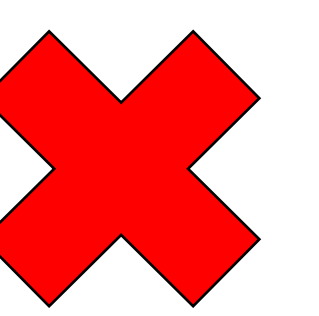
Manual/automated<sup>2</sup>  
sign height and  
movement  
directions +  
stats and  
plots<sup>3</sup>

Static sign height is *not* relevant

Auto



Manual



**POSITIVE**

*good, happy, alive, ...*

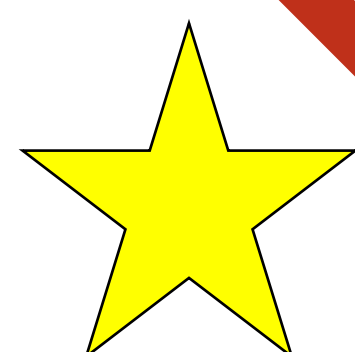
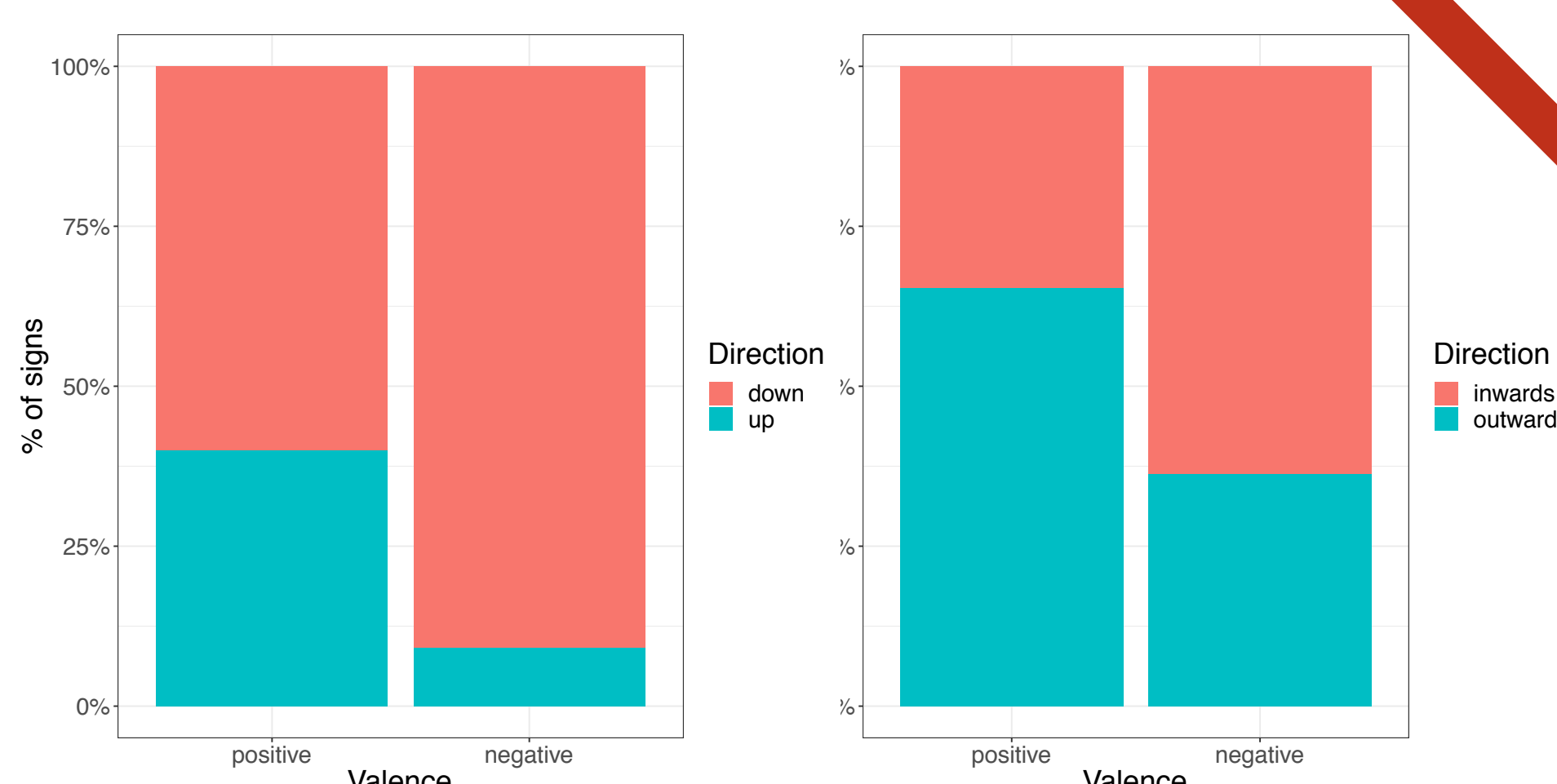
**Vertical movements  
(upward/downward)  
are associated with  
valence in antonyms  
across languages**

**NEGATIVE**

*bad, sad, dead, ...*

In the language sample, movement in signing space is associated with valence (pos vs. neg):

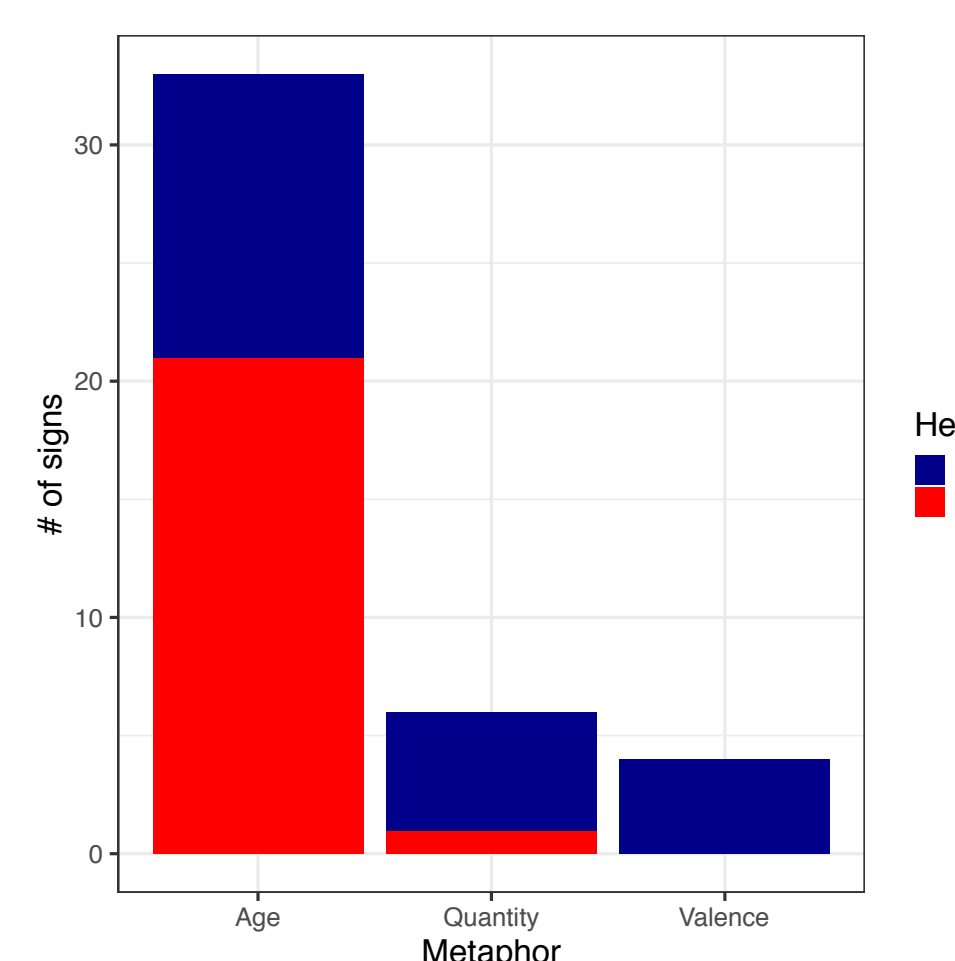
- **Upwards = positive<sup>4,5</sup>**
- **Outwards = positive!**



In cross-signing, height is used for metaphorical contrasts such as:

- **Age**
- **Quantity**
- **Valence**

**Supports the idea of spatial metaphors in language!**



**Directional movements *are* relevant**

**Vertical contrasts in cross-signing**

1. European Sign Language Center. 2012. Spread the Sign. <http://www.spreadthesign.com> (3 September, 2015).  
2. Cao, Zhe, Gines Hidalgo, Tomas Simon, Shih-En Wei & Yaser Sheikh. 2018. OpenPose: realtime multi-person 2D pose estimation using Part Affinity Fields. arXiv preprint arXiv:1812.08008.  
3. R Core Team. 2017. R: A Language and Environment for Statistical Computing. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.  
4. Woodin, Greg & Bodo Winter. 2018. Placing Abstract Concepts in Space: Quantity, Time and Emotional Valence. *Frontiers in Psychology* 9, 2169. doi:10.3389/fpsyg.2018.02169.  
5. Yap, Defu F., Laura Staum Casasanto, & Daniel Casasanto. 2014. Metaphoric iconicity in signed and spoken languages. In Paul Bello, Marcello Guarini, Marjorie McShane & Brian Scassellati (eds.), *Proceedings of the 36th Annual Conference of the Cognitive Science Society, 1808–1813*, Austin, TX: Cognitive Science Society.

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