

Two-handedness in Gesture and Sign

Comparing the silent gestures of hearing non-signers with the signs of sign language

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Introduction

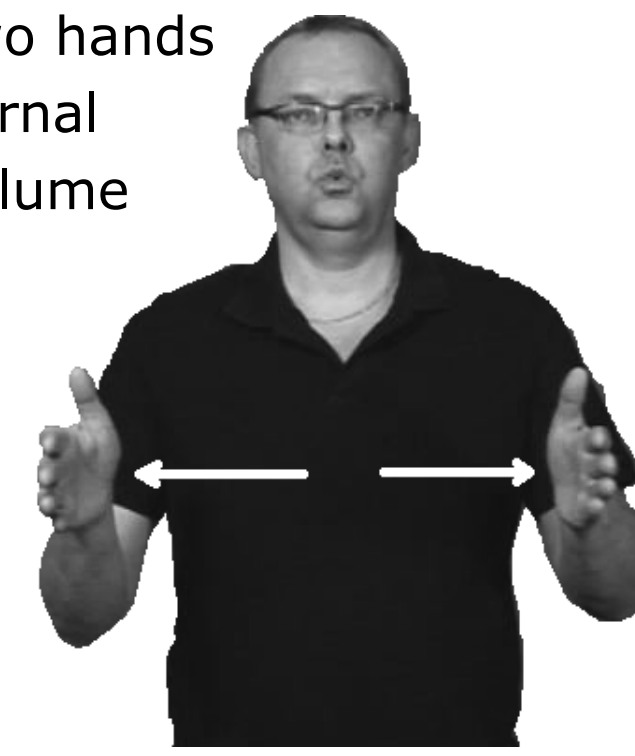
Two-handed signs are not randomly distributed across sign languages (SLs), but are triggered by certain semantic features, such as plurality and spatial extent of participants or components.^[1]



SSL CHASE

In SSL CHASE, the two hands represent the two participants of the action^[2]

In SSL BIG, the two hands represent the external boundaries of a volume



SSL BIG

Methodology

ECHO Swadesh list for SLs^[3] as our target list of concepts.

Gesture data:

11 native speakers of English were individually videotaped as they described the concepts using silent gestures.

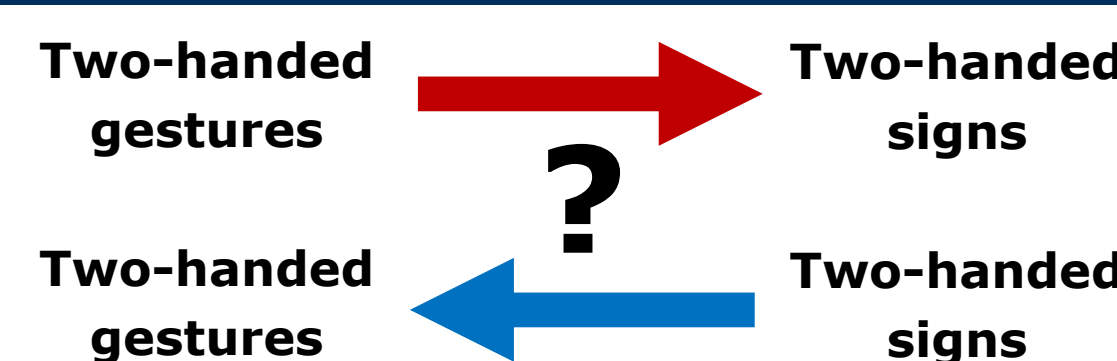
Sign language data:

Data from three SLs— American SL; Israeli SL Swedish SL— by consulting native signers and dictionaries.

Are the silent gestures of hearing non-signers two-handed for the same concepts as in sign language?

1. Can two-handed gestures predict two-handed signs in sign language?

2. Can two-handed signs in sign language predict two-handed gestures?

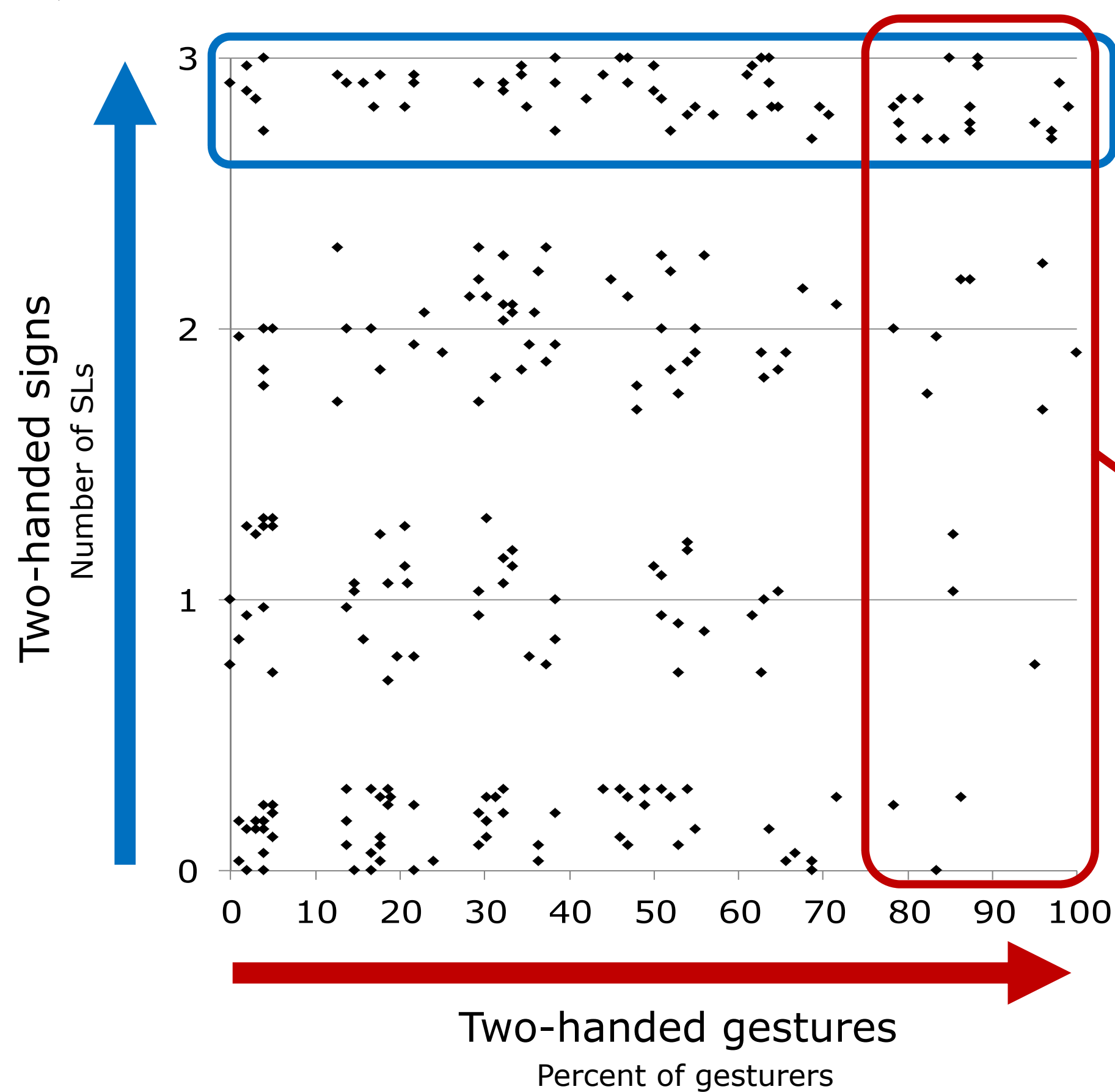


Results

The silent gestures of hearing non-signers are not necessarily two-handed for the same concepts that trigger two-handed signs in our SLs.

The figure below plots all concepts in our target list.

◆ = one concept (245 total)

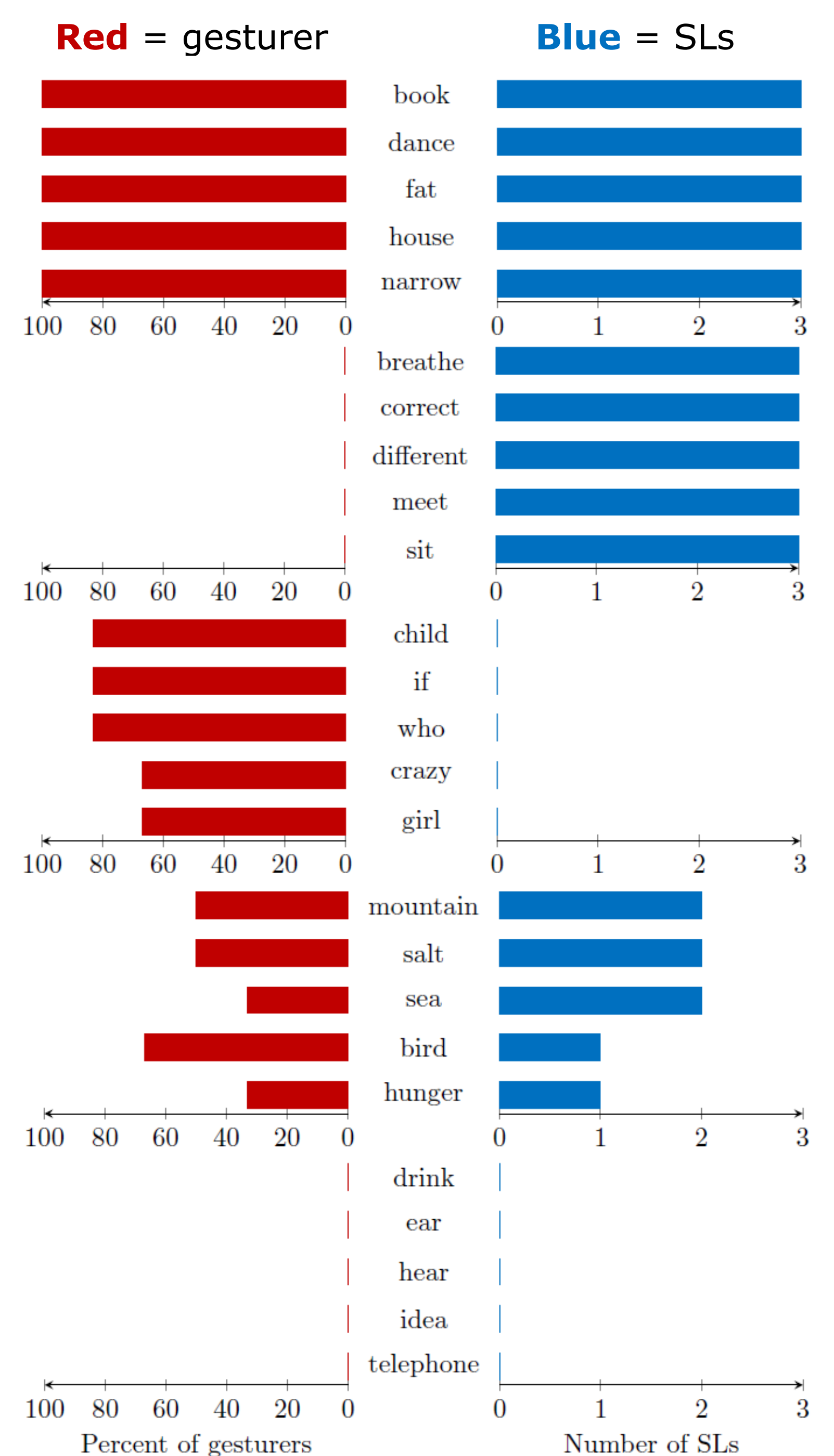


Concepts that are expressed with two-handed signs are **not** necessarily described by two-handed gestures

Concepts frequently described with a two-handed gesture are usually associated with a two-handed sign in multiple SLs

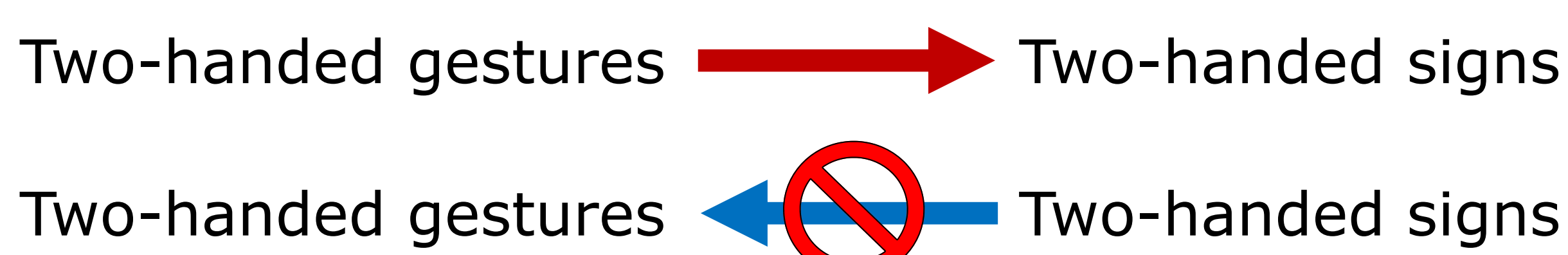
Which concepts?

The figures below show a sample of concepts and how often they were described by a two-handed gesture/sign.



We see a unidirectional pattern

1. When a concept is frequently described with a two-handed gesture, it is likely that it is also two-handed in multiple SLs.
2. When a concept is denoted by a two-handed sign in multiple SLs, it could be described with one- or two-handed gestures.



Conclusion

The motivations for having a two-handed gesture are a subset of the motivations for having a two-handed sign.

The semantic features associated with two-handed signs are not shared across gesture and sign, but are shared across SLs. Sign and gesture use the two hands iconically, but sign languages do so in a structured way

References

- [1] Lopic, Ryan, Gal Belsitzman, Carl Börstell & Wendy Sandler. 2013. Motivation in two-handed signs: A cross-linguistic investigation of word forms. Poster presented at Theoretical Issues in Sign Language Linguistics 11 (TISL11), UCL, London, UK.
 [2] Björkstrand, Thomas. 2008. Swedish Sign Language Dictionary online. Stockholm: Sign Language Section, Department of Linguistics, Stockholm University. (Sign examples).
 [3] Woll, Bencie, Onno Crasborn, Ets van der Kooij, Johanna Mesch & Brita Bergman. 2010. Extended Swadesh list for signed languages. <http://www.let.ru.nl/sign-lang/echo/>.

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