GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN IN PUBLICA COMMODA SEIT 1737

PA12
Transparency and context-sensitivity

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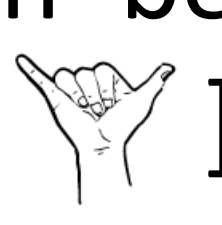**Form-meaning mismatches**

PA12.2 – Classifier constructions in sign languages

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I.   The form-meaning mismatch

- Sign languages (SLs) are generally agreed to have higher iconic potential for spatial representation than spoken languages [1][2].
- In classifier predicates, 1:many form-meaning mismatches emerge along different phonological dimensions:
  - **Handshapes** are organized largely based on semantic categories and visual features of entities, resulting in a single semantically underspecified form that can be mapped onto multiple entities (e.g., y-hand [🤙] represents both 'human' and 'bee' in HKSL)
  - **Locations and path movements** in the sign space are iconically mapped onto the real space to depict location and movement of entities, resulting in linguistically unspecified mappings. This gives rise to multiple possible interpretations that are highly context- and perspective-dependent [4][5].

> *Research questions*
> i.   How are semantic classifiers organised in two unrelated sign languages, German and Hong Kong Sign Language (DGS and HKSL), and how do they compare with gestures used by non-signers?
> ii. What are the strategies used by signers to encode spatial meanings; and which of those are grammatical or gestural?

II.   Methodology (M) and hypotheses (H)

Step 1: Inventory and conventionalisation of classifiers

M: A picture elicitation task for stative predicates (BE$_{LOC}$) and an acceptability judgement task

H: If classifiers are linguistic categorical components, signers will use a set of handshapes that are grammati-calised (to a varying degree) within the language and show more consistency and less variation than gesturers.

Step 2: Strategies for expressing spatial meanings

M: A story re-telling task involving motion narratives

H: If the strategies are more than mere gestural depictions, signers will make use of iconic demonstrations in a systematic way – both syntactically and semantically – adhering to certain phonological constraints.

III.   Expected results and discussion

- Classifiers systematically represent visuo-geometric properties of real-world entities and differ greatly from gestures produced by non-signers. Signers display higher phonological complexity in classifiers than gesturer [6].
- DGS may exhibit a more grammaticalised and established classifier inventory than HKSL due to its longer historical development.
- To encode changes in manner of location, different depicting strategies are used by HKSL signers as in (1).

(1)   (HKSL)

[FOX]   STRETCH   RS:*stretch_forearms*   CL(modified-🖐 *animate_bend_hindlegs*
'A fox is stretching with its forearms extended and hindlegs bent.'

- Other dimensions of spatial information in motion events, such as changes in path, manner, or speed, can also be gradiently modified.
- The demonstrational theory [7] may be a promising way to capture how gestural meaning components are integrated into the linguistic structure of the visual modality.

IV.   Consequences and follow-up questions

- SLs use the sign space to represent real world spatial relations of entities by systematic modifications of phonological features (handshape, location, movement).
- Interestingly, SLs develop different language-specific surface realizations for the realization of specific concepts. Such differences are especially attested for handshapes used to represent different entities but may also affect movement and location features.
- This may give rise to different surface realizations of the same concept and similar surface realizations of different concepts. The project will provide a systematic documentation of similarities and differences in the expression of spatial relations of objects in HKSL and DGS.
- The project of cohort 3 will examine how cross-lingual sharing in different spoken languages affects the computational representation of concepts that have similar surface realizations in two languages but differ in semantic interpretation; often known as "false friends" (a cross-linguistic 1:many form-meaning mismatch).
- The project will explore the learning dynamics for a chosen set of target words by using multilingual models map multiple languages into the same vector space.

References
[1] Meir, Irit, Carol Padden, Mark Aronoff & Wendy Sandler. 2013. Competing iconicities in the structure of languages. Cognitive Linguistics. De Gruyter Mouton 24(2). 309–343. [2] Perniss, P., Thompson, R. L., & Vigliocco, G. (2010). Iconicity as a General Property of Language: Evidence from Spoken and Signed Languages. *Frontiers in Psychology*, 1(227). [3] Aronoff, M., Meir, I., & Sandler, W. (2005). The Paradox of Sign Language Morphology. *Language*, 81(2), 301–344. [4] Goldin-Meadow, S., & Brentari, D. (2017). Gesture, sign, and language: The coming of age of sign language and gesture studies. *Behavioral and brain sciences*, 40, e46. DOI: 10.1017/S0140525X15001247. [5] Schembri, A., Jones, C. & Burnham, D. (2005). Comparing action gestures and classifier verbs of motion: Evidence from Australian Sign Language, Taiwan Sign Language, and nonsigners' gestures without speech. *Journal of Deaf Studies and Deaf Education*, 10(3), 272-290. [6] Brentari, D., Coppola, M., Mazzoni, L., & Goldin-Meadow, S. (2012). When does a system become phonological? Handshape production in gesturers, signers, and homesigners. *Natural Language & Linguistic Theory*, 30(1), 1–31. [7] Davidson, K. (2015). Quotation, demonstration, and iconicity. *Linguistics and Philosophy*, 38(6), 477–520.