Background

• Articulatory effort influences linguistic forms (Napoli et al. 2014, Ann 2006).

In sign languages:

• Undershoot (Mauk 2003)
• Weak Drop (Padden & Perlmutter 1987, van der Kooij et al. 2001)
• Historical lowering (Frishberg 1975), etc.
• Signs higher in the signing space require more articulatory effort than in the neutral space.
• Yet many signs are produced in the non-neutral signing space. Why is that?
• We consider two possible non-competing explanations: body-analyzing and iconic anchoring.

Body anchoring

Signs specified for location with a body contact are body-analyzed:

• Body-analyzed signs are biomechanical endpoints: a type of biomechanical quantal region (Moisik & Gick 2017).
• Easy articulatory targets
• Robust to muscle activation overshoot
• As such, they are resistant to:
  • coarticulation (Russell et al. 2011; Mauk et al., 2008; Ormel et al., 2012);
  • historical change, e.g., lowering (Frishberg 1975);
  • LAI errors (Marentette & Mayberry 2000)

Iconic anchoring

We propose an additional type of anchoring, which we call "iconic anchoring."

We suggest that signs specified for location because these locations contribute to the signs’ meaning are iconically anchored:

ASL sign EAT is iconically anchored to its location (mouth), as this is where eating happens

Some body locations are more prominent than others, in certain semantic domains (Börstell & Östling 2017; Östling et al. 2018).

Note: These two types of anchoring are NOT mutually exclusive; signs can be double-analyzed, i.e., both body- and iconically anchored.

Research question

• To what extent can body- and iconic-analyzing account for the existence of signs not in the neutral space?

Method

• Data from ASL-Lex (Caselli et al., 2017); included n = 691 signs
• Exclusion criteria: clipped videos, compounds, “unusual” values for their primary parameters
• ASL-Lex includes iconicity ranking (1-7)
• We added:
  • body-contact coding
  • iconicity coding for location, handshape, & movement (binary)
• checked with the historical and etymological dictionary of ASL (Shaw & Delaporte 2014), whenever possible

Results

• 45% of signs (287/691) produced in non-neutral signing space
• Of these 287 signs, 173 (60%) are body-anchored and 239 (83%) iconically anchored:

Discussion

• While there may be a perceptual motivation as well, body- and iconic-analyzing can account for the majority of signs produced in the non-neutral signing space.
• Iconic anchoring in isolation is in fact more common than body anchoring in isolation, but the two also tend to co-occur.
• When they co-occur, the existence of body-anchoring may allow for a decrease in overall iconicity.

Future directions

• Replicate the study with a larger dataset and on other sign languages.
• Are there other articulatory differences between body- and iconically anchored signs beyond a body contact?
• Are body- and double-analyzed signs more resistant to change than iconically anchored signs? Or can other forms of reduction be employed? (e.g., ASL HORSE became one-handed even through horses have two ears)

References / Bibliography


ASL: HORSE


Bibliography

• Nota: ‘Double-analyzed signs’ are a type of biomechanical quantal region (Moisik & Gick 2017). They are easy to articulate and robust to muscle activation overshoot.

• As such, double-analyzed signs are resistant to:
  • coarticulation (Russell et al. 2011; Mauk et al., 2008; Ormel et al., 2012);
  • historical change, e.g., lowering (Frishberg 1975);
  • LAI errors (Marentette & Mayberry 2000)

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