

Purposeful vs. Transitional movements:

Intentional actions vs. Transitional preparations for subsequent action.

- Manual languages have large, overt articulators compared to spoken lang.
- Transitions** between signs are overt; transitions take place in the same visual signal and cannot be hidden (5).



ASL:
THIS (transition) TIME

How are transitions incorporated in sign language comprehension?

- Previous studies show signers can utilize transition info to predict (1; 3; 4).

Research Questions

- Does sign language experience impact the utility of transitions in body motion perception?
- Which phonological features facilitate this process?
- Are these effects limited to linguistic stimuli?

Methods

- Task**
 - See picture of target
 - Watch video of Grooming Gestures or Pseudosigns, strings of 8
 - Press a button to the target
 - TAMI-h, hand motor imagery (2)

	N	N female	Age Mean (SD)	Sign Exposure
Signers	21	13	35.5 (9.8)	Before age 6
Nonsigners	21	12	29.0 (11.2)	Minimal

Stimuli by Type

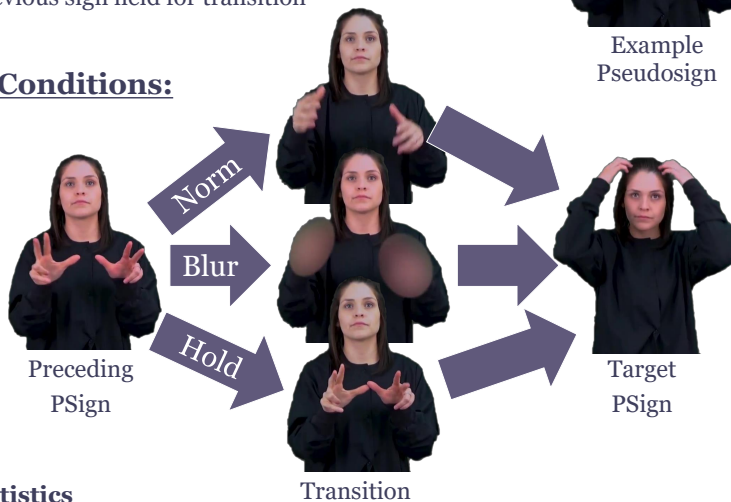
- Grooming Gestures (GGest):** noncommunicative adjusting action
- Pseudosign (PSign):** ASL phonology without semantics.

Stimuli by video Condition

- Normal (Norm):** video plays as filmed
- Blurred Hands (Blur):** hands blurred during transitions
- Held Frame (Hold):** final frame of previous sign held for transition



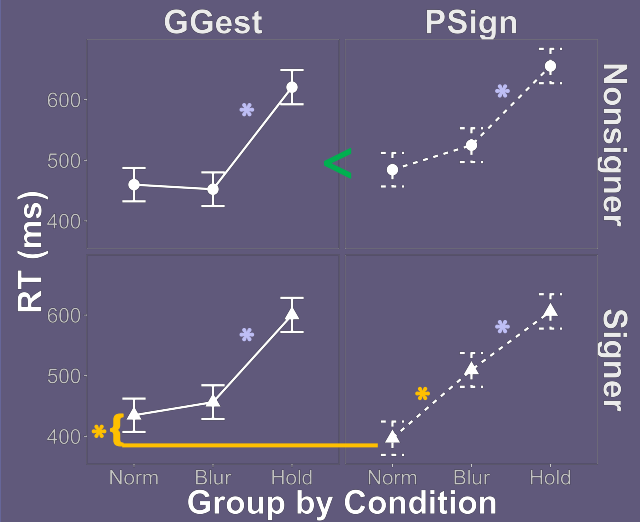
Conditions:



Statistics

- Dependent variable: RT (ms) from target onset
- Linear Mixed Effects model in Stata software:
 - Fixed effects: Group, Type (GGest, PSign), Condition (Norm, Blur, Hold)
 - Random effects: Subject * (Type, Cond), Item ID, Item w/in string (1-8)

Results



- All participants use some transition information
 - Both GGest & PSign: Blur < Hold, $p < .001$
- Signers attend to handshape transition in PSigns
 - Norm < Blur, $p < .001$, Norm PSign < Norm GGest, $p < .05$
- Only nonsigners respond differently by Type
 - GGest < PSign, $p < .01$
- Motor imagery correlated target detection RTs, only for nonsigners, $r(21) = -.448$, $p < .05$

Discussion

- All participants used transitional movements to facilitate target detection
- Sign language experience did not increase sensitivity to transitional movements for grooming gestures
- Sign language experience increases the use of transitional handshape information during linguistic target detection**
- Nonsigners may rely on motor imagery abilities, perhaps due to increased cognitive demand
- Future questions
 - How do L2 learners develop native-like abilities? (e.g. 3)
 - Does skilled signing incorporate more pronounced handshape transitions?

References

- Arendsen, J., van Doorn, A. J., & de Ridder, H. (2007). When and how well do people see the onset of gestures? *Gesture*, 7(3), 305-342.
- Donoff, C. M., Madan, C. R., & Singhal, A. (2018). Handedness effects of imagined fine motor movements. *Laterality: Asymmetries of Body, Brain and Cog*, 23(2), 228-248.
- Geer, L. C., & Keane, J. (2018). Improving ASL fingerspelling comp. in L2 learners with explicit phonetic instruction. *Language Teaching Research*, 22(4), 439-457.
- Hosemann, J., Herrmann, A., Steinbach, M., Bornkessel-Schlesewsky, I., & Schlesewsky, M. (2013). Lexical prediction via forward models: N400 evidence from German Sign Language. *Neuropsychologia*, 51(11), 2224-2237.
- Jantunen, T. (2013). Signs and transitions: Do they differ phonetically and does it matter? *Sign Language Studies*, 13(2), 211-237.

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