



Feeling Phonology:

The emergence of tactile phonological patterns in protactile communities in the United States*

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*This presentation reports findings of a pilot study, which has since been funded by the National Science Foundation

*Photo credit: Windell “Wink” Smith and Gallaudet Department of Linguistics



John Lee Clark

Award-winning author and leader
of the protactile movement



Jelica B. Nuccio

Founder of “Tactile
Communications” and leader of
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aj granda

Artist, educator, and leader of the
protactile movement

“Tactile Sign Languages”

Tactile Reception of
Visual Language



Tactile Language

Tactile [name of visual SL]
(Willoughby et al. 2018)



Tactile ASL

Language that *maximizes*
the tactile modality



Protactile Language

How Can Language Maximize the Tactile Modality?



“Air Space”

(Granda & Nuccio 2018)

air space is dead space



**The wolf from the
Three Little Pigs story**

“Contact Space”

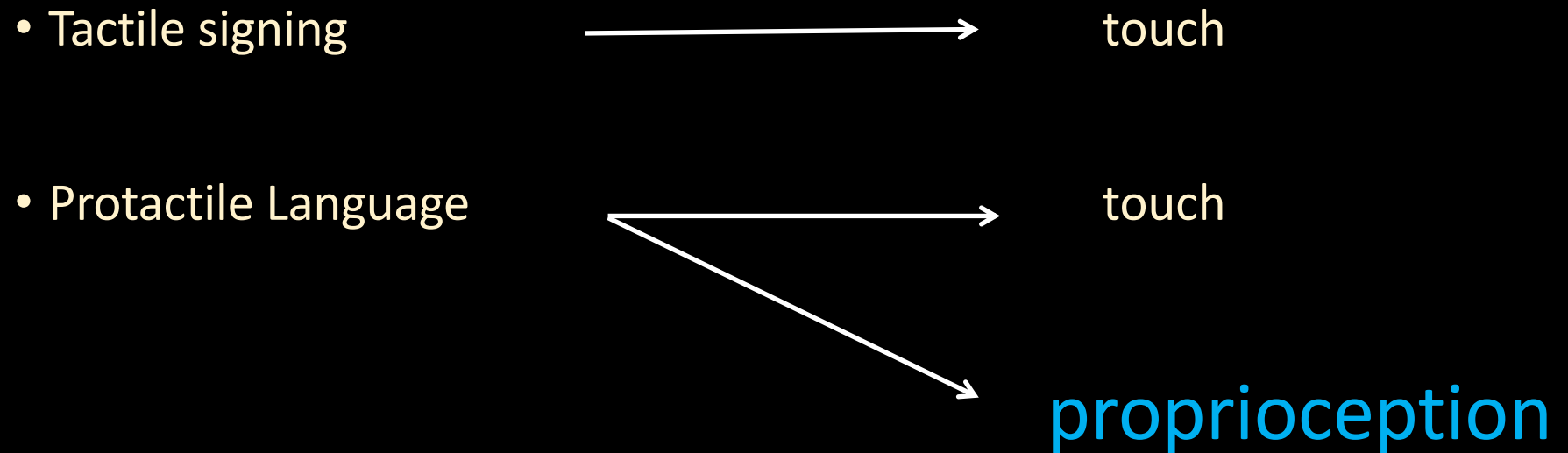
(Granda & Nuccio 2018)

A photograph showing two individuals, labeled as Signer 1 and Signer 2, interacting with their hands. Signer 2, on the left, is wearing a red shirt and is seen from the side. Signer 1, on the right, is wearing a black long-sleeved shirt and sunglasses. They are both looking at their hands, which are positioned in the center of the frame. Signer 1's hands are placed over Signer 2's hands, suggesting a collaborative or instructional gesture. The background is dark and out of focus, with some indistinct shapes visible.

Signer 2

Signer 1

Adding Sensory Channels

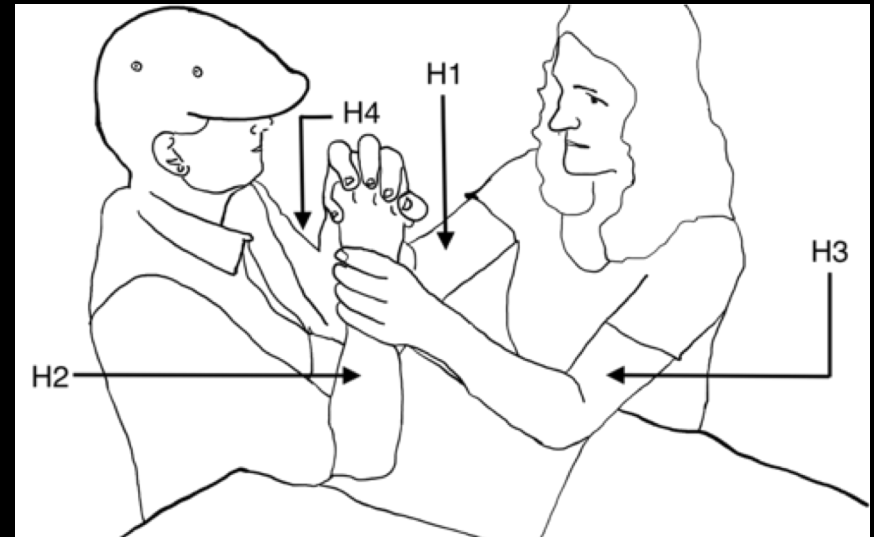
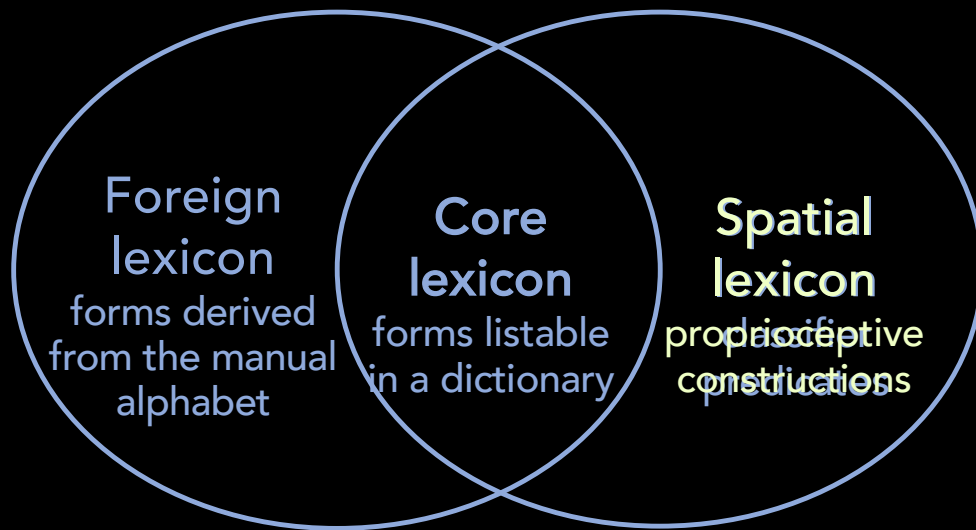


Consequences of adding sensory channels

- There is more material from which phonological principles can be initiated
- One person cannot produce PT signs alone; articulation requires a minimum of two people
- Must have effective and efficient way of requesting Signer 2's participation/coordinating with Signer 2 in articulation of signs
- Units for constructing signs must be distinguishable from one another (a) against a proprioceptive backdrop, and (b) according to tactile/proprioceptive criteria for distinctiveness

Hypothesis

- PT assigns meaningful and phonologically constrained roles to anatomical structures that are different from ASL.
- In other words, PT signers know what to do with their hands and arms, and when.



Stimuli



Methods

Pilot Study: Data collected in 2016

Participants:

Protactile (PT) DeafBlind signers: 3 males and 3 females, ages 32-47

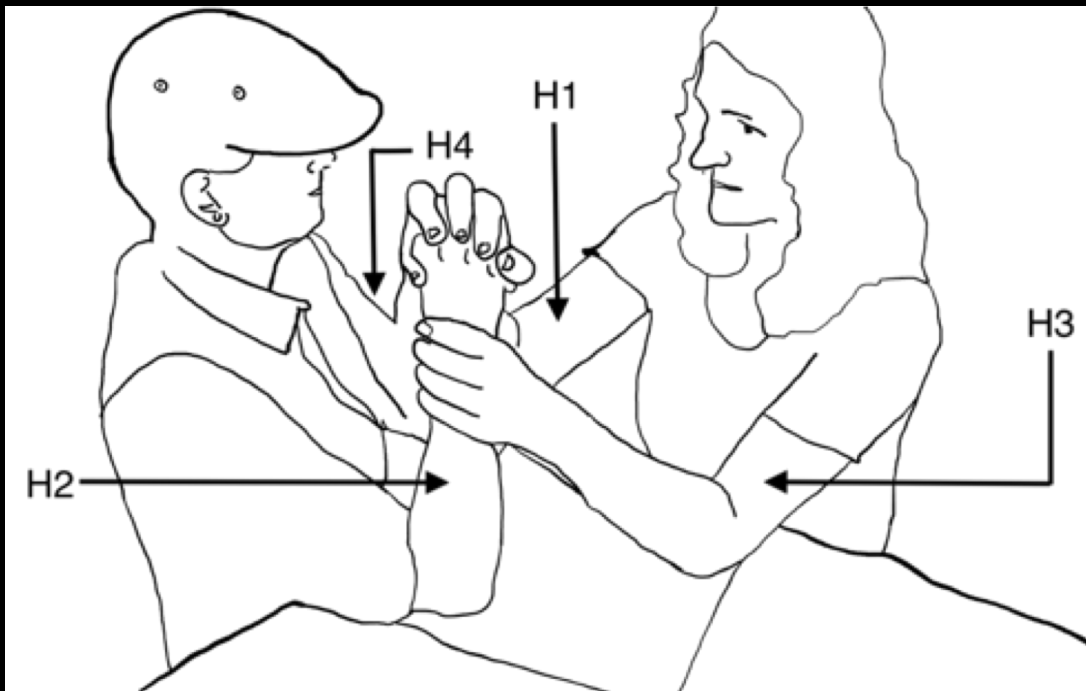
Procedure:

Asked PT signers to explore tactile stimuli and “describe what they feel”

Transcription:

Created a tier for each articulator, identified tasks performed by each one

Articulators



H1: Dominant hand of Signer 1

H2: Dominant hand of Signer 2

H3: Non-dominant hand of Signer 1

H4: Non-dominant hand of Signer 2

Proprioceptive Construction





INITIATE-GRASP [H1]



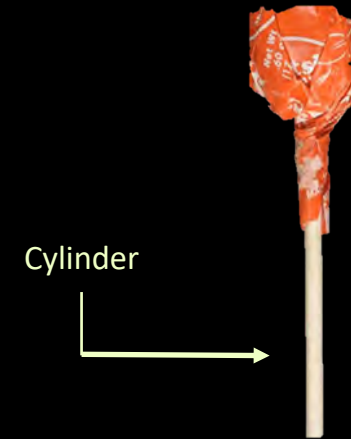
PO-CYLINDER [H2]



PROMPT TO CONTINUE- HOLD [H3]



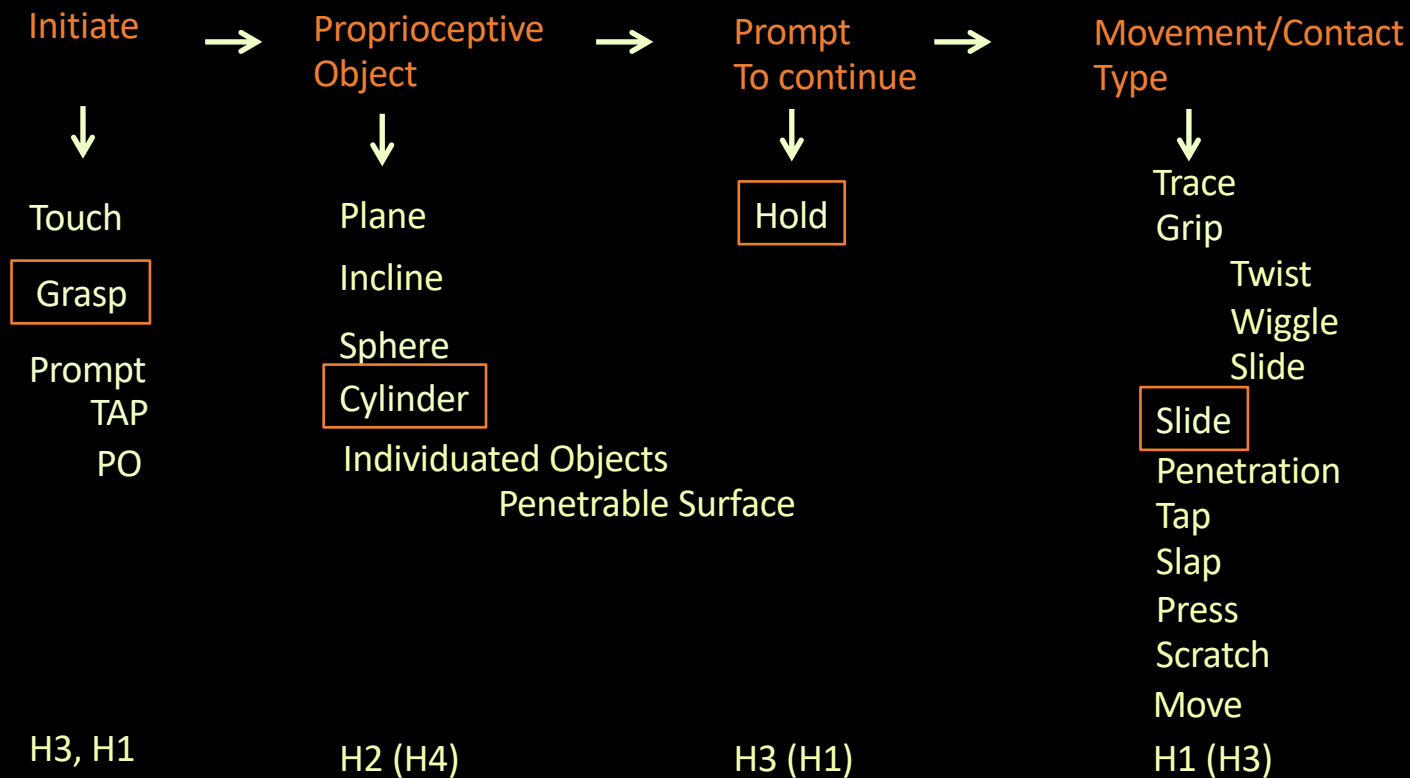
MOVEMENT CONTACT-SLIDE [H1]



The temporal periods of the PC:

1. INITIATE (I)
2. Proprioceptive Object (PO)
3. PROMPT TO CONTINUE (PtC)
4. MOVEMENT CONTACT (MC)

PC: Cylinder

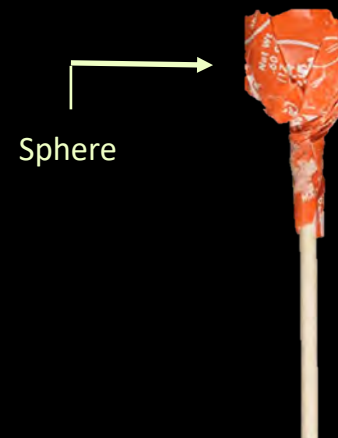




INITIATE-PROMPT-PO [H1]



PO-SPHERE [H2]

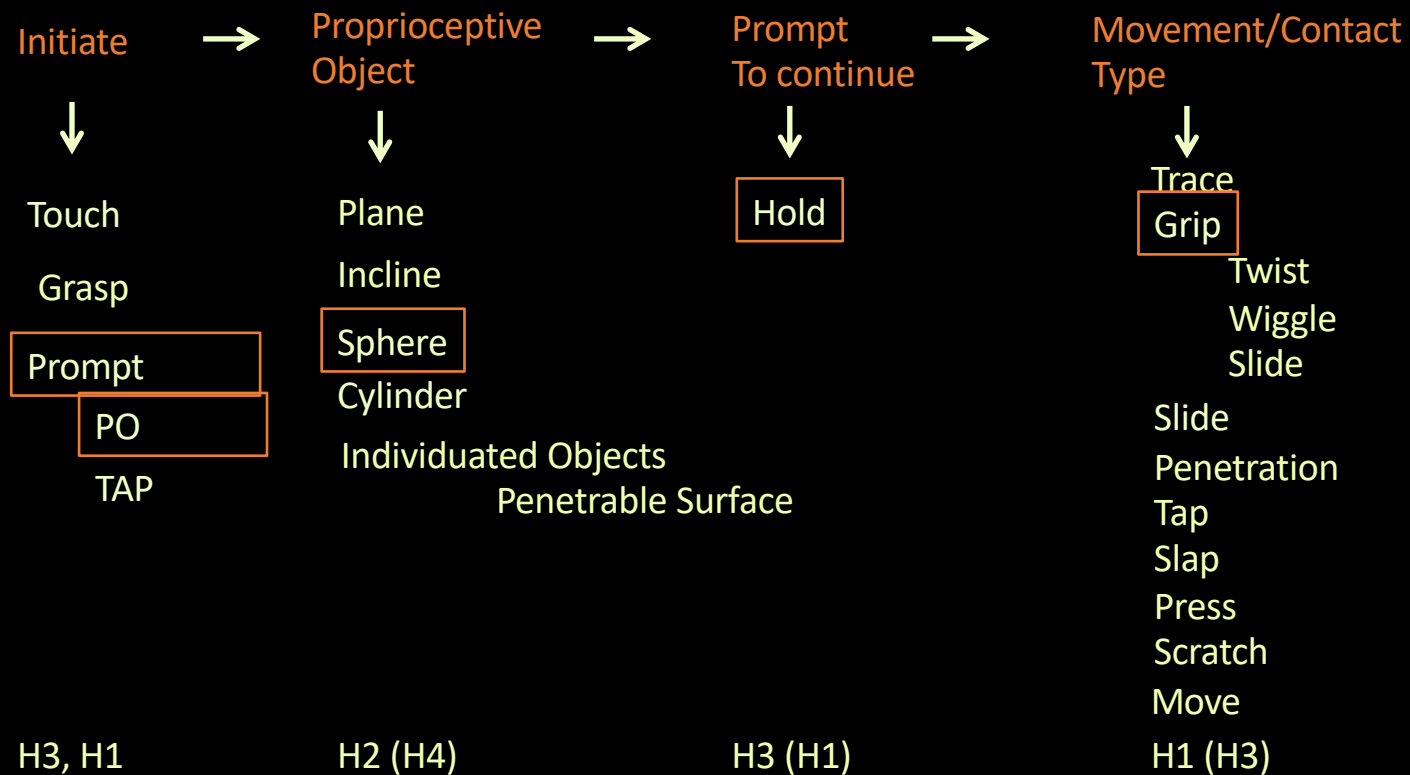


PROMPT TO CONTINUE- HOLD [H3]

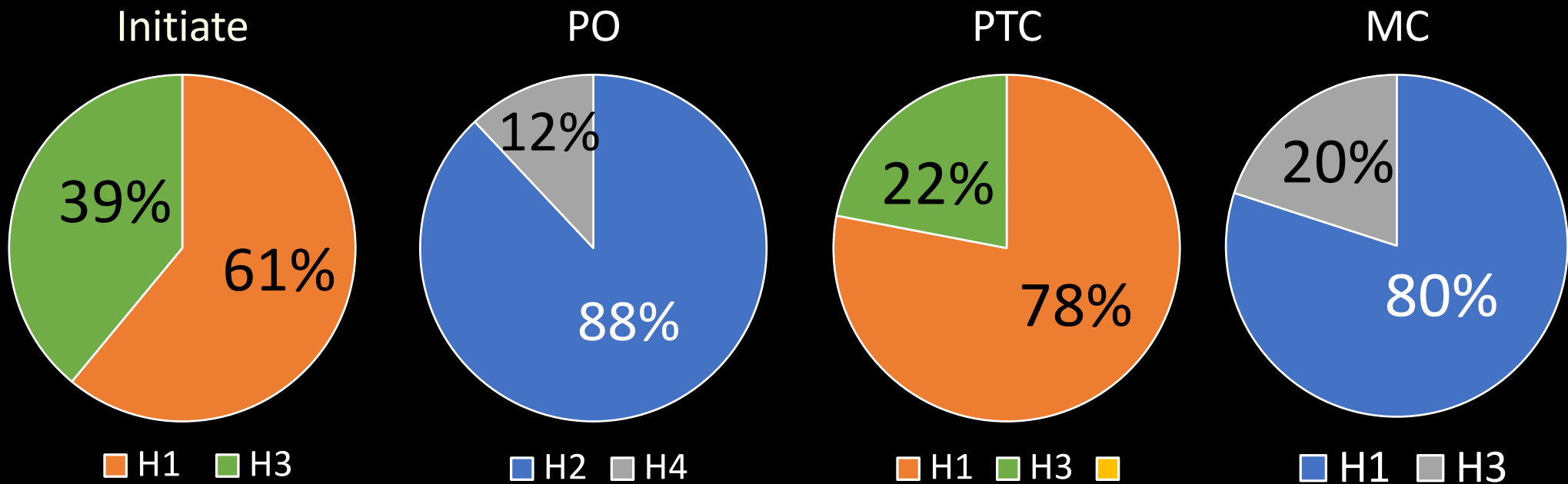


MOVEMENT CONTACT-GRIP [H1]

PC: Sphere



Lexico-Grammatical Units Assigned to Articulatory Structures



Findings

- PT assigns meaningful and phonologically constrained roles to anatomical structures that are different from ASL.
- The order and form of units in a proprioceptive construction are subject to well-formedness constraints:
 - Constraint on order
 - Redundancy rule

DeafBlind Tactile ASL Signer



Comparing Tactile ASL and PT

PT signs are produced in *contact space*, while Tactile ASL signs are produced in *air space*. It follows that:

- a) Contrast is generated by combinations of POs and MCs- fundamentally different units than those found in ASL
 - These are not modifications of the ASL system, but the emergence of different parameters entirely, which are organized around proprioceptive dimensions, not visual dimensions.
- b) Constraints on combining those units apply to four rather than two manual articulators, and are therefore fundamentally different from those found in Tactile ASL.
 - These are emerging out of the need to communicate efficiently—or to know what to do when, without stopping to think

Conclusions

- In approximately 10 years, principles of constituent order, redundancy and overall well-formedness in PT have been established that maximize the tactile modality in ways that Tactile ASL does not.
- This provides new insights into how new phonological systems in the tactile modality can conventionalize.