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# Turn-taking in signed conversations: The state of the art

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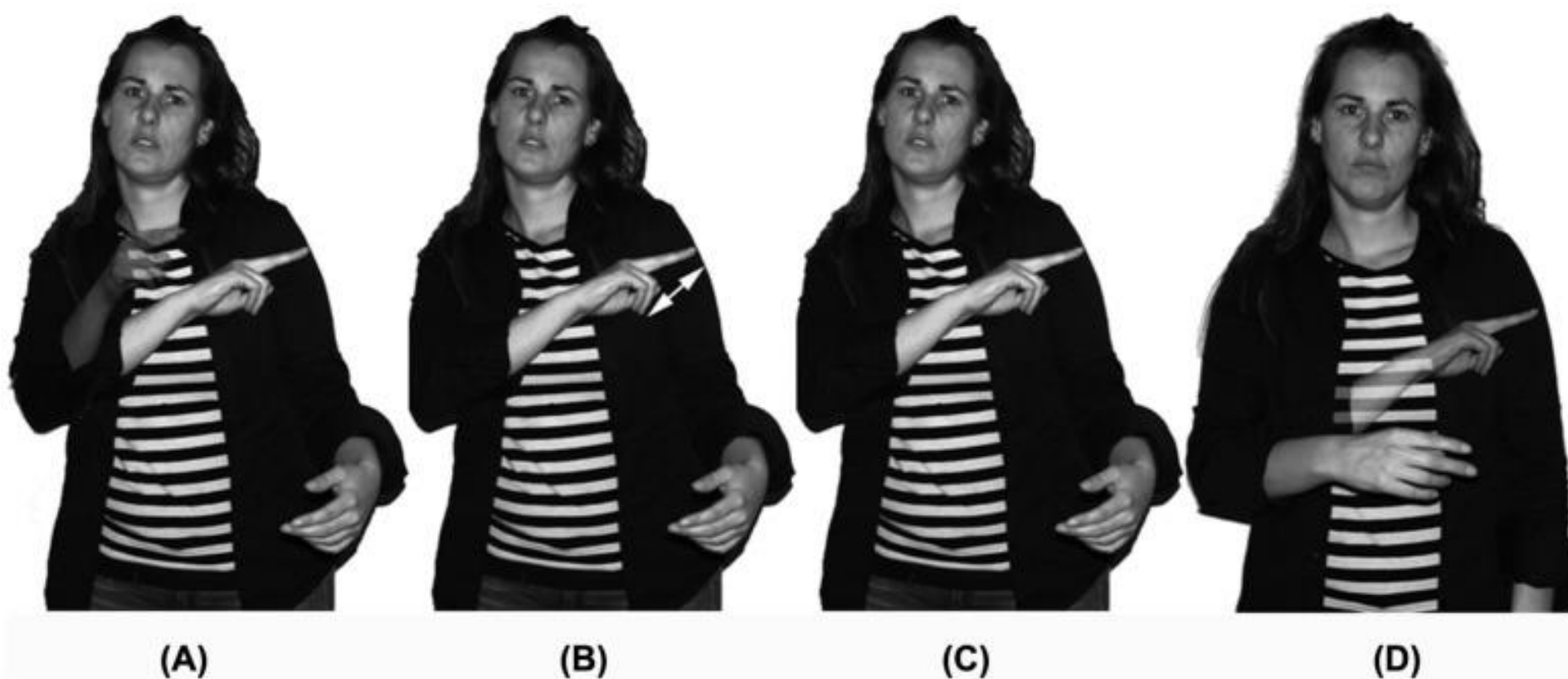
## BACKGROUND

Coates and Sutton-Spence (2001), have argued that signers, unlike speakers, may not adhere to a one-at-a-time principle in conversational turn-taking. This view is problematic for theories that put social interaction at the centerstage for language emergence (e.g. Levinson's (2016) Interaction Engine Hypothesis). De Vos and colleagues (2015) showed that when we only look at the phonologically specified aspects of signs and measure stroke-to-stroke turn boundaries, turn-timing in NGT looks remarkable similar to spoken conversations. This follow-up addresses to what extent this observation hold across typologically distinct sign languages and throughout sign language emergence (Study 1), and which lexical and prosodic cues may facilitate rapid turn-taking in sign (Study 2).

## STUDY 1 Comparative corpus analysis of Sign Language of the Netherlands (NGT) and Kata Kolok

### METHOD

- sampling of 156 Q&A sequences from 11 signers (generations III-V) of the Kata Kolok Corpus as well as 190 Q&A sequences from 16 younger and older signers of the NGT Interactive corpus
- gesture phase analysis



The four gestural movement phases of the NGT sign BROER 'brother': (A) preparation, (B) stroke, (C) hold, and (D) retraction.

### RESULTS

Linear mixed effects model shows that

- NGT and KK question-answer sequences are identical in terms of turn-timing.
- Intergenerational comparisons of KK signers to age-matched NGT signers reveal no intergenerational differences that could indicate that KK is still evolving in terms of turn-timing.
- Interestingly, NGT signers were faster in triadic (as opposed to dyadic) settings, suggesting that competition for self-selection takes place in these recordings.

| Stroke-to-stroke turn-timing in ms | Median | Mean | SD   |
|------------------------------------|--------|------|------|
| <b>NGT</b>                         | 270    | 344  | 1029 |
| <b>KK</b>                          | 158    | 173  | 606  |
| KK <sup>III</sup>                  | 242    | 196  | 580  |
| KK <sup>IV</sup>                   | 67     | 135  | 608  |
| KK <sup>V</sup>                    | 225    | 200  | 633  |

## References

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## STUDY 2 Button press experiment predicting the ends of turns in NGT

### METHODS

- Non-WEIRD population; cross-section of the Dutch Deaf community and age/gender/education matched non-signers (N=105)
- Community-based experiments in the MPI Sign Van including outreach activities
- Coding for gesture phases and prosodic cues



The MPI sign van served as a mobile lab visiting various Deaf centers



Stimulus example



### RESULTS

Linear mixed effects model shows that

- Turn-ends of utterances that are marked with AU1+2+4 brow raise are less accurately predicted ( $t = 1.982$ )
- Marginal effect of the pronoun YOU; turns with this cue are associated with less accurate button presses. ( $t = 1.796$ )
- These cues are available to non-signers as well.

## CONCLUSIONS

Despite language-specific characteristics in the signal forms (e.g. KK signers do not adopt lowered eyebrows for content questions unlike NGT), turn-timing appears to be stable during language emergence, and its cues are accessible to non-signers. This supports a strong universal basis for its origins in line with Levinson's interaction Engine Hypothesis.

## FUTURE RESEARCH

To what extent do these generalizations extend to home sign interactions? And how has interaction boosted the transition from gesture to language in the emergence of Kata Kolok?

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## Want to learn more about sign language interaction? Please go see these related posters/presentations at TISLR 13!

On the role of eye gaze in depicting and enacting in Flemish Sign Language: A comparative study of narratives and spontaneous conversations - Thursday poster session 16:30-17:30 Inez Beukeleers and colleagues

A corpus-based investigation of how deaf signers signal questions during conversation - Friday poster session 16:30-17:30 Gabriel Hodge and colleagues

Regulating turn-taking with pointing actions in Norwegian Sign Language conversation - Saturday 15:00-15:30 Lindsay Ferrara