

A corpus study of WEAK HAND LOWERING across French Belgian Sign Language (LSFB) registers

Aurore Paligot

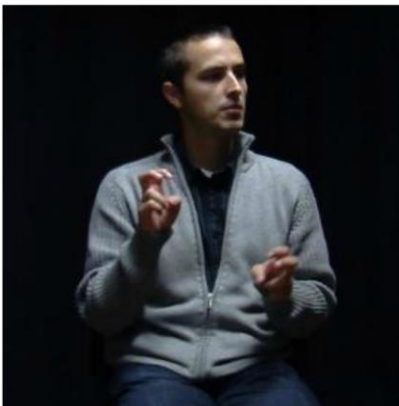


1. Introduction

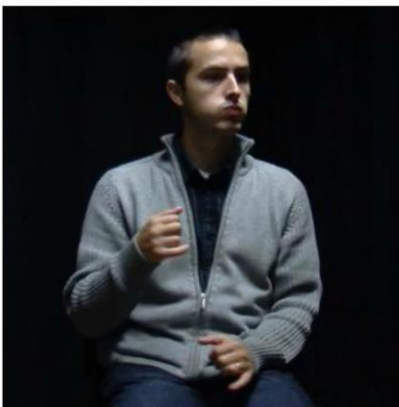
« Register » and « style » ?

- Intra-speaker variation associated with particular situations of use (Schilling-Estes 2013)
- **Situations** vary according to (Biber 1995) :
 - Physical mode
 - Purpose
 - Interactiveness
 - Production circumstances
 - Relation among participants ...
- **Language uses** :
 - Phonology
 - Morphology
 - Semantic
 - Syntax ...

Weak hand lowering ?



‘TOPIC’



‘HERE’

Reduction

- “changes in the segments [...] relative to what would be expected in a careful pronunciation of the same word or phrase” (Warner 2011)
 1. Alterations
 2. Deletions
 3. Reduction of contrasts
- Informal styles contain more reductions than formal styles (e.g. van Son & Pols 1999)

Reduction : Weak Drop

Deletion



‘POSSIBLE’



Reduction : Weak Drop

Alteration

Deletion

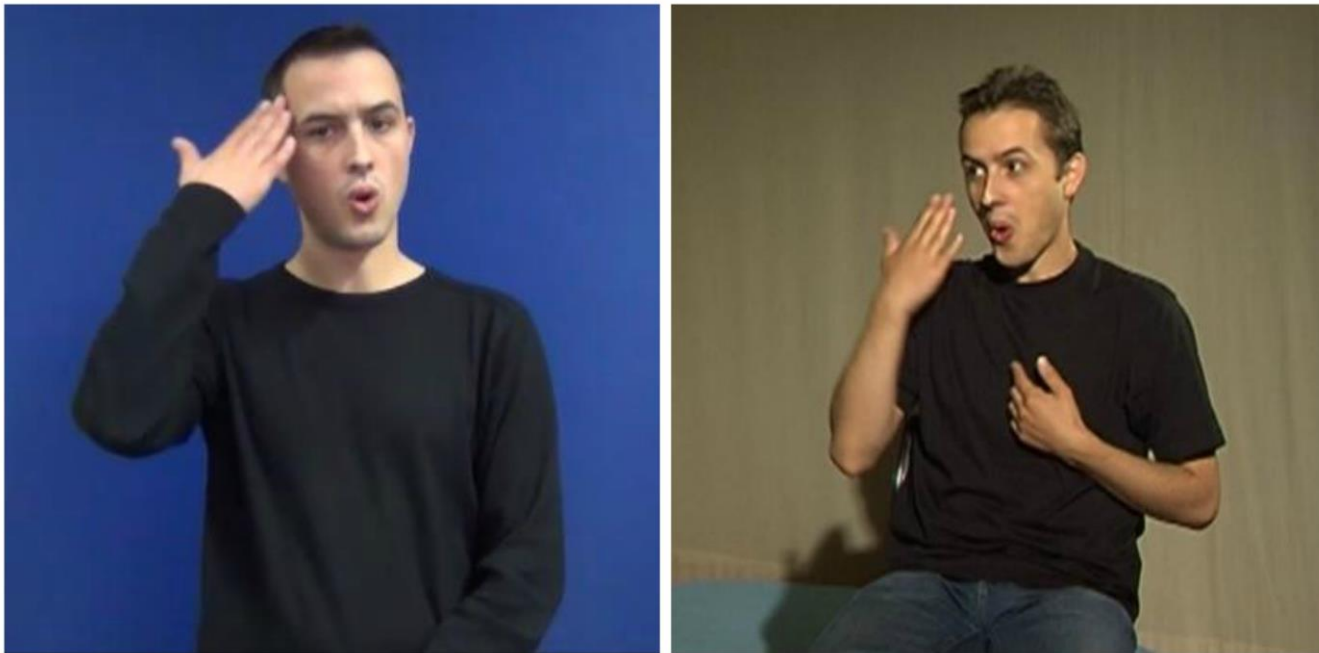


‘POSSIBLE’



Reduction : sign lowering

Lowering of forehead located signs



‘OTHER’

Phonetics

Sociolinguistics

WHAT ?

| Internal factors | | External factors |
|------------------|-------------------|---------------------|
| Phonetic context | | Age |
| Signing speed | Lexical frequency | Region |
| Contact type | Lexical category | Situational context |

HOW ?

| | |
|------------------------|-----------------|
| Continuous variable | Binary variable |
| Laboratory productions | Corpora |

(e.g. Tyrone & Mauk 2010, Russell et al. 2011), (e.g. Lucas et al. 2002, Schembri et al. 2006)

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2. Method

Research questions:

- How does the use of weak hand lowering vary across multiple settings?
- Which features of the phonetic environment contribute to weak hand lowering ?
- Does the influence of the phonetic environment vary according to situational contexts?

Corpus

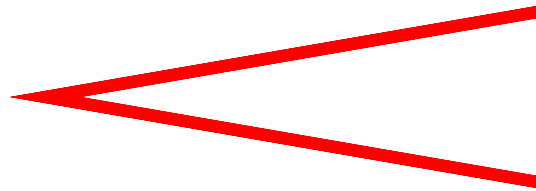
| | Online Video | Conference | Narration | Dialogue |
|----------------------|-----------------------------|-----------------------------|-------------------------|-------------------------|
| Recording conditions | 'Natural' | 'Natural' | Studio | Studio |
| Discourse type | Explicative/ Informative | Explicative/ Informative | Narration | Conversation |
| Interactivity | - | - | - | + |
| Audience | Virtual | 20 -100 people | Conversation partner | Conversation partner |
| Preparedness | ++ | + | +/- | - |

Corpus : Hypothesis

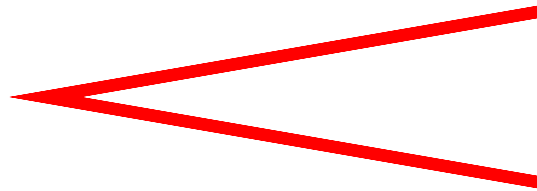
Online Video



Dialogue

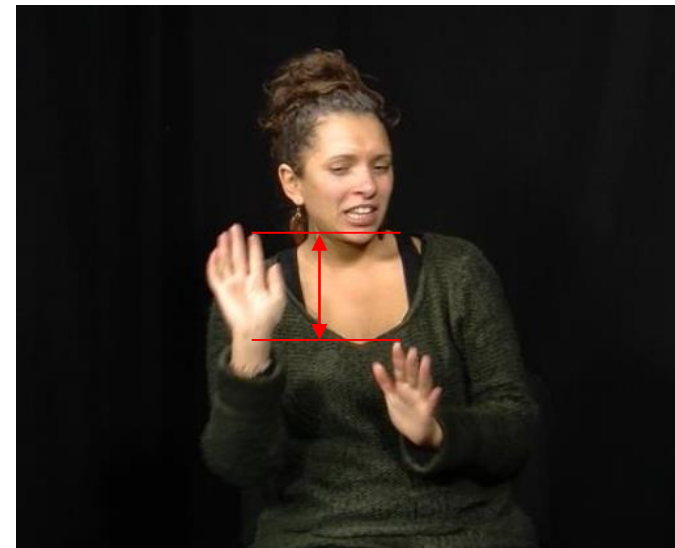


Corpus : Hypothesis



Coding

- Symmetrical signs
 - No alternating movements
 - No contact between the hands
- 35 tokens per context for each signer
 - 533 tokens in total
 - 176 sign types
- Measure of the distance between the hands



Coding

Preceding and following segments

| 1 Hand | 2 Hands | | |
|--------|---------|--------|-----|
| 1 H | 2 SYM | 2 ASYM | 2 P |



DEAF



PRECISE



MEAT



Coding

Hypothesis

2 Hands

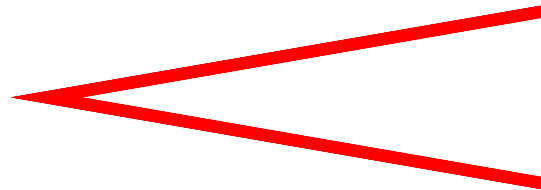
1 Hand

2 SYM

2 P

2 ASYM

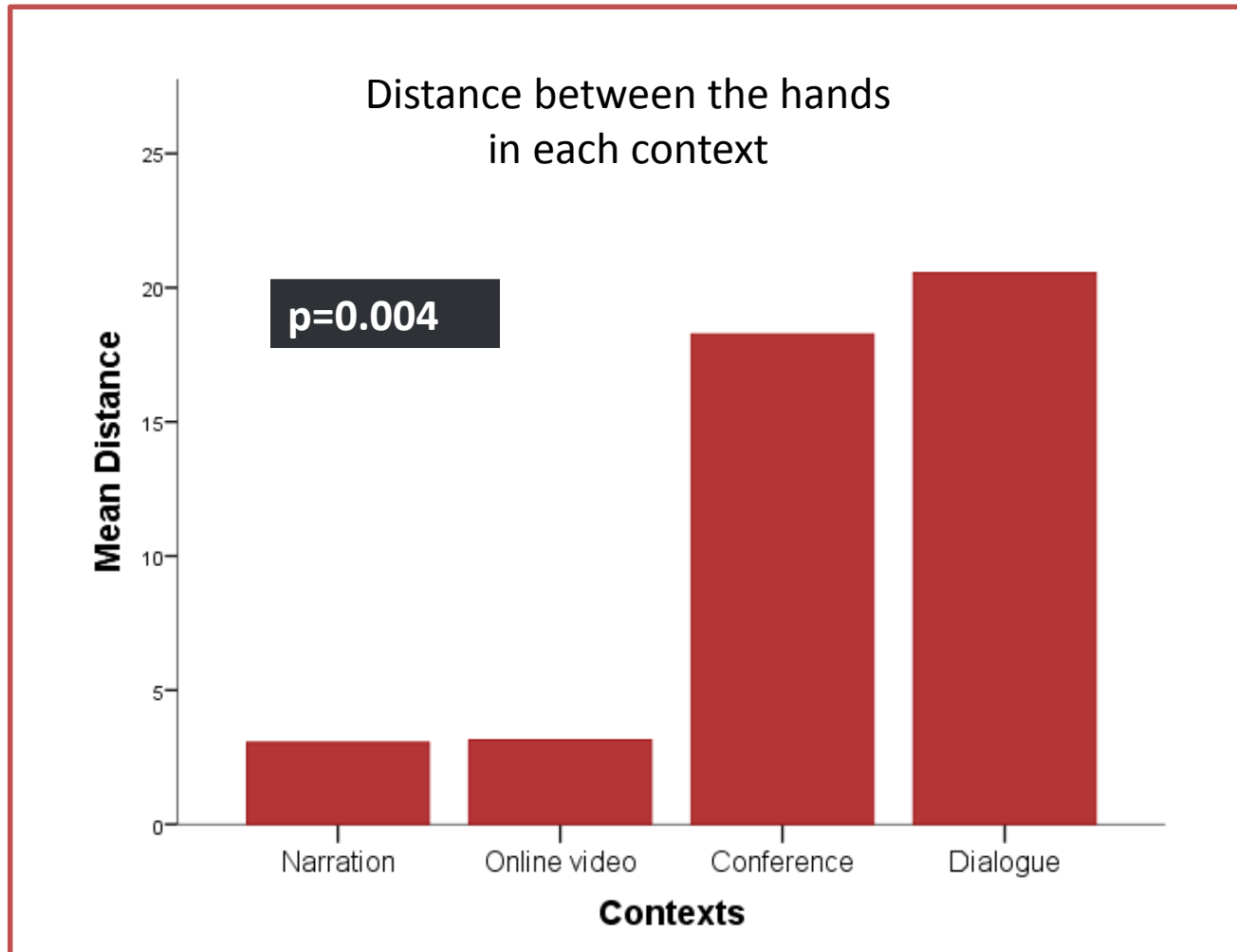
1 H



3. Results

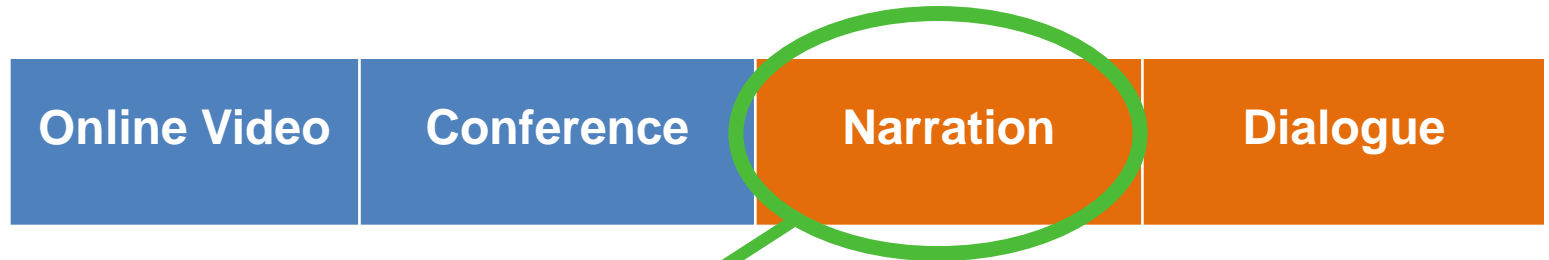
1. Situational contexts

Weak Hand Lowering is significantly affected by context

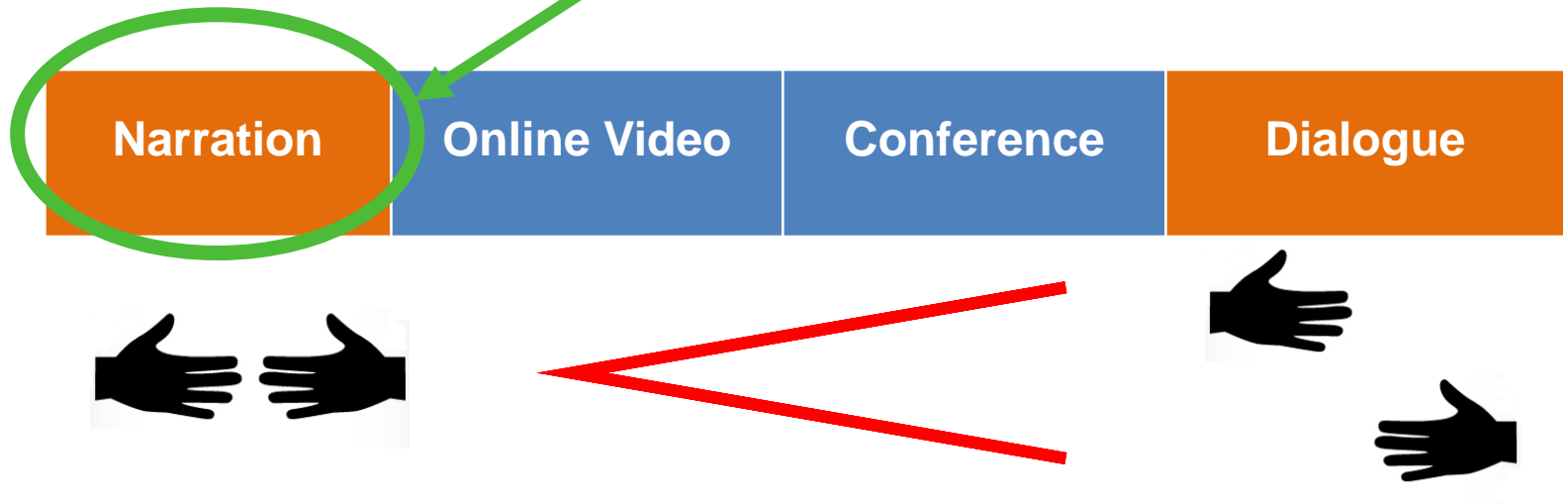


1. Situational contexts

Hypothesis

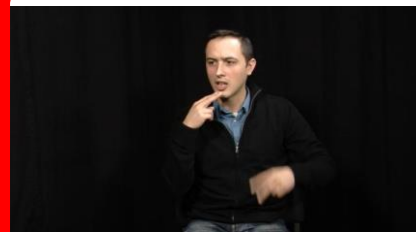


Results

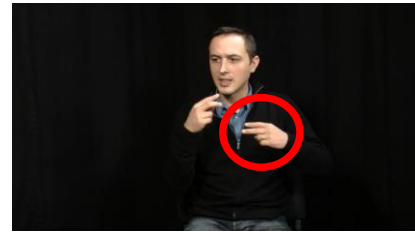




KNOW



RESTAURANT



« Do you know the joke about a restaurant? »



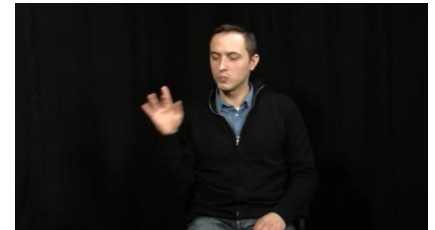
FOUR



OLD



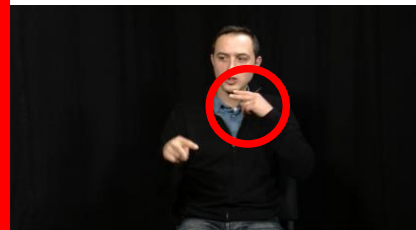
CL:FOUR-PEOPLE



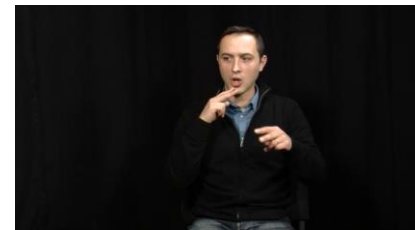
GO



ENTER



RESTAURANT

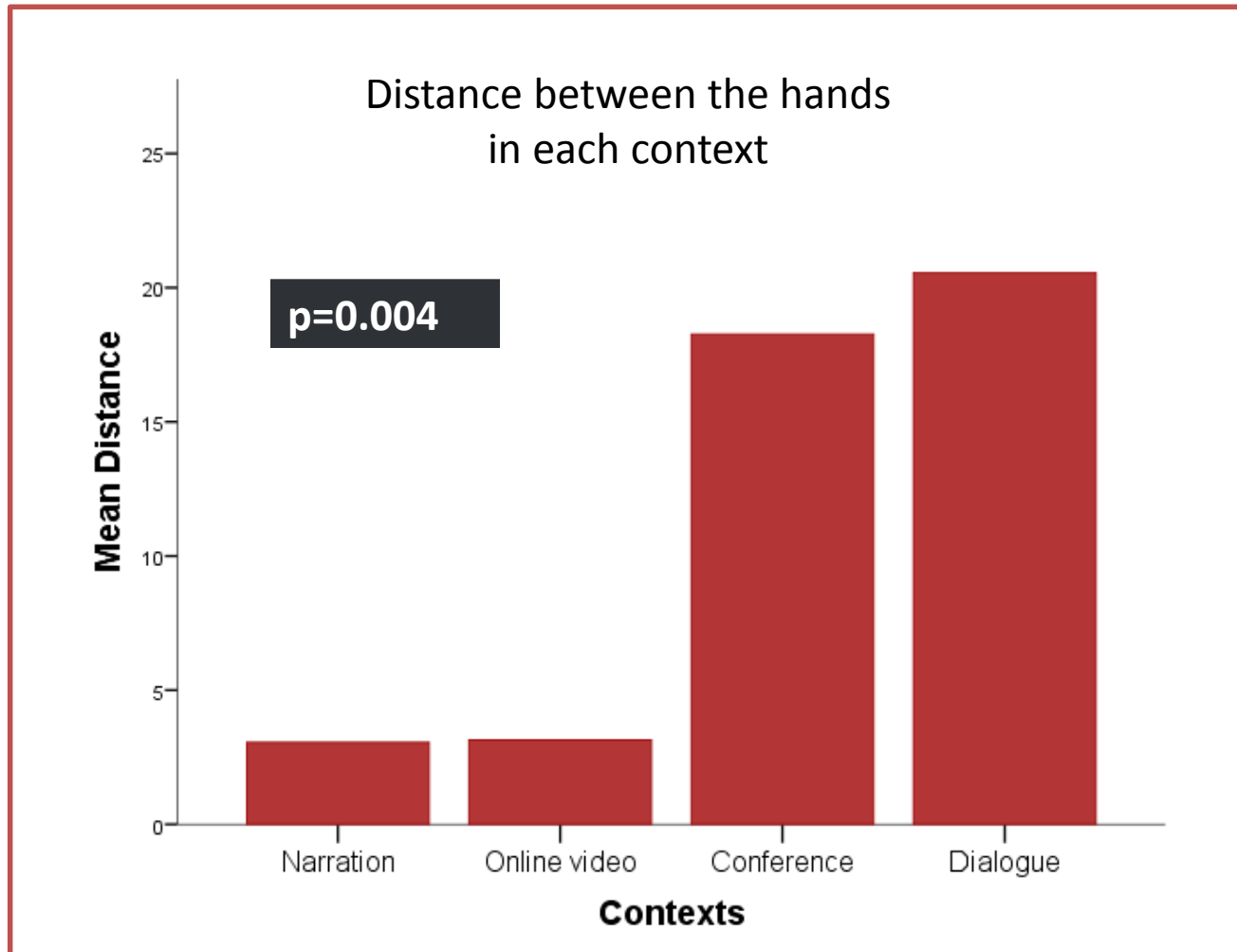


CL:FOUR-PEOPLE

« Four old men enter a restaurant... »

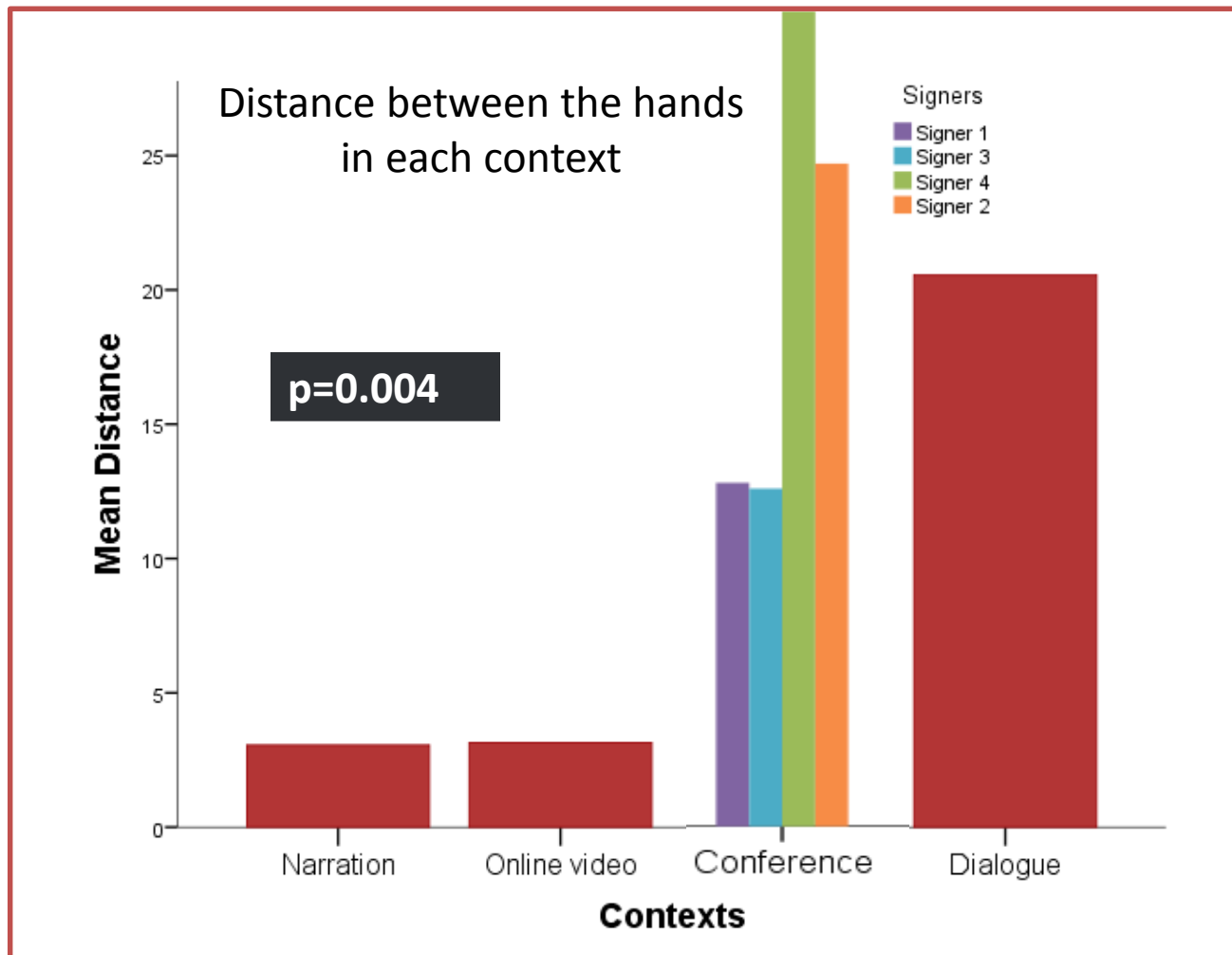
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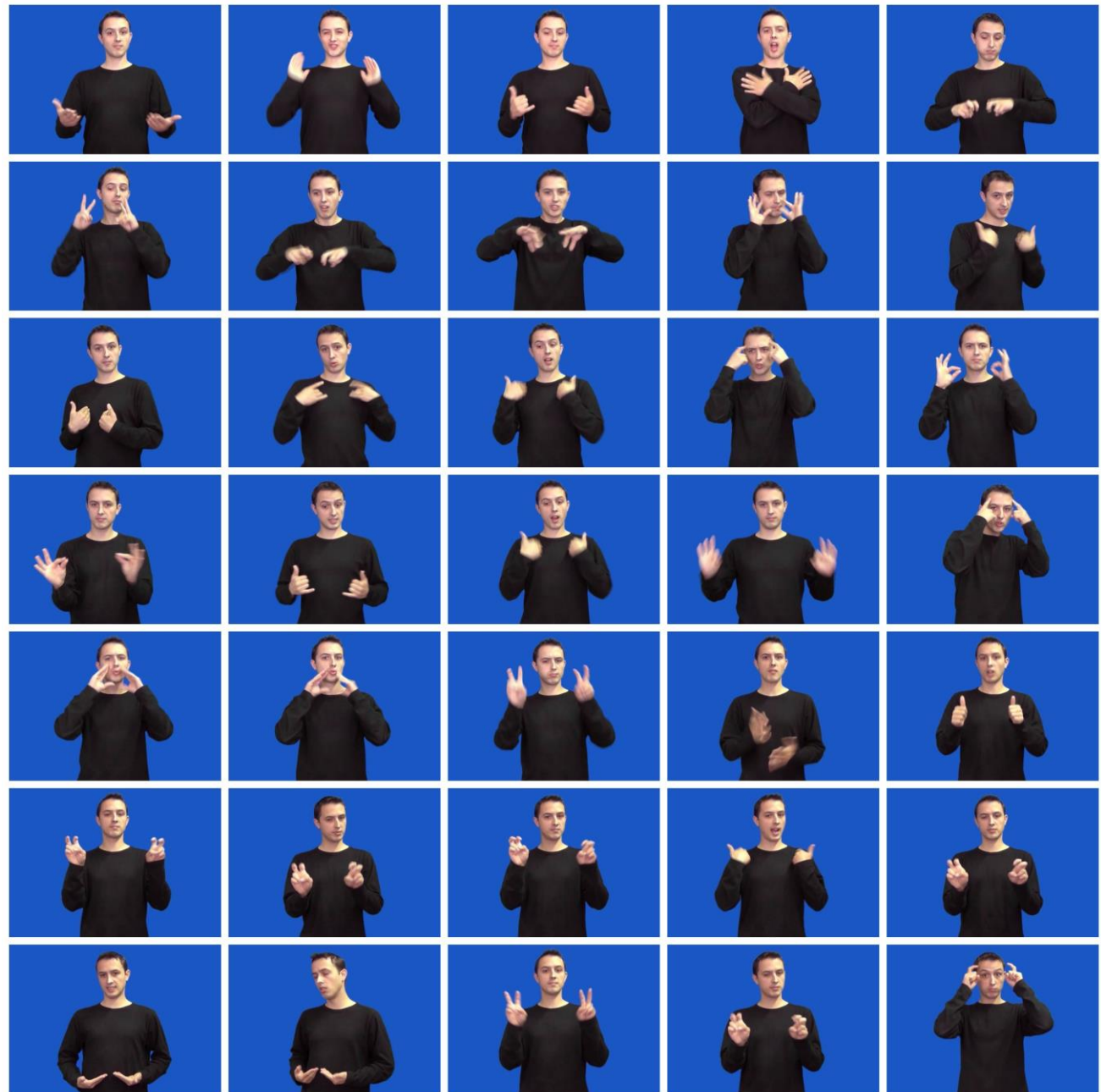


1. Situational contexts

Weak Hand Lowering is significantly affected by context



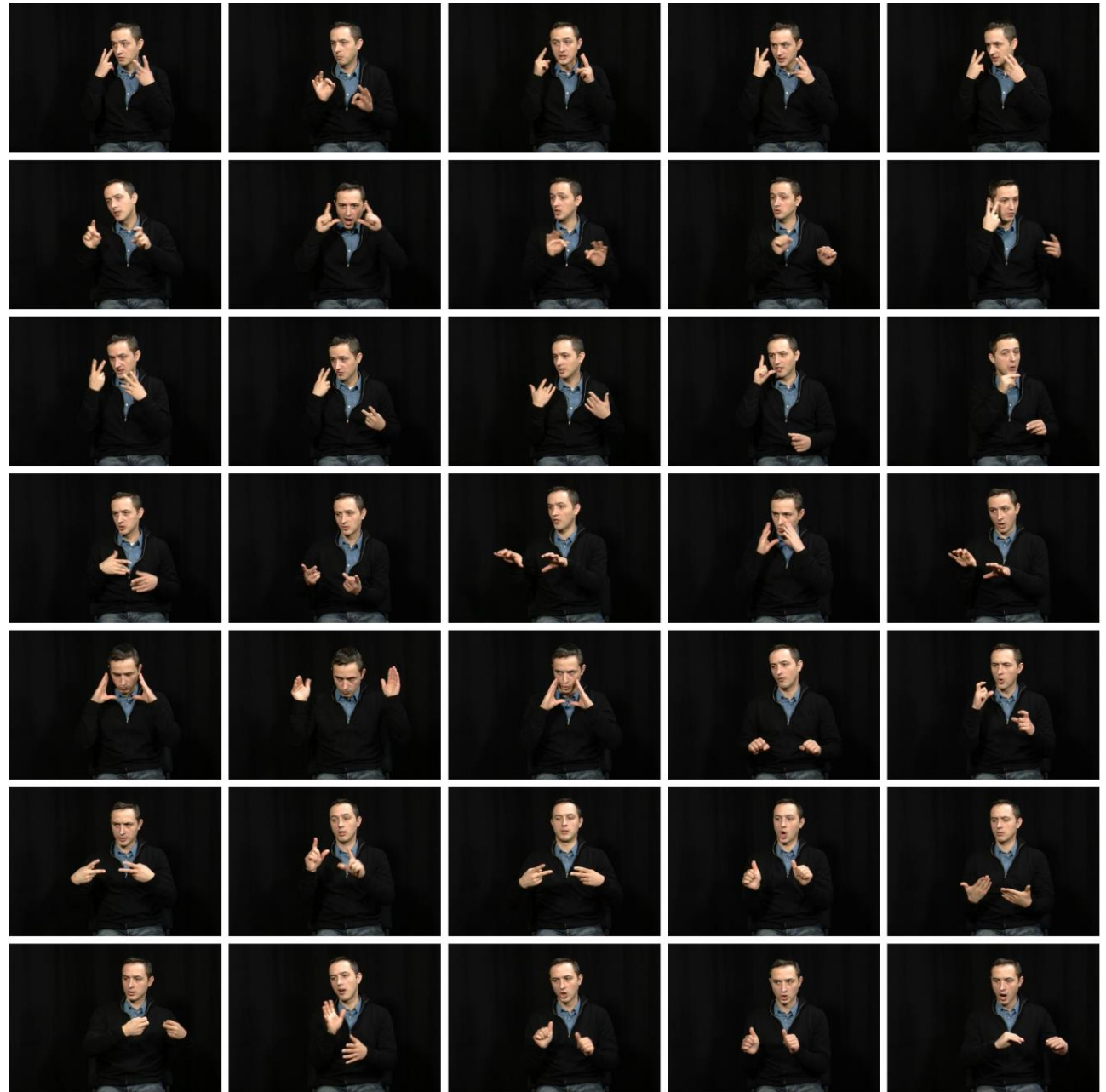
Online Video



Online Video WHL



Dialogue



Dialogue

no WHL



Dialogue

strong WHL



Dialogue

moderate

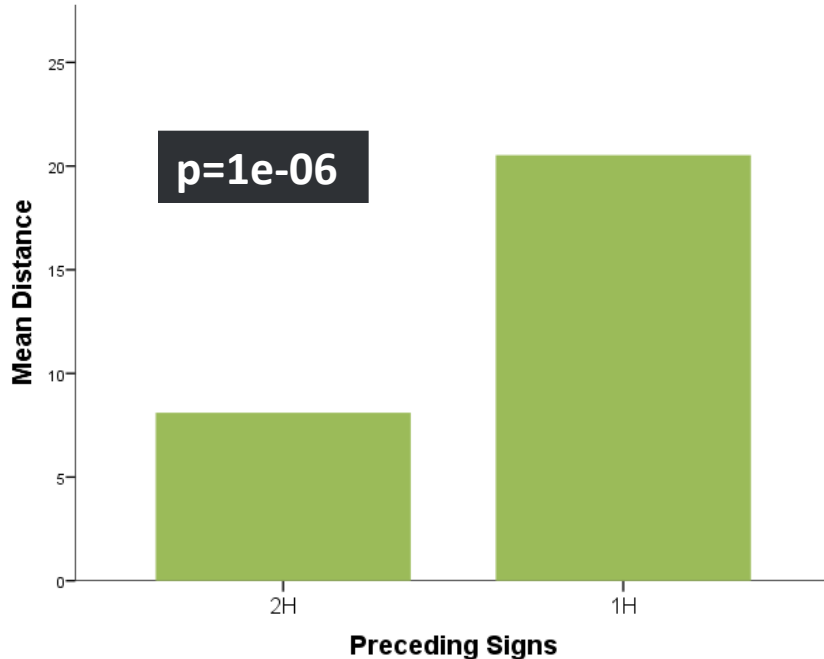
WHL



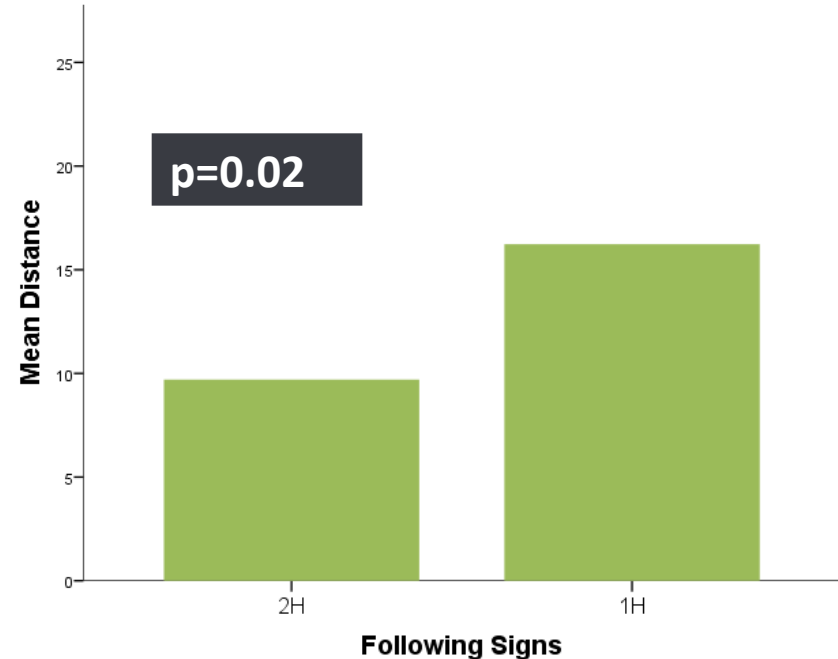
2. Phonetic environment : 1 H vs. 2 H

Weak Hand Lowering is affected by the number of active hands in its surrounding context

Preceding signs : effect of the number of active hands on WHL

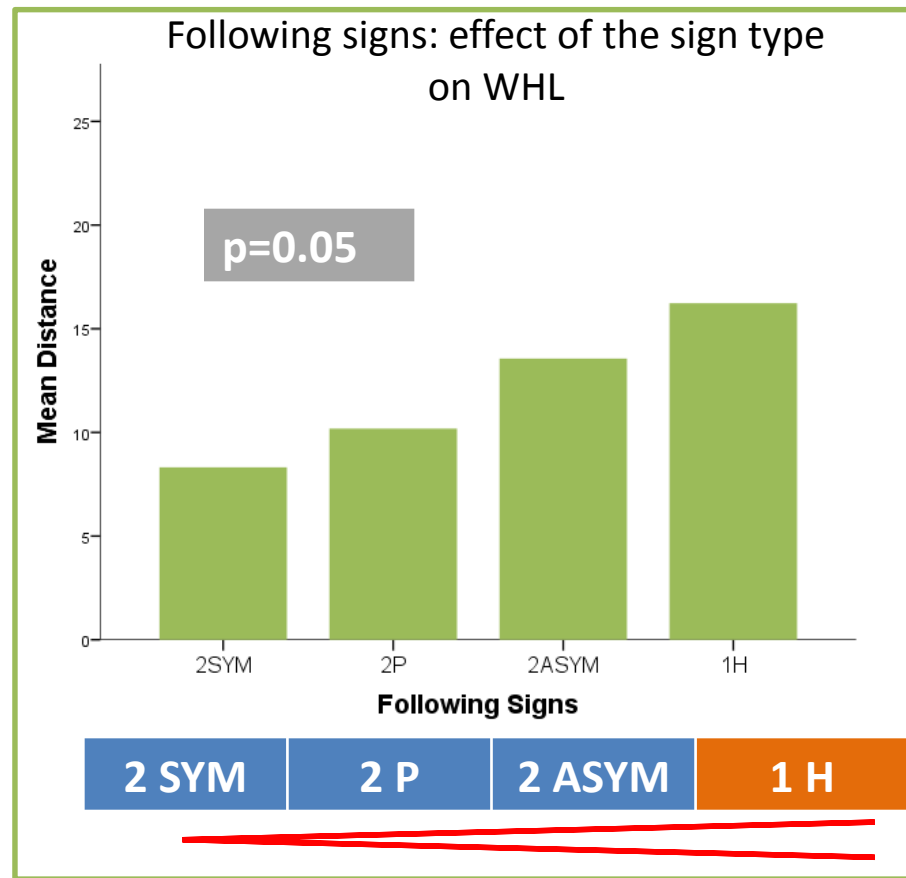
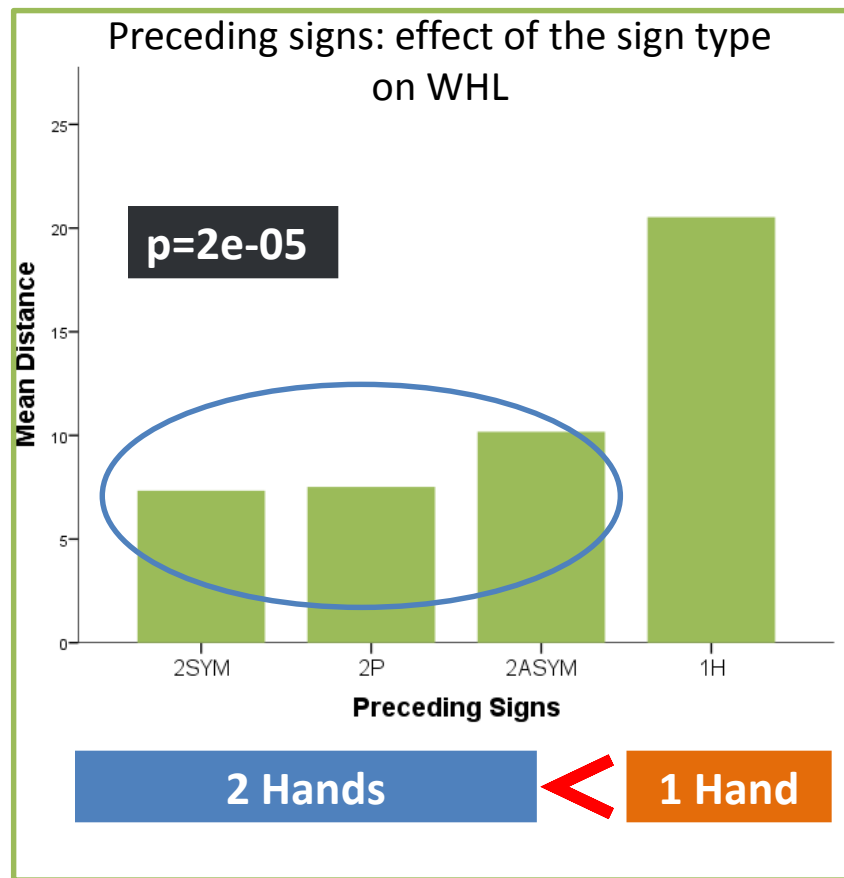


Following signs: effect of the number of active hands on WHL

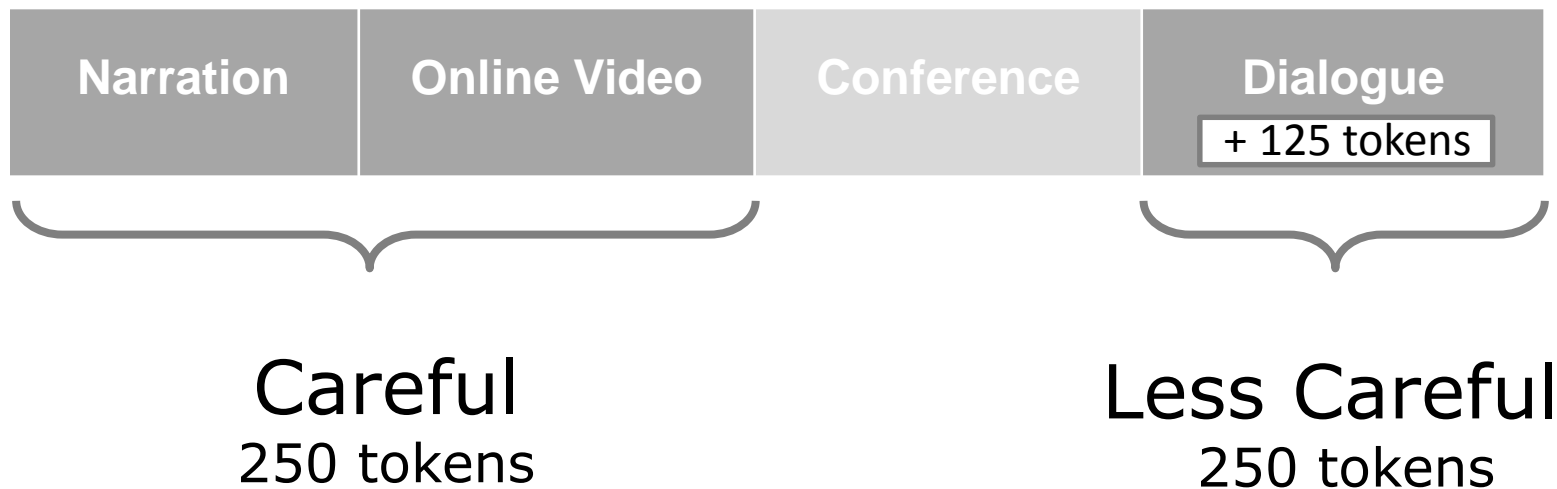


2. Phonetic environment: 1H-2SYM-2ASYM-2P

Weak Hand Lowering is affected by the sign type of the preceding segment



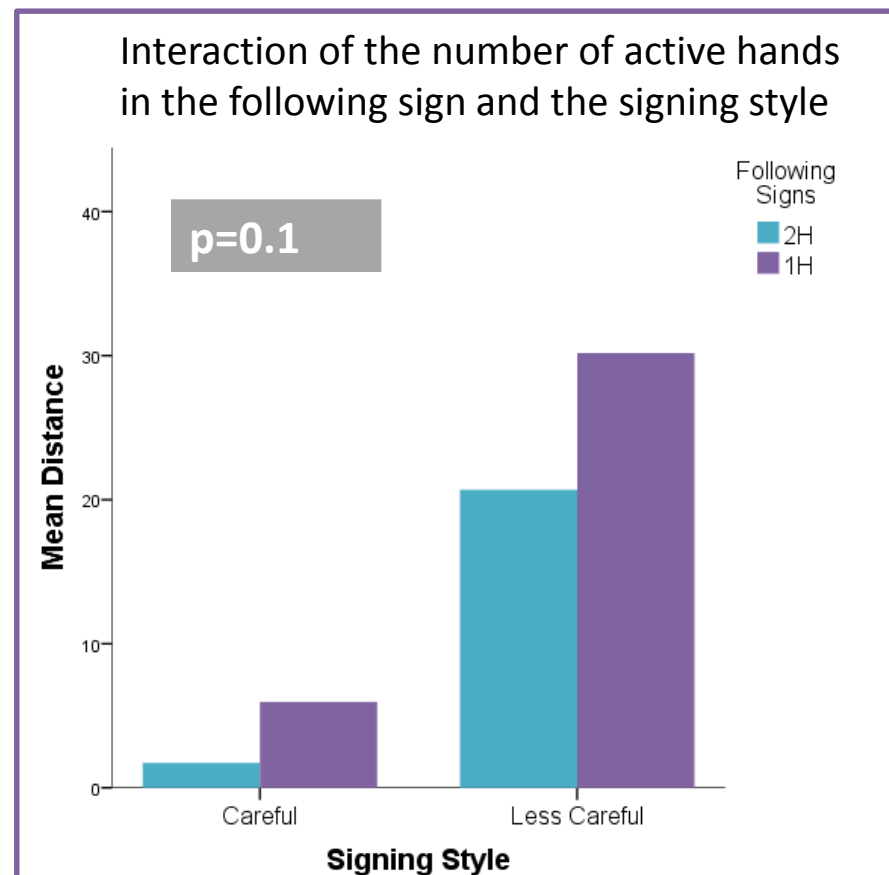
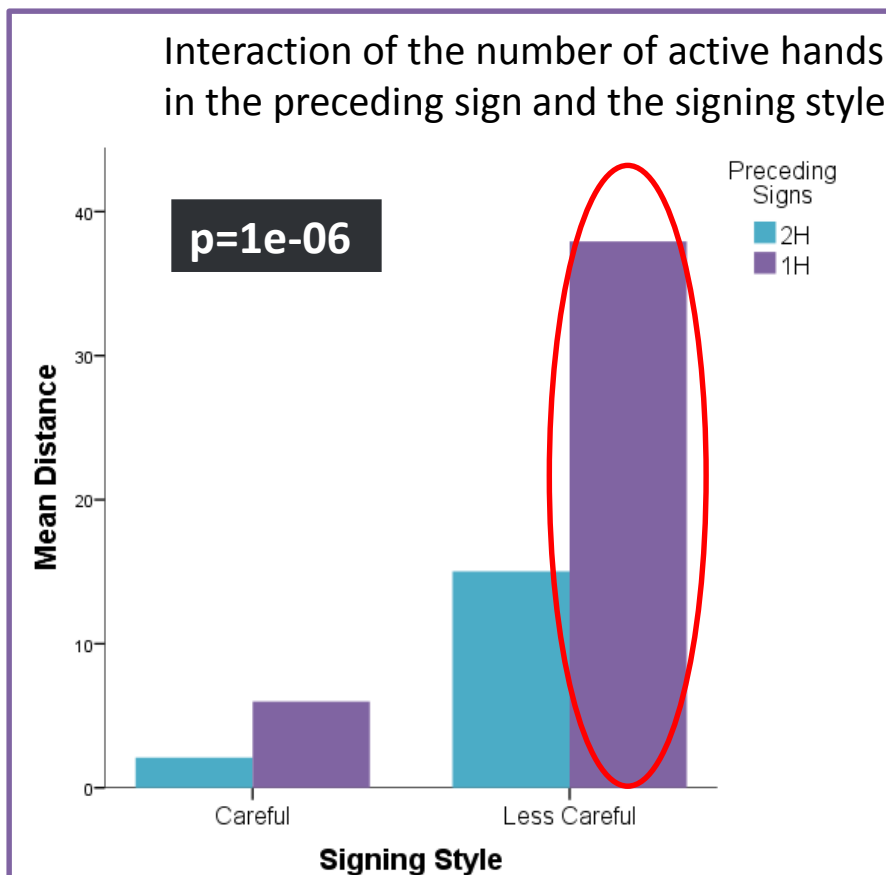
3. Situational contexts + Phonetic environment



=>Is the influence of the phonetic environment the same in careful and less careful signing styles?

3. Situational contexts + Phonetic environment

Significant interaction of the number of active hands in the preceding segment and the signing style



WHL as a consequence of the reduction of the transitional movement



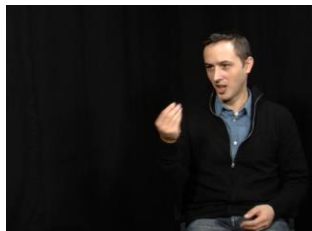
IMPORTANT



transitional movement



TEACHER



GIVE



AWAKE

transitional movement

4. Other sources of variation

a) Stress



HOW
Unstressed form



HOW
Stressed form

b) Lexical frequency

3. Conclusions

- Weak Hand Lowering is differently distributed across registers
- Weak Hand Lowering is affected by the number of active hands in the neighboring signs
- Strategies to synchronize both hands are different depending on the register

- Biber, D. 1995. *Dimensions of register variation: A cross-linguistic comparison*. Cambridge: Cambridge University Press.
- Crasborn, O. 2011. The other hand in sign language phonology. In M. van Oostendorp, C. J. Ewen, E. Hume and K. Rice (eds.), *The Blackwell Companion to Phonology*, Vol.1, 223-240. Malden, MA and Oxford: Wiley-Blackwell.
- Kooij, E. van der. 2001. Weak drop in sign language of the Netherlands. In V. Dively, M. Metzger, S. Taub and A. M. Baer (eds.), *Signed languages: Discoveries from international Research*. 27-42. Washington, DC: Gallaudet University Press.
- Lucas, C., R. Bayley, M. Rose and A. Wulf. 2002. Location variation in American Sign Language. *Sign Language Studies* 2, no. 4: 407– 440.
- Mauk, C., B. Lindblom and R. Meier. 2008. Undershoot of ASL locations in fast signing. In J. Quer (ed.), *Signs of the time: selected papers from TISLR 8*, 3–24. Seedorf: Signum Verlag.
- Meurant, L. and A. Sinte. 2013. Towards a corpus of French Belgian Sign Language (LSFB) discourses. In C. Bolly and L. Degand (eds.), *Across the line of speech and writing variation. Corpora and language in use – Proceedings 2*, 199-212. Louvain-la-Neuve: Presses Universitaires de Louvain.
- Ormel, E., O. Crasborn and E. van der Kooij. 2013. Coarticulation of hand height in Sign Language of the Netherlands is affected by contact type. *Journal of Phonetics* 41, no. 3-4: 156-171.
- Paligot, A. and L. Meurant. 2013. *Register variation in LSFB: the influence of the metalinguistic function*. Poster presented at the 11th Conference on Theoretical Issues in Sign Language Research (TISLR 11), London, 10-13 July.
- Russell, K., E. Wilkinson and T. Janzen. 2011. ASL sign lowering as undershoot: a corpus study. *Laboratory Phonology* 2, no. 2: 403– 422.
- Schembri, A., T. Johnston and D. Goswell. 2006. Name dropping: location variation in Australian Sign Language. In C. Lucas (ed.), *Multilingualism and sign language : from the Great Plains to Australia*, 121-156. Washington, D.C.: Gallaudet University Press.
- Schilling-Estes, N. 2013, Investigating stylistic variation. In J. K. Chambers, P. Trudgill and N. Schilling-Estes (eds.), *The Handbook of Language Variation and Change*. 2nd ed. Malden-Oxford: Wiley-Blackwell.
- Tyrone, M. and C. Mauk. 2010. Sign lowering and phonetic reduction in American Sign Language. *Journal of Phonetics* 38, no. 2: 317–328.
- Van Son, R. and L. Pols. 1999. An Acoustic description of consonant reduction. In *Speech Communication* no.28: 125-140.
- Warner, N. 2011. Reduction. In M. van Oostendorp, C. J. Ewen, E. Hume and K. Rice (eds.), *The Blackwell Companion to Phonology*, Vol.3, 1866-1891. Malden, MA and Oxford: Wiley-Blackwell.
- Winter, B. 2013. Linear models and linear mixed effects models in R with linguistic applications. arXiv:1308.5499. [<http://arxiv.org/pdf/1308.5499.pdf>]
- Winter, B. and S. Grawunder. 2012. The Phonetic Profile of Korean Formality. *Journal of Phonetics* no. 40: 808-815.

THANK YOU!

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