

Beeke Muhlack

Language Science and Technology, Universität des Saarlandes

*muhlack@lst.uni-saarland.de*

## Background

- typical filler particles of English are *uh* and *um*
- often show cognitive demand of speaker [1]
- some evidence for listener benefits:
  - a. filler particles improve recollection of previously encountered words [2, 3]
  - b. filler particles improve memorisation of short stories [4]
- but also counter evidence [5, 6]



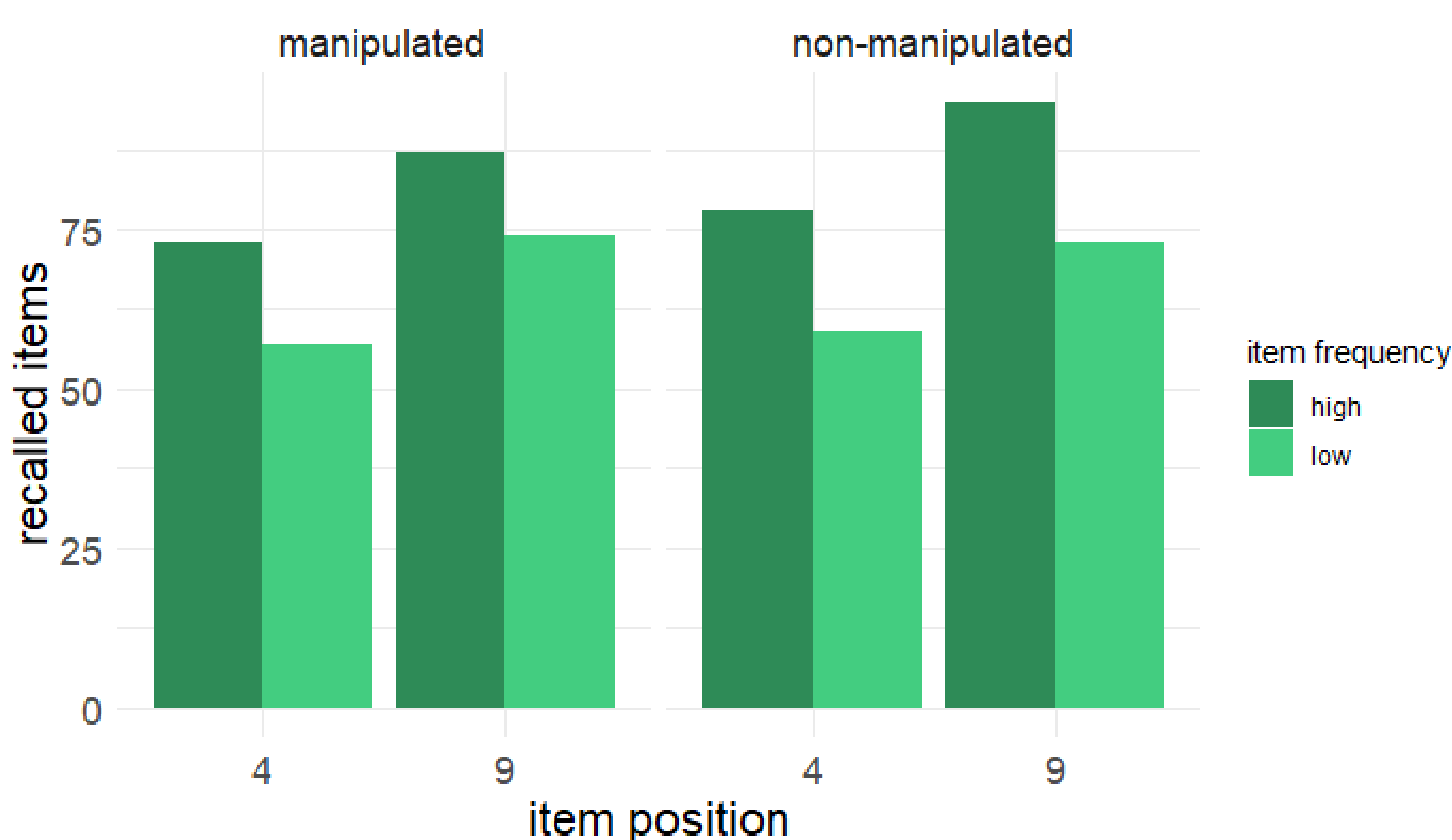
Can the recall effect be replicated with a list paradigm?

## Experiment

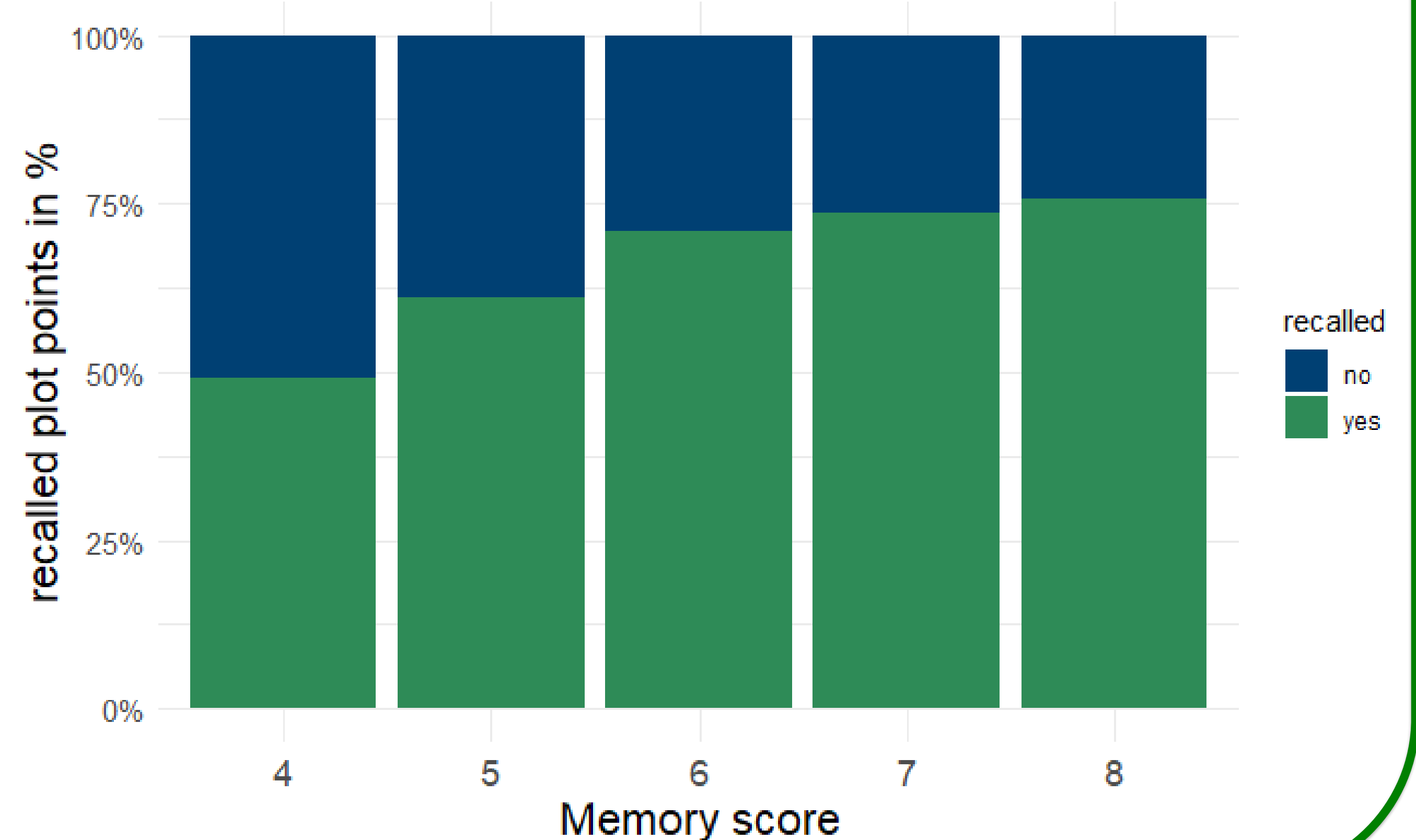
- web-based experiment using Labvanced [7]
- participants listen to six lists of 12 items each (different topics: animals, fruits, clothing items, etc.)
- balanced for high- and low-frequency items (determined by pretest)
- manipulation (insertion of *um*) of two items (1 high-, 1 low-freq) in every other list
- one token of *um* used: 560 ms
- 73 native English-speaking participants (recruited via Prolific)
- aural digitspan experiment included



## Recency effect



## Memory effect



## Results

- statistical analysis (GLMM) using the datasets of **target items**: `glmer(recalled ~ item order + digitspan + (1|subject) + (1|item), family = binomial)`
- significant effects: item order (recency effect), digitspan (memory capacity)
- frequency not a significant factor in model

## Discussion

- beneficial effect of FPs on memory not found
- recollection of items improved by **position** in list and general **memory score** of subject
- effect of FPs on memory more complex than expected: dependent on duration of FP, naturalness of stimuli and task, experimental setting (web vs. lab)

## References

[1] J. E. Arnold, C. L. H. Kam, and M. K. Tanenhaus, "If you say thee uh you are describing something hard: The online attribution of disfluency during reference comprehension," *Journal of Experimental Psychology: Learning, Memory, and Cognition*, vol. 33, no. 5, pp. 914–930, 2007. [2] M. Corley, L. J. Macgregor, and D. I. Donaldson, "It 's the way that you , er , say it : Hesitations in speech affect language com- prehension," *Cognition*, vol. 105, pp. 658–668, 2007. [3] P. Collard, M. Corley, L. J. MacGregor, and D. I. Donaldson, "Attention orienting effects of hesitations in speech: Evidence from ERPs," *Journal of Experimental Psychology: Learning, Memory, and Cognition*, vol. 34, no. 3, p. 696, 2008. [4] S. H. Fraundorf and D. G. Watson, "The disfluent discourse: Effects of filled pauses on recall," *Journal of Memory and Language*, vol. 65, no. 2, pp. 161–175, 2011. [5] H. R. Bosker, H. Quen'e, T. Sanders, and N. H. de Jong, "Native 'um's elicit prediction of low-frequency referents, but non-native 'um's do not," *Journal of Memory and Language*, vol. 75, pp. 104–116, 2014. [6] B. Muhlack, M. Elmers, H. Drenhaus, J. Trouvain, M. Van Os, R. Werner, M. Ryzhova, & B. Möbius (2021). Revisiting recall effects of filler particles in German and English. *Interspeech 2021*, 3979–3983. [7] H. Finger, C. Goetze, D. Diekamp, K. Standvoß, and P. König, "LabVanced: A unified JavaScript framework for online studies," 2017 International Conference on Computational Social Science IC2S2, pp. 2016–2018, 2017.