

Silence is Never Empty: Testing the Covert Repair Hypothesis on Spontaneous Russian

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Introduction. Spontaneous speech is inevitably accompanied by slips of the tongue, self-repairs, repetitions and hesitation pauses — disfluencies that offer a window into speech production. Their estimated frequency is about six per 100 words, but they cluster unevenly, alternating between more and less fluent stretches [1, 2]. The Covert Repair Hypothesis (CRH) [3] distinguishes overt self-repairs, where an already-articulated element is corrected, from covert repairs (CR), where the speaker detects and reformulates an error before articulation; CR surface as hesitation pauses or repetitions. We test the CRH on spontaneous Russian of neurotypical adults, predicting that an overt self-repair is less likely when the interval is preceded by a hesitatory event, since the hesitation signals that a CR has already occurred.

Experimental design. Based on [4], the stimuli were eight mazes of coloured shapes (fig. 1); participants described the route through each maze, naming each shape and its colour, in two sessions split by a short break. Two groups of 35 were recorded: a control group described the mazes twice, while an experimental group imagined providing the description for other people, to increase communicative responsibility. Recordings were annotated in [5] on two tiers: transcription with pauses, and disfluencies. Pauses were detected with a per-recording adaptive energy threshold (≥ 50 ms).

Analyses and preliminary results. We fitted a binomial GLMM predicting an overt self-repair in each inter-pause interval, based on 22 speakers ($N = 3,278$; the full 70-speaker dataset will be presented at the conference). The preceding pause was coded as silent (reference), HES (a filled pause or a silent pause > 700 ms), or PRLG (prolongation); the reference is therefore short juncture silent pauses below the hesitation threshold, not fluent speech. Fixed effects: pause type, condition, complexity, log interval duration, gender, age; random intercept for speaker. Overt repairs numbered 205 (6.3%). A hesitatory event reduced repair probability relative to silence (fig. 2; silent 8.5%; HES 3.8%, $\beta = -0.84$, $z = -4.70$, $p < .001$; PRLG 3.0%, $\beta = -1.10$, $z = -3.60$, $p < .001$). Adding the preceding pause's duration left these contrasts unchanged, and duration itself was null ($\beta = 0.003$, $p = .98$).

Conclusion. The preliminary results support the CRH: the presence, but not the duration, of a hesitatory event reduces the likelihood of a subsequent overt self-repair. That categorical presence predicts repair also speaks against the alternative that pauses merely buy planning time, for a graded planning account would predict fewer repairs after longer pauses; still, CR cannot be fully separated from successful pre-emptive planning.

References

- [1] J. E. F. Tree. The Effects of False Starts and Repetitions on the Processing of Subsequent Words in Spontaneous Speech // *Journal of Memory and Language*. 1995. V. 34. №. 6. P. 709–738.
- [2] A. Henderson, F. Goldman-Eisler, A. Skarbek. Sequential Temporal Patterns in Spontaneous Speech // *Language and Speech*. 1966. V. 9. №. 4. P. 207–216.
- [3] A. Postma, H. Kolk. The Covert Repair Hypothesis: Prearticulatory Repair Processes in Normal and Stuttered Disfluencies // *Journal of Speech, Language, and Hearing Research*. 1993. V. 36. №. 3. P. 472–487.
- [4] W. J. M. Levelt. Monitoring and Self-repair in Speech // *Cognition*. 1983. V. 14. №. 1. P. 41–104.
- [5] P. Boersma, D. Weenink. Praat: doing phonetics by computer [Computer program]. Version 6.4.65, retrieved 24 April 2026 from <https://praat.org>

Figures and Tables

Figure 1: Example of a Maze

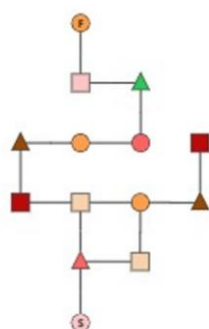


Figure 2: Predicted probability of an overt self-repair by type of preceding pause (GLMM estimates; error bars = 95% CI)

