Self-repairs in speech: The effect of age and speech task

BÓNA, JUDIT
ELTE Eötvös Loránd University

Introduction

During spontaneous speech, speakers monitor their own speech, and they often correct it. Self-monitoring can be covert and overt. In case of covert monitoring, the reparandum is not articulated, filled pauses and repetitions may refer to it. In case of overt monitoring, the speech error and its repair both appear in the speech. Levelt (1983) classifies self-repairs into 5 types, depending on their reason: Different information repairs (D-repairs), Appropriateness repairs (A-repairs), Error-repairs (E-repairs), Covert repairs, Other repairs.

There are two main repair-strategies during speaking: speakers prefer either fluency or accuracy (Seyfeddinipur et al. 2008; Nooteboom & Quené 2017). The two strategies are characterized by different durational patterns and other acoustic-phonetic properties.

Speech planning (and self-monitoring) processes are influenced by several factors like speakers' age and speech task. This presentation investigates the characteristics of self-monitoring of speakers of various ages in two speech tasks: spontaneous narratives and narrative recalls. It analyses three types of overt repairs: the proportion of D-repairs, A-repairs, and E-repairs, and it examines the characteristics of E-repairs in detail.

The main questions of the analysis were the following:
1) What durational patterns and functions characterize the monitoring processes in the analysed age groups?
2) 2) How does the dichotomy of fluency vs. accuracy occur in the self-repairs of the different age groups? Is there a difference in self-repair strategies between the examined age groups?

The hypotheses were the following:
1) There are differences between the groups in the proportion of the different types of self-repairs, but error-repair is the most frequent type (compared to A-repairs and D-repairs).
2) Children interrupt their erroneous utterances earlier than (young and old) adults, but they need longer time to correct their errors.
3) There are differences between the two speech tasks in the self-repairs, too.

Methodology

- 20 5-year-old typical developing children from GABI Database (10 male, 10 female)
- 20 9-year-old typical developing children from GABI Database (10 male, 10 female)
- 20 20-30-year-old speakers from BEA Database (10 male, 10 female)
- 20 65-85-year-old speakers from BEA Database (10 male, 10 female)
- Speech tasks: spontaneous narratives and narrative recalls.
- Annotation of self-repairs (Praat)
- Measurements: error-to-cutoff time, editing phase, error-to-repair time
- Analyses: types of self-repairs, comparison of durations, editing terms, frequency of delays, characteristics of the interruption point.
- Due to the rare occurrences of self-repairs, durational patterns and other characteristics (except frequency) are analysed together in the two speech tasks.

Results
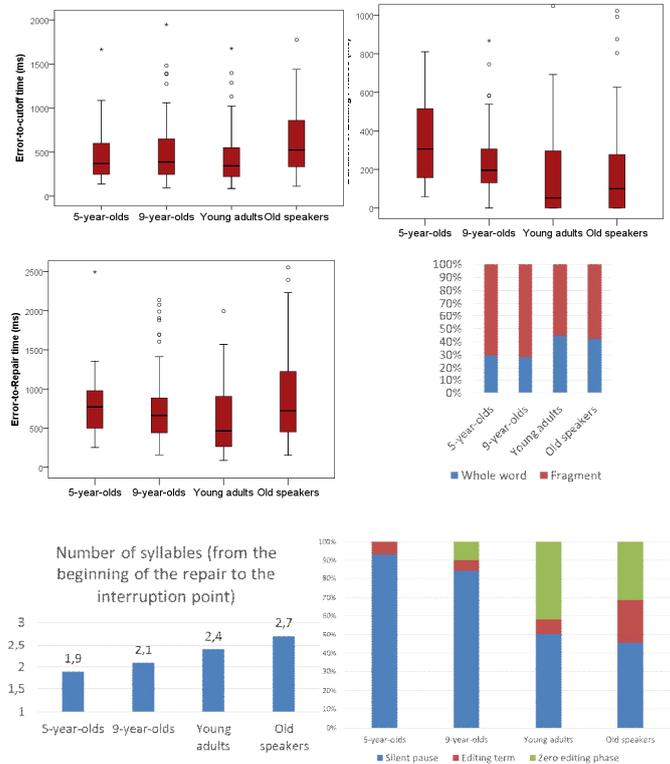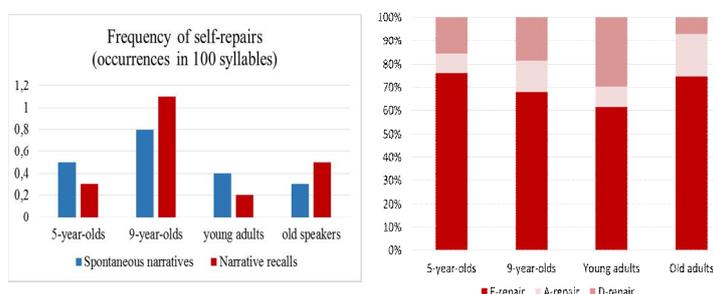
Significant differences:
Error-to-cutoff time: between old speakers and all other groups ($p < 0.005$)
Duration of Editing phases: between 5-year-olds and all other groups ($p < 0.005$)
between 9-year-olds and all other groups ($p < 0.005$)
Error-to-repair time: between young adults and all other groups ($p < 0.005$)

Summary and conclusions

- There are no clear differences between the speech tasks in the self-repairs due to the rare occurrence of self-repairs in spontaneous speech.
- Results show that age influences the occurrence of repair types. Children and old speakers produce less D-repairs than young adults.
- Strategies of error-repairs are different in the age groups:
  - children "prefer accuracy", while young and old adults "prefer fluency" during error-repairs.
  - Young adults are the fastest in error repairs.
  - Children keep less their fluency during error-repairs. They only acquire fluency strategies typical for adults later in life.

These results contribute to a more accurate understanding of the age characteristics of speech production processes.

References

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Seyfeddinipur, M., Kita, S., & Indefrey, P. (2008). How speakers interrupt themselves in managing problems in speaking: Evidence from self-repairs. *Cognition*, *108*(3), 837-842.