Why do we shorten repeated words? Evidence against the production priming account.

Cassandra L. Jacobs, Loretta Yiu, Duane G. Watson, Gary S. Dell (University of Illinois at Urbana-Champaign)

When does repetition reduction occur?

The second time I say *this word*, *this word* will be reduced– shorter, quieter, and flatter. What production factors lead to duration reduction?

- Hypothesis 1: Facilitation Reduction
- Hypothesis 2: Auditory priming

Hypothesis 1: Facilitation Reduction (Kahn and Arnold, 2013)

- Facilitation at any level of the production system (conceptual, lexical, and phonological) leads to reduction, even when said by another person (see also Bard et al., 2000)
- However, homophones do not prime (Fowler, 1988)

Prediction: All production practice that leads to activated representations should lead to reduction.

Hypothesis 2: Auditory priming

- Hearing a phonological sequence leads to reduction
- Should apply to homophones as well as repeated words but not inner speech

Prediction: Only *auditory* experience of a phonological sequence should lead to reduction. Alternatively, only lexical repetition leads to reduction. There should be no reduction following inner speech.

Experimental Design

Discourse Manipulation (given vs. new)

- **Prime:** The **fly** shrinks
- **Target:** The **clown**/**fly** flashes

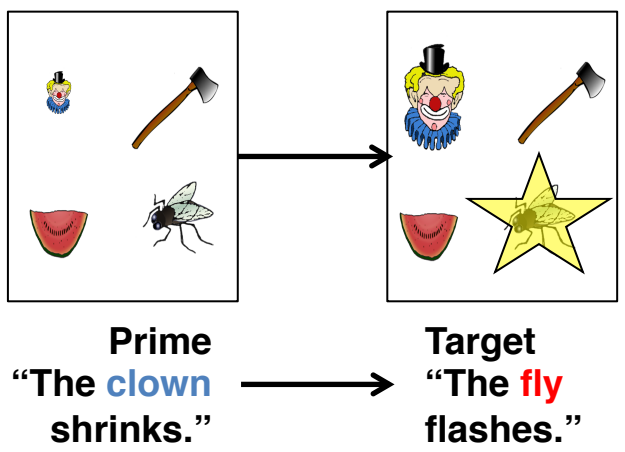
Speech Style Manipulation

The prime sentence is either spoken **aloud** (control), produced as **inner speech** (Exp. 1), or produced as **mouthed speech** (Exp. 2) or a **homophone** (Exp. 3). The target is always spoken aloud.

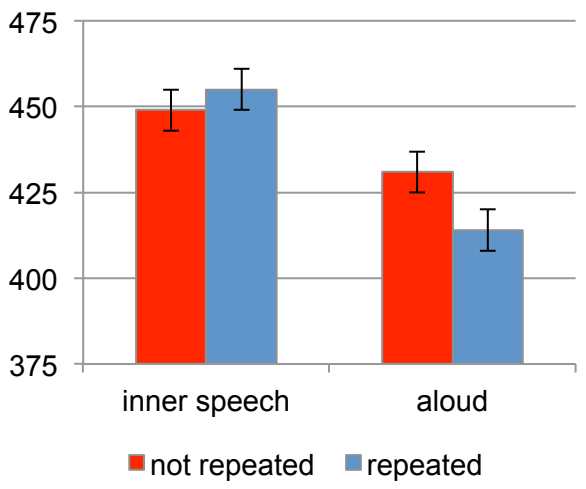
Predictions

1: Priming leads to reduction in all conditions.
2: If hearing a specific phonological sequence is necessary, then we should only see reduction after a repeated sequence.

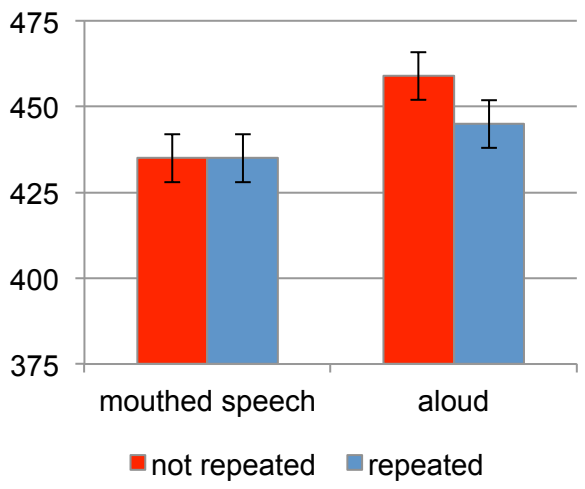
Experiment Trial



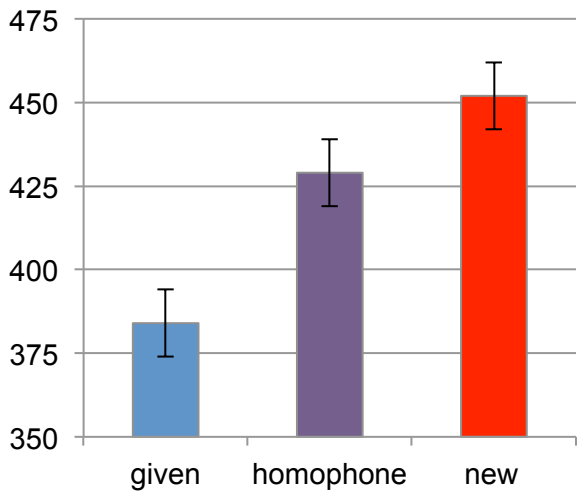
Experiment 1 (Inner speech) Durations



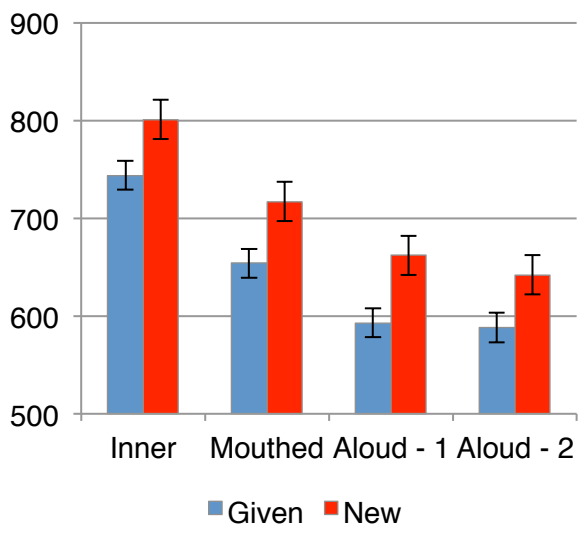
Experiment 2 (Mouthed inner speech) Durations



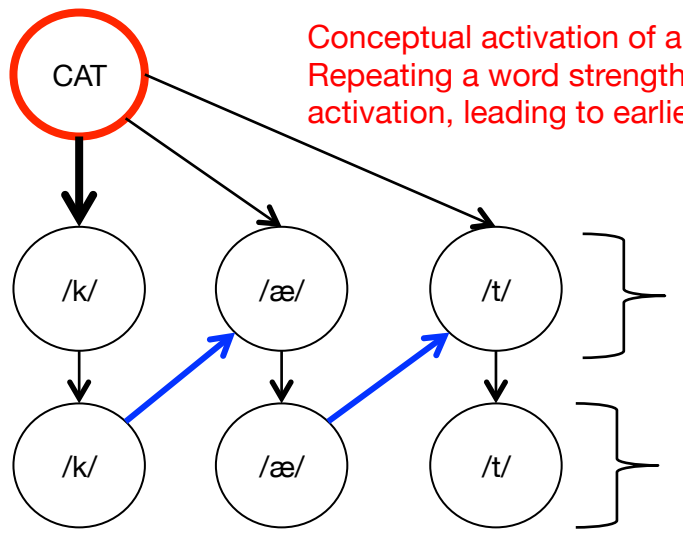
Experiment 3 (Homophone primes) Durations



Experiment 1 and 2 Onsets



Model



Conclusions

- Recent *auditory* experience leads to duration reduction
- Repetition of an articulatory pattern (Exp. 2) or repeatedly retrieving its semantics (Exp. 1) does not facilitate production
- Homophones prime because their phonological representations are close enough to facilitate (Exp. 3).
- Reduction on content words is different from facilitated message planning.
- Duration reduction is most sensitive to primed auditory representations, not just any facilitation

References

Bard, Anderson, Sotillo, Aylett, Doherty-Sneddon, Newlands, A. (2000). Controlling the Intelligibility of Referring Expressions in Dialogue. *JML*, *42*, 1–22. **Dell (1990).** Effects of frequency and vocabulary type on phonological speech errors. *LCP*, *5*, 313–349. **Fowler (1988).** Differential shortening of repeated context words produced in various communicative contexts. Language and Speech, 31, 307-319. **Kahn & Arnold (2013).** Articulatory and lexical repetition effects on durational reduction: speaker experience vs. common ground. *LCP.*

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