

The disfluent discourse: Effects of filled pauses on recall

Scott H. Fraundorf and Duane G. Watson
University of Illinois



RESEARCH QUESTION

Why do filled pauses (*uh*, *um*) benefit comprehension?

- **Processing time** increased?¹
- **Attention** to speech stream?²
- **Prediction** of upcoming material?³

METHOD

Materials

- Stories from *Alice's Adventures in Wonderland*
- 14 plot points each
- Recorded naturalistic productions
- Manipulate disfluency at 6 of 14 plot points through splicing



Procedure

- Naïve participants listen to story
- Recall in as much detail as possible
- Model odds of recall of each plot point with multi level model

EXPERIMENT 1

Compare:

Fillers before new plot points

"Meanwhile, **uh...** the cook keeps hurling plates at the Duchess."

Fluent stories

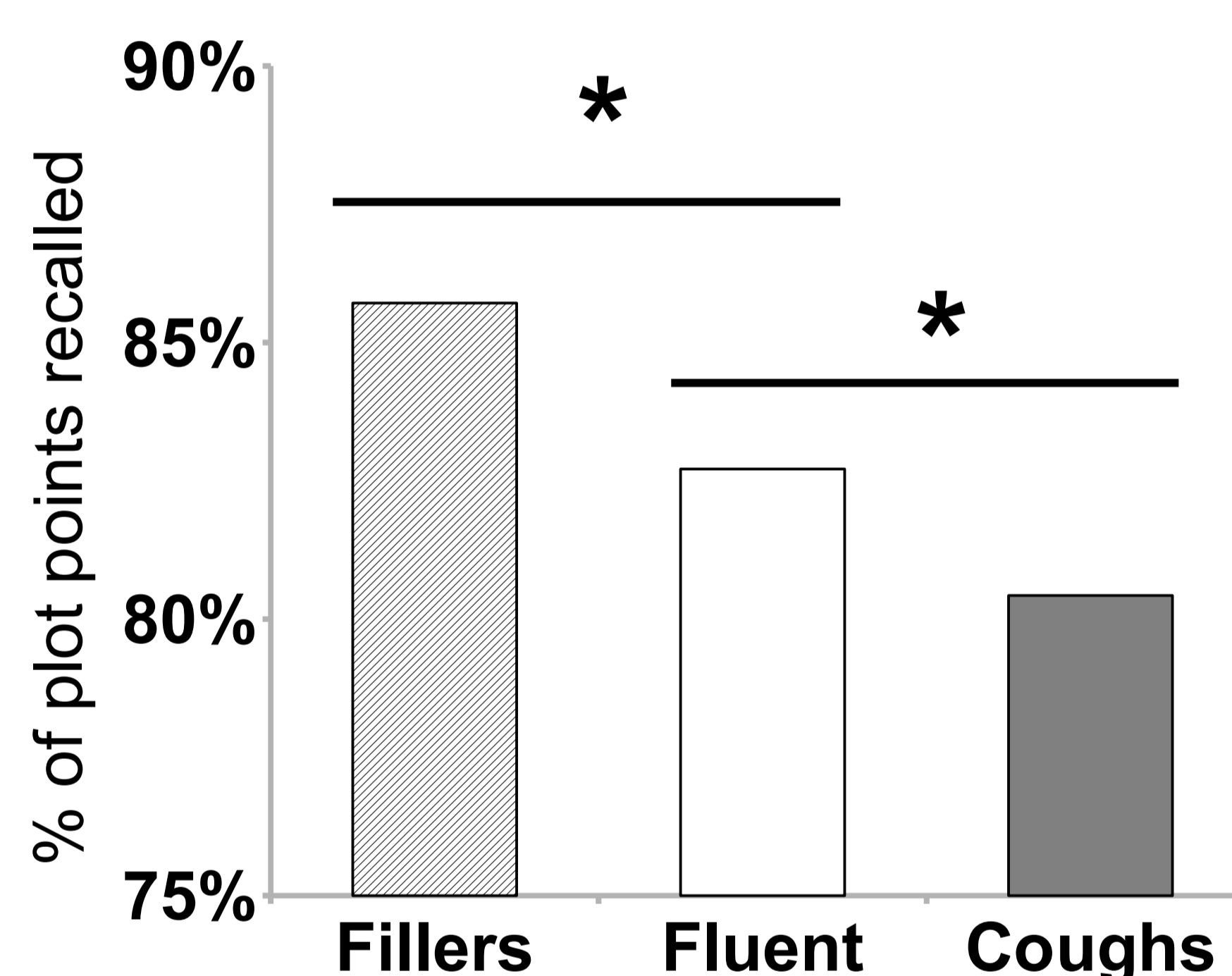
"Meanwhile, the cook keeps hurling plates at the Duchess."

Coughs before new plot points

- Matched in duration to fillers

"Meanwhile, **(cough)** the cook keeps hurling plates at the Duchess."

Results



Discussion

- **Fillers benefit** comprehension
Wald $z = 2.23$, $p < .05$
- Non-linguistic interruptions (coughs) hurt comprehension
Wald $z = -2.15$, $p < .05$
- Despite *identical duration*
- Evidence against *processing time hypothesis*

EXPERIMENT 2

Compare:

Fillers in typical locations

- Norming⁴: Before plot points

"Meanwhile, **uh...** the cook keeps hurling plates at the Duchess."

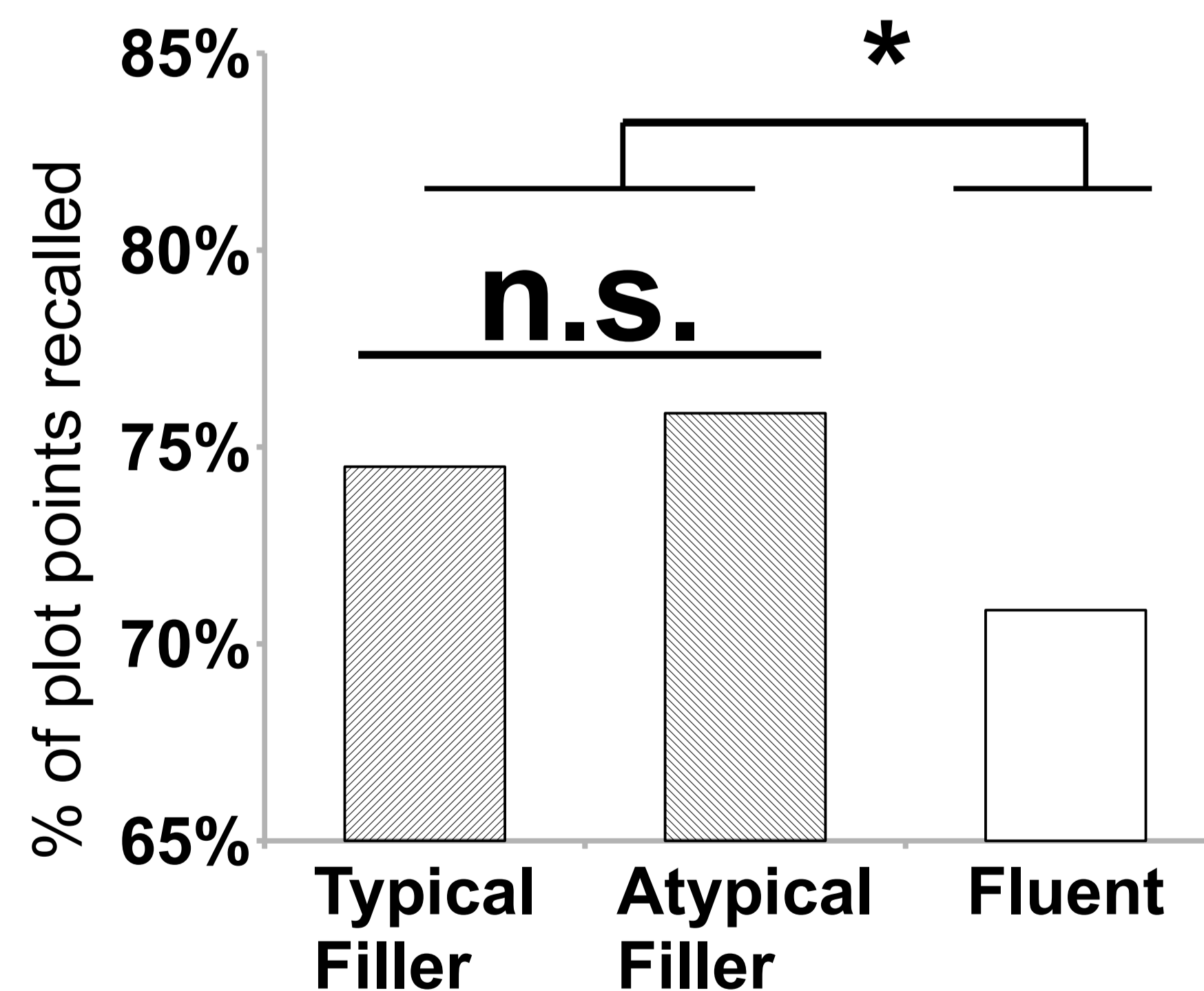
Fillers in atypical locations

- 5x less common in plot points

"Meanwhile, the cook keeps **uh...** hurling plates at the Duchess."

Fluent stories

Results



Discussion

- **Fillers in atypical locations** should lead to *incorrect predictions*
- But **benefit comprehension** just as much!
Wald $z = -0.85$, $p = .39$
- Evidence against *predictive processing hypothesis*

ACKNOWLEDGMENTS & REFERENCES

On back.

Contact: sfraund2@illinois.edu

GENERAL DISCUSSION

- Fillers may increase attention to speech stream
- Compensation for anticipated difficulty?
- Specific predictions may not always be made in complex discourse

ACKNOWLEDGMENTS & REFERENCES

This research was supported by U.S. National Institute of Health grant R01DC008774 to Duane Watson. Scott Fraundorf was supported by National Science Foundation Graduate Research Fellowship 2007053221.

¹ Brennan, S. E., & Schober, M. F. (2001). How listeners compensate for disfluencies in spontaneous speech. *Journal of Memory and Language*, *44*, 274-296.

² Collard, P., Corley, M., MacGregor, L. J., & Donaldson, D. I. (2008). Attention orienting effects of hesitations in speech: Evidence from ERPs. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *34*, 696-702.

³ Arnold, J. E., Tanenhaus, M. K., Altmann, R. J., & Fagnano, M. (2004). The old and thee, uh, new: Disfluency and reference resolution. *Psychological Science*, *15*, 578-582.

⁴ Fraundorf, S. H., & Watson, D. G. (2008). Dimensions of variation in disfluency production in discourse. In J. Ginzburg, P. Healey, & Y. Sato (Eds.), *Proceedings of LONDIAL 2008, the 12th Workshop on the Semantics and Pragmatics of Dialogue* (pp. 131-138).

Contact: sfraund2@illinois.edu