Introduction

‘Active Gap-Filling’ [1-6]
- Comprehenders compute filler-gap dependencies predictively.
- “Which book did the teacher read (_) to the children from _?”

Immediate Sensitivity to Potential Dependencies
- Filled-gap effect [3-5]
  “Mary asked { if / who } Ruth will bring us home to …”
- Plausibility effect [4-6]
  “John knew which { customer / article } the secretary called …”

A Notable Exception - Effect of Dependency Length [7-8]
- Wagers & Phillips manipulated the linear and structural distance between the filler and the potential gap.
- Filled gaps were detected immediately regardless of dependency length.
- BUT comprehenders did not immediately detect implausible filler-gap relations when they were further from each other; a plausibility effect was found only after the gap became evident.

Wagers & Phillips’ proposal
- Comprehenders can maintain the filler’s grammatical category identity in memory better than its semantic features.

The Present Study

Goal: To replicate W&P (2014)’s findings using eye-tracking.

Methods: n = 30; 48 item sets (24 from W&P + 24 newly created)

Experimental design:
- Short: It surprised the hostess that the mixture / stream which the builder skillfully/ plastered/ the cracked basement wall/ with after the safety inspection repaired the cracks effectively.
- +PP: The mixture / stream which the builder with the grey working coverall skillfully/ plastered/ the cracked basement wall/ with after the safety inspection repaired the cracks effectively.
- +CP: The mixture / stream which the friendly hostess described that the builder skillfully/ plastered/ the cracked basement wall/ with after the safety inspection repaired the cracks effectively.
- New Items: W&P’s items
- W&P’s items

Results (all items)

First pass reading time
@ Critical V
@ Post-critical NP

Probability of regression
@ Critical V
@ Post-critical NP

Regression path time
@ Critical V
@ Post-critical NP

Total reading time
@ Critical V
@ Post-critical NP

Results (new vs. W&P’s items)

Regression path time
@ Critical V
@ Post-critical NP

Summary
An immediate effect of plausibility across all levels of dependency lengths in both sets of materials.

Discussion

The Non-effect of Dependency Length
- Dependency length did not impact comprehenders’ sensitivity to the plausibility of filler-gap relations.
  → We did not replicate W&P14’s findings.
- In line with W&P14’s observation that dependency length did not impact comprehenders’ sensitivity to filled gaps.
- Alignment between plausibility and filled-gap effects.

Keeping the Active Gap-Filling Generalization
- Our findings extend previous findings and suggest that filler-gap dependencies are processed actively even when the dependency spans a long distance.

Potential reasons for the discrepancy?
- Self-paced Reading vs. Eye-tracking
- The combination of SPR and very long sentences (>20 words) may reduce the sensitivity of reading time measures.

References