Resumptive pronouns affect later filler-gap dependency processing

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Introduction

*We're afraid of **things** that we don't know [what ___ are]

?We're afraid of **things** that we don't know [what they are]

- Parser actively predicts upcoming gap sites for **filler-gap dependencies,** but not inside islands [1,2,3]
- **Resumptive pronouns** (RPs) can serve as the tail of a filler-gap dependency in island contexts [4]

- RPs in English are often described as ungrammatical repair devices employed by the production system [5,6,7,8,9]. However, the comprehension of RPs has been understudied [9,10,11,12].

Hypothesis: RPs ``save" islands in part by shortening the length of a filler-gap dependency

- Previous work [11,12] claimed that RPs are formed by a **pronoun-driven** search for an antecedent:

The {bridesmaid / priest} speculated **which groomsman** [the speech that he prepared] could offend ____.

- Interpretation of filler as object of main verb (*offend*) varied as a function of the number of antecedents available for the pronoun

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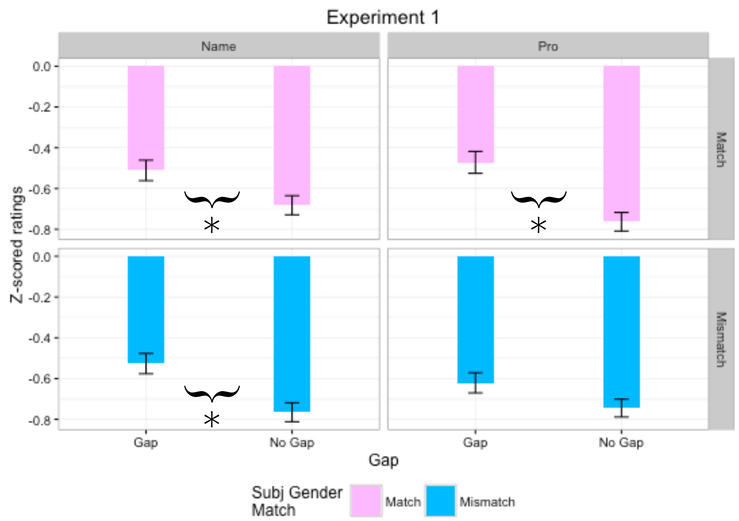
Experiment 1

- Acceptability judgment task on MTurk, $N = 48$
- 2×2×2 Latin Square Design
  {Subj. Gender Match/Mismatch; Pro/Name; Gap/No Gap}

{Rebecca / Gary} paid the **babysitter** who {her / Christy's} dogs licked the cherry lollipops with {___ / Gina} in the backyard.



- **Prediction 1**: Gap > No Gap in Name conditions
- **Prediction 2**: Gap–No Gap difference smaller in Pro conditions
- **Prediction 3**: Gap–No Gap difference smaller in Pro–Subj. Gender Mismatch conditions

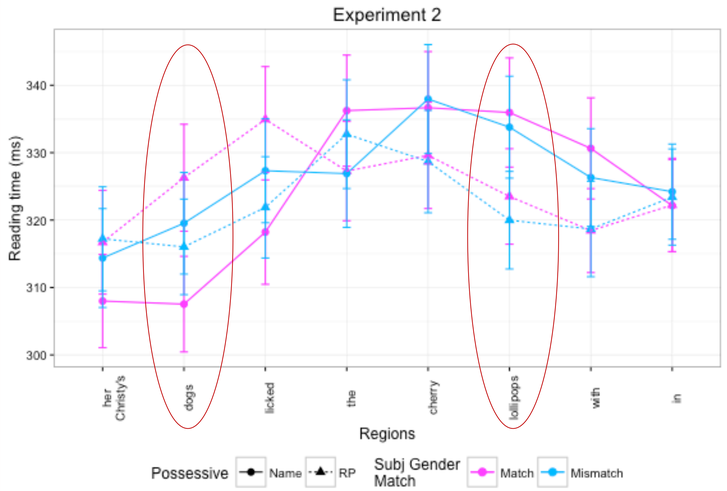
- Pairwise comparisons for Gap–No Gap:

Name–Match	$F(1,390) = 6.5$,	$*p = 0.01$
Name-Mismatch	$F(1,390) = 8.8$,	$*p < 0.01$
Pro–Match	$F(1,390) = 11.6$,	$*p < 0.01$
Pro–Mismatch	$F(1,390) = 2.7$,	$p = 0.10$

Experiment 2

- SPR on MTurk, $N = 72$
- 2×2 Latin Square Design
  {Subj. Gender Match/Mismatch; Pro/Name}

- **Prediction 1**: RTs faster at filled-gap region *the cherry lollipops* in Pro conditions
- **Prediction 2**: RT decrease should vary as a function of Subj Gender



- **Region 7:**
  Possessive: $\beta = 19 \pm 6$; $t(1761) = 2.9$; $p < 0.01$
  Possessive × Subj Gender: $\beta = 15 \pm 10$; $t(1762) = 1.7$; $p = 0.09$
- **Region 11:**
  Possessive: $\beta = -13 \pm 6$; $t(1764) = 1.9$; $p = 0.05$

Conclusion: RPs locally increase processing difficulty, but reduce the need to maintain an active filler in memory

- RPs' effect is very slight, in both RTs and judgments
- Effect may vary by number of antecedents for pronoun
- Modeling?
- Effect of island vs. long-distance dependency?