

## Minding the gap?: (Some) conditions on resumption in English

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Much work on the processing of filler-gap dependencies (FGDs) shows that comprehenders actively construct gaps (Crain & Fodor, 1985; Stowe, 1986). However, active gap formation is suppressed in island contexts, or syntactic constructions that a FGD may not cross (*\*This is the agent that [the rumor about \_\_] was false*; Ross 1967; Stowe 1986; Traxler & Pickering 1996; Phillips 2006). However, FGDs may exceptionally resolve with a resumptive pronoun in islands (*?This is the agent that [the rumor about him] was false*). Resumption is ungrammatical in English (Heestand *et al*, 2011), but immediately facilitates processing (Hofmeister & Norcliffe, 2013). This is unexpected if comprehenders obey island constraints. Upon encountering a pronoun in an island, the comprehender must decide whether to wait for a later gap (Chacón 2015), or to discharge the dependency ungrammatically with the pronoun. I present three experiments that investigate the conditions under which a pronoun will be treated as a resumptive. I argue that resumption is more acceptable when (1) the pronoun and the filler are coreferential (Erteschik-Shir 1992), and (2) when working memory resources are limited. I claim that resumption is licensed when resources are overloaded, and comprehenders cannot maintain a representation of a predicted gap.

Experiments 1–3 were speeded acceptability judgment tasks, and Experiments 2–3 included a word-list memorization task. Participants judged sentences in which a FGD resolves with a gap (*The butler said that this is **the maid** that [**her friend**] really highly recommended \_\_*), and sentences in which there was no gap, i.e., resumption was forced with a pronoun (*The butler said that this is **the maid** that [**her friend**] doesn't like kids*). In addition to  $\pm$ Gap, I manipulated Pronoun Reference (Ambiguous/Filler/Distractor) by manipulating the stereotypical genders of the NPs of the filler and a distractor NP. I predicted that the +Gap conditions would be overwhelmingly accepted, and the –Gap conditions overwhelmingly penalized. However, if comprehenders consider resolving a FGD with the pronoun, then –Gap, Filler should improve. We find that resumptive pronouns improve a sentence's acceptability, but only when memory resources are tied up in a memorization task.

**Experiment 1.** ( $N = 54$ , 32 items, 48 fillers). +Gap conditions were more acceptable than the –Gap conditions ( $\beta = 4.4$ ;  $p < 0.001$ ), but there were no differences among the –Gap conditions ( $\beta = -0.17$ ,  $p = 0.78$ ;  $\beta = 0.01$ ,  $p = 1.0$ ;  $\beta = 0.19$ ;  $p = 0.76$ ). Comprehenders penalize –Gap conditions, regardless of pronoun interpretation.

**Experiment 2.** ( $N = 60$ ). Experiment 2 was the same as Experiment 1, except there was an additional word-list memorization task. Participants memorized a list of 3 words, then judged the sentence, then determined whether a probe word was in the list. +Gap conditions were more acceptable than the –Gap conditions ( $\beta = -3.65$ ,  $p < 0.001$ ), and there was an interaction effect of Gap and Reference, lowering rates for –Gap, Subject conditions ( $\beta = -0.83$ ,  $p < 0.01$ ).

**Experiment 3.** ( $N = 76$ ). Experiment 3 was the same as Experiment 2, except that the filler preceded the distractor, to ensure that the result from Experiment 2 was not a recency effect. Again, +Gap conditions was more acceptable than –Gap conditions ( $\beta = 2.23$ ,  $p < 0.001$ ), and there was an interaction effect between –Gap, Filler improving ratings ( $\beta = 0.78$ ,  $p = 0.001$ ). Experiments 2 & 3 show that coreference between filler and pronoun (= resumption) improves an ungrammatical sentence under memory overload.

**Table 1:** Materials for Experiments 1 and 2.

<i>Ambiguous/Filler/Distractor</i>				$\pm$ Gap
<p>The maid The butler The maid</p>	<p>said that this is</p>	<p>the babysitter the babysitter the butler</p>	<p>that [NP her friend]</p>	<p>really highly recommended ____ / doesn't like kids</p>

**Table 2:** Materials for Experiment 3.

<i>Ambiguous/Filler/Distractor</i>				$\pm$ Gap	
<p>This is</p>	<p>the babysitter the babysitter the butler</p>	<p>that</p>	<p>the maid the butler the maid</p>	<p>said that [NP her friend]</p>	<p>really highly recommended ____ / doesn't like kids</p>

**Table 3.** Results for Experiments 1–3. Numbers represent mean acceptance rate + 1 standard error. The critical condition, –Gap, Filler is in bold.

	<i>Experiment 1</i>	<i>Experiment 2</i>	<i>Experiment 3</i>
<i>+Gap, Ambiguous</i>	0.89±0.02	0.91±0.01	0.84±0.02
<i>+Gap, Filler</i>	0.84±0.02	0.85±0.02	0.83±0.02
<i>+Gap, Distractor</i>	0.85±0.02	0.90±0.01	0.85±0.02
<i>–Gap, Ambiguous</i>	0.14±0.02	0.32±0.02	0.46±0.02
<b><i>–Gap, Filler</i></b>	<b>0.16±0.02</b>	<b>0.25±0.02</b>	<b>0.59±0.02</b>
<i>–Gap, Distractor</i>	0.14±0.02	0.20±0.02	0.44±0.02

**References.** • Chacón, D.A. 2015. PhD Thesis, U Maryland. • Crain, S., J.D. Fodor. 1985. In *Natural Language Parsing*, Cambridge University Press, 94–128. • Erteschik-Shir, N. 1992. In *Island Constraints: Theory, Acquisition, and Processing*. Dordrecht: Kluwer. • Heestand, D. *et al.* 2011. *LI* 42(1), 138–152. • Hofmeister, P., E. Norcliffe. 2013. *The Core and the Periphery*, Stanford: CSLI. • Phillips, C. 2006. *Language* 82(4), 795–823. • Ross, J. 1967. PhD Thesis, MIT. • Stowe, L.A. 1986. *LCP* 1(3), 227–245. • Traxler, M.J., M.J. Pickering. 1996. *JML* 35, 454–475. • Zukowski, A., J. Larsen. 2004. CUNY Poster