

## Fillers After the Gap.

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Evidence for active gap filling strategies has come from many experimental measures, indicating both the parser's eagerness to complete a long-distance dependency and the privileged status of the filler in processing. However, it is an entirely open question how the representation and accessibility of the displaced element changes upon completion of the dependency. Here we evaluate the hypothesis that, after successful dependency completion, the filler loses its privileged status, by investigating the effect of an implausible filler at optional and obligatory second gap positions in self-paced reading. We find that standard active gap filling may be inoperative at fully grammatical second gap positions, possibly even in cases where the gap is required by a robust constraint.

Coordinate phrase across-the-board (ATB) extraction and adjunct parasitic gaps (p-gaps) are both cases where one wh-phrase participates in multiple dependencies and, crucially, where evidence for multiple dependencies appears only after the first dependency is completed. Coordinate ATB extraction forces all coordinates to contain a gap - the licit exception to the Coordinate Structure Constraint (CSC [1]) - whereas adjuncts allow but do not require p-gaps (1). This paradigm was confirmed in an off-line acceptability rating study, which found that second gaps are equally acceptable in coordinate structures and adjuncts (Bonferroni-corrected *t*-test,  $p=0.77$ ), but that replacing the second gap with an overt NP is markedly worse in coordinate structures than adjuncts (Bonferroni-corrected *t*-test,  $p<0.001$ ).

We used a plausibility manipulation [2-3] to probe for active gap filling effects at the second verb in both coordinate and adjunct phrases. Stimuli were constructed so that the filler was always plausible as an object of the first verb, but showed varying plausibility as the object of the second verb (2). A plausibility effect at the second verb would indicate that fillers remain active beyond completion of the *wh*-dependency. Results of the self-paced reading study ( $n=32$ ; word-by-word moving window) showed no evidence of a slow-down due to implausibility at or beyond the second verb in the adjunct conditions, though a marginal effect in the opposite direction was observed ( $F_1(1,31)=2.64$ ; n.s.;  $F_2(1,23)=4.98$ ;  $p<0.05$ ). This contrasts with findings about potential p-gap sites that precede the main clause gap site [4], and suggests that fillers cease to be active once grammatical constraints are satisfied. In the coordinate conditions an effect of plausibility was found, but not until two words beyond the second verb ( $F_1(1,31)=7.14$ ;  $p<0.01$ ;  $F_2(1,23)=8.28$ ;  $p<0.005$ ). Although this may reflect a delayed effect of active gap filling, it may equally reflect non-active mechanisms that construct the second gap only when direct evidence is encountered. This suggests that even a robust grammatical constraint like the CSC may be unable to preserve active gap filling (cf. [5]).

- Ex.** (1) **Coordinate:** Which cakes was Marcel dipping \_\_\_ in his tea and devouring (\_\_\_/\*his croissants)?  
**Adjunct:** Which cakes was Marcel dipping \_\_\_ in his tea before devouring (\_\_\_/his croissants)?  
(2) (a) **Coordinate Continuation x Plausible Filler:** The *wines* which the gourmets were energetically discussing or slowly sipping during the banquet were rare imports from Italy.  
(b) **Coordinate Continuation x Implausible Filler:** The *cheeses* which the gourmets were energetically discussing or slowly sipping during the banquet were rare imports from Italy.  
(c) **Adjunct Continuation x Plausible Filler:** The *wines* which the gourmets were energetically discussing before slowly sipping the samples during the banquet were rare imports from Italy.  
(d) **Adjunct Continuation x Implausible Filler:** The *cheeses* which the gourmets were energetically discussing before slowly sipping some wine during the banquet were rare imports from Italy.

- Ref.** [1] Ross, J. (1967). *Constraints on variables in syntax*. MIT PhD dissertation.  
[2] Garnsey, S., Tanenhaus, M., & Chapman, R. (1989). *J. Psycholing. Res.*, 18, 51-60.  
[3] Traxler, M., & Pickering, M. (1996). *J. Mem. Lg.*, 35, 454-475.  
[4] Phillips, C. (submitted). The real-time status of island constraints.  
[5] Pickering, M. Barton, S., & Shillcock, R. (1994). In Clifton et al. (eds.), *Perspectives on Sentence Processing*.