

Memory word location and the sentence span task: Evidence for a shared resource system

This paper presents preliminary data from a sentence span task (Daneman & Carpenter, 1980) that addresses a fundamental problem with previous experiments investigating whether syntactic processing and general working memory use a shared resource system (Just & Carpenter, 1992, and subsequent work) or separate resource systems (Caplan & Waters, 1999, and subsequent work); namely, that the memory word was consistently presented at the *end* of the sentence. However, at that point, the syntactic processing is complete; hence, these experiments cannot be used to investigate the shared versus separate resource(s) debate. The current experiment directly addresses the shared/separate resources hypotheses by *interrupting* syntactic processing, providing a novel approach to investigating this question by manipulating the location of the memory word. In this experiment, memory words were presented at three different syntactic locations: i) after the subject, ii) after the verb, and iii) after the object. If syntactic processing and working memory share resources, it is predicted that recall performance will be worse when processing is interrupted (i.e. after the verb) in comparison to when processing is complete (i.e. after the object). However, if separate resources are used, there should be no difference in recall performance amongst the conditions. Preliminary results indicate that fewer words were recalled when the memory word was found after the verb in comparison to after the object, supporting the shared resource hypothesis: recall performance decreased when syntactic processing was interrupted (i.e. after the verb), suggesting that working memory and syntactic processing use the same pool of resources.

Word count: 250

Presentation preference: Oral presentation

References

- Daneman, M. & Carpenter, P.A. (1980). Individual differences in working memory and reading. *Journal of Verbal Learning and Verbal Behavior*, 19(4), 450-66.
- Just, M.A. & Carpenter, P.A. (1992). A capacity theory of comprehension: Individual differences in working memory. *Psychological Review*, 99(1), 122-49.
- Caplan, D. & Waters, G.S. (1999). Verbal working memory and sentence comprehension. *Behavioral and Brain Sciences*, 22(1), 77-94.