

## An Experimental Approach to Verb Phrase Ellipsis

We present results from three experiments in a study of ellipsis processing and acceptability. The study demonstrates that syntactic parallelism effects in ellipsis are mediated at the level of information structure and, moreover, that such effects occur independently of ellipsis.

In Experiment 1 we test the hypothesis that reduced acceptability for syntactically mismatched antecedent/target pairs is driven by violation of an information structural constraint enforcing parallel structure for contrastive topics. The hypothesis is tested using stimuli like (1)-(2), where syntactic parallelism is crossed with information structure. Our proposal differs from typical syntactic analyses of ellipsis in predicting greater sensitivity to syntactic mismatch in contrastive topic structures (1a/2b) as compared to structures without contrastive topics (1b/2a). Syntactic analyses do not distinguish between the two mismatch cases (1b/2b) and predict unacceptability for both.

- |  | parallel-antecedent | contrastive-topic |
|--|---------------------|-------------------|
| (1) Venomous snakes are easy to identify,  |                     |                   |
| a. and poisonous plants are as well.       | <i>yes</i>          | <i>yes</i>        |
| b. and most experienced hikers can.        | <i>no</i>           | <i>no</i>         |
| (2) It's easy to identify venomous snakes, |                     |                   |
| a. and most experienced hikers can.        | <i>yes</i>          | <i>no</i>         |
| b. and poisonous plants are as well.       | <i>no</i>           | <i>yes</i>        |

Consistent with our hypothesis, magnitude estimation results show a reliable interaction where the effect of a mismatched antecedent is greater in the contrastive topic condition (2b) than in the non-contrastive topic condition (1b).

In two follow-up experiments we tested the hypothesis that the information structural constraint observed in Experiment 1 operates independently of ellipsis. In Experiment 2, we paired the mismatched ellipses from Experiment 1 (1b/2b) with controls that substituted a full verb phrase for the ellipsis. All stimuli thus exhibited non-parallel structure, and the factors manipulated were contrastive-topic (+/-) and ellipsis (+/-). Magnitude estimation results showed reliable main effects for ellipsis, judged less acceptable than the full VP condition, and for contrastive topic, judged less acceptable than the non-contrastive condition, with no interaction. Thus a lack of parallelism led to reduced acceptability for contrastive-topic structures *even in the absence of ellipsis*, a finding which challenges theories that attribute mismatch effects to processes of antecedent reconstruction.

In Experiment 3 we recorded self-paced reading times for the stimuli from Experiment 1, modified to include a post-ellipsis spillover region. Consistent with the Experiment 1 results, we found a reliable interaction at the first post-ellipsis region, where a lack of parallelism led to a greater increase in reading times in the contrastive-topic condition as compared to the non-contrastive condition. However, the interaction was also observed in the pre-verbal region (reliable at *poisonous*, marginal at *plants*), indicating that a lack of parallelism in a contrastive-topic structure disrupts processing quite early, indeed *before the reader has encountered the ellipsis*.

We argue that these results prompt a re-examination of the role antecedent mismatch data have played in forming theories of ellipsis, and we present a model of ellipsis processing where defective information structure introduces a processing cost which is amplified in ellipsis contexts.