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# Semantic Complexity and Language Production: Simple vs. Complex Verbs

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## Introduction

Because language is a discrete combinatorial system in which smaller representations at one level combine to form larger representations at another level, verbs can differ with respect to the number of smaller representations that comprise them. The semantic and morphological levels are most closely related to a verb's meaning, and it has been shown that lemmas that share overlapping semantic features compete for production when encoded in the same local context (e.g., Breedin, Saffran, & Schwartz, 1998). This study investigated the competition between complex and simple verbs using a speech error elicitation task intended to induce contextual errors where one verb replaces another in a perseveration, anticipation, or complete exchange (e.g., Baars, 1992). Here, complex verbs contained all of the same semantic features as a simple verb in addition to additional features at the semantic and morphological levels. Two experiments tested the hypothesis that more complex verbs would replace their simpler counterparts more often than vice versa in contextual errors due to being associated with a greater number of activated semantic features at the point of lemma selection.

## Experiment 1

Experiment 1 investigated the antonymic contrast between verbs where one is semantically and/or morphologically marked. For instance, in the semantic + morphological condition, the verb UNTIE has all of the features of TIE plus a negation feature at the semantic level and an additional morpheme at the morphological level. In the semantic only condition, the verb DECODE contains all of the semantic features of ENCODE, but does not consist of an extra morpheme at the morphological level. It was predicted that complex verbs in both conditions would replace their simpler counterparts (denoted *simple* → *complex*) in contextual errors more often than vice versa. An asymmetry was also predicted such that the additional morpheme and semantic features of the complex verb in the semantic + morphological condition would result in an even greater number of *simple* → *complex* speech errors than in the semantic only condition.

The results of Experiment 1 are listed in Table 1. As predicted, the effect of error type was significant, as was the interaction between error type and complexity condition. There is evidence that the additional morpheme in the semantic + morphological condition gave the complex verb lemmas an additional advantage over their simpler counterparts.

## Experiment 2

This experiment examined the contrast between simple and complex verbs that differed with respect to an added feature of manner specification as well as morphological aspect features. The lemma representations of complex verbs like JOG contain all of the semantic features of the lemma representation of a simple verb like GO plus a specification of manner. In addition, the morphological features of progressive aspect were added to half of the complex verbs (i.e. "is jogging"). Again, more *simple* → *complex* errors were predicted than the reverse, and the added morphological features were expected to enhance this effect.

The results of Experiment 2 are listed in Table 1. The effect of error type was significant both conditions, as was the effect of complexity condition. The interaction was not significant, indicating that the additional morphological aspect features in the semantic + morphological condition did not contribute to the complex verb's lemma activation beyond that of the additional manner feature.

Table 1. Results for Experiments by Subject (p-values)

Effect	Experiment 1	Experiment 2
Error Type	<.001	<.001
Complexity Cond.	>.05	.04
Interaction	.02	>.05

## References

- Baars, B. J. (1992). A dozen competing-plans techniques for inducing predictable slips in speech and action. In B. J. Baars (Ed.), *Experimental Slips and Human*. New York: Plenum Press.
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