A *saucer* or a *plate*: Do word frequency and word length influence the outcome of lexical competition in language production?

Svetlana Gorokhova  
St Petersburg State University  
contact: svetlana@SG13900.spb.edu

Semantic paraphasias (slips of the tongue) naturally occurring in Russian normal speech were analyzed for word frequency, word length, target-error co-occurrence strength, and word association norms. The analyses involved 1191 speech errors collected by recording everyday conversations, telephone conversations, and live TV and radio programs.

The target-error pairs of nouns were classified as either “taxonomically related (category coordinates)” (TARGET: *I want to get you a saucer* → ERROR: …*a plate*) or “non-taxonomically related” (TARGET: *She will wear this coat in winter, too* → ERROR: …*at night*…) by 20 undergraduate students of linguistics and 4 professional linguists.

Previous studies of semantic substitution errors in normal speech (Hotopf 1980; del Viso et al. 1991; Harley & MacAndrew 2001) failed to discover any significant frequency difference between target words and their semantically related substitutes. However, Russian speech error evidence suggests that whether such a difference exists depends on the type of conceptual-semantic relationship between the target and its substitute. Semantic substitutes do tend to be higher in frequency than target words when the target and the substitute are non-taxonomically related whereas for taxonomically related target-error pairs, the frequency difference is questionable (no significant difference was observed for raw frequency values).

At the same time, there is a strong positive correlation between target frequencies and error frequencies in both groups of semantic paraphasias, indicating that target word frequency affects the outcome of the error: to successfully compete with a word to be produced, a semantically related word has to be of a higher frequency. The data suggest that probabilistic information about lexical units may be available at earlier stages of word retrieval such as the stage of lexical selection. This finding runs counter to the claim that frequency is coded only at the phonological encoding level (Jescheniak & Levelt 1994; Jurafsky 2003 etc.).

A comparison of target and error lengths in non-taxonomically related target-error pairs shows the substitutes to be significantly shorter than the targets. Multiple regression analyses reveal that in this case, both target frequency and target length (measured in syllables but not in phonemes) have an impact on error frequency. Conversely, targets that elicit taxonomically
related errors appear to be “matched for length” with their substitutes, so word length is not a significant variable predicting the outcome of such errors.

**Taxonomically related target-error pairs**

![Log lengths (not significant)](image)

**Non-taxonomically related target-error pairs**

![Log lengths (significant)](image)

Taxonomically related target-error pairs were found to have much higher measures of **associative relatedness** and **co-occurrence strength** compared to non-taxonomically related target-error pairs. Consequently, a taxonomically related substitute is more likely to be closer to the center of the target’s lexical-semantic field whereas a non-taxonomically related substitute is typically a peripheral item that belongs to a cognitive frame evoked by the target.

![Target-error associative relatedness](image)

![Target-error co-occurrence strength](image)

To conclude, target word frequency is a significant variable affecting the outcome of lexical competition particularly when the competing items are non-taxonomically related. Target word length seems to matter only when the target competes with a non-taxonomically related item. With semantic substitutions of taxonomic type, word length is not significant in predicting the outcome of the competition apparently because it is outweighed by the speaker’s experience of frequently using the target word together with the competing taxonomically related item (resulting in stronger associative links between the two words).

References: