Main Question

Speakers often begin to plan their speech several words in advance. Does this advance planning affect which words they say?

Background

- Speech planning is not strictly sequential
- Semantic content of upcoming words is often planned in advance
- Stages of word planning differ in automaticity
- Lexical selection – choosing an active word for production – requires central attention (Kleinman, 2013)
- Activation of lexical candidates from semantic content requires less attention
- This difference might affect lexical selection when multiple words are equally appropriate

**couch** (80%)

**sofa** (20%)

- *couch* has higher lexical frequency than *sofa*
  - More dominant names (28% vs. 34%)
  - More attention to & greater processing of *couch*
  - Selection takes place farther to the right on the figure above

**Predicted effects of advance planning:**

1. Increased production of non-dominant names (main effect of planning)
2. Diminishing returns for additional processing time on production of non-dominant names (interaction between planning & processing time)

Stimulus Selection

- Dominant names for each picture obtained by combining norming data from two studies and experimental data from two experiments
- A picture was used in each experiment if (a) its dominant name was consistent across 75%+ of studies, and (b) the overall dominant name matched that experiment’s dominant name
- Exp. 1 used 24/28 crit pics; Exp. 2, 34/40

Experiment 1

Isolated vs. advance planning

**Motivation:** Will speakers produce more non-dominant names for pictures when they can plan those names in advance?

**Participants:** 100 UCSD students

**Materials:** 56 object pictures (28 critical; i.e., with multiple names)

**Design:**

- Exp. 1 used 24/28 crit pics; Exp. 2, 34/40
- *couch* presented second

**Results:**

- Data analyzed using logit mixed models; $DV = \text{non-dominant ("success") or dominant name ("failure")}$ produced
- Model 1: Preview condition
- Model 2: RT; RT:Preview interaction

**Discussion:**

- Among fastest 2/3 of responses, more non-dominant names produced with preview (predicted main effect; 29% vs. 20%)
- More non-dominant names produced for slower responses (overall & within each condition)
- Smaller effect of additional processing time with preview - diminishing returns due to processing head-start (predicted interaction)
- Supplementary analysis: For preview condition, RT to 1st picture did not affect productions
  - Suggests preview benefit is fixed, not continuous

Experiment 2

Earlier vs. later sentence positions

**Motivation:** Will speakers produce more non-dominant names at later sentence positions?

**Participants:** 100 UCSD students

**Materials:** 160 object pictures (40 critical)

Discussion:

- No main effect of order of mention, but a ternary split on RT reveals two sig. effects:
  - For fastest 1/3 of responses: Naming critical pictures 2nd *increased* production of non-dominant names (25% vs. 17%)
  - Agrees with Exp. 1 (predicted main effect)
  - For slowest 1/3 of responses: Naming critical pictures 2nd *decreased* production of non-dominant names (28% vs. 34%)
  - Driven by more attention to & greater processing efficiency for Pic 1
  - Flat slope & greater intercept for named-2nd condition support fixed preview benefit

Conclusions

1) When speakers take longer to name a picture, they are more likely to use a non-dominant name.
2) This relationship is causal: Delaying lexical selection allows difficult-to-retrieve words to become more available.
3) Since pre-planning effectively delays lexical selection in everyday speech, the words we choose are influenced by our ability to plan them in advance.

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