Minimal Effects of Order of Noun Activation on Sentence Production
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ABSTRACT

Sentence production theory states that the noun that is activated first takes the sentence subject position regardless of its animacy, thus determining sentence structure (Bock & Levelt, 1994; Levelt, 1989). However, a previous study (Altmann & Kemper, in press) finds that young adults prefer animate nouns as sentence subjects regardless of their positional prominence in the stimulus. The current study uses a constrained sentence production task to examine the impact of the temporal order of noun activation on sentence structure choice. We compare sentence production when a verb and 2 nouns appear simultaneously to when a stimulus noun appears either 100 ms or 150 ms before the remaining stimulus words. This timing difference is imperceptible in the 100 ms condition but obvious in the 150 ms condition.

According to theory, participants should produce more inanimate subject sentences when an inanimate noun is activated prior to the rest of the sentence words. However, results show little effect of prior presentation of animate or inanimate nouns on the sentence type produced, although it affected accuracy and response times.

METHODS

Subjects
72 University of Florida students between 18 and 28 volunteered for this study and were compensated for their time. All native speakers of standard English, and none had reading or language disorders. 29 subjects participated in the simultaneous condition, 25 in the offset-100 condition, and 19 (to date) in the offset-150 condition.

Procedure
Participants produced sentences that included 3 stimulus words. Stimuli were centered vertically and horizontally on a computer screen and were identical to those used in Altmann & Kemper (in press). The stimuli consisted of 64 sets of 3 words, each including a transitive verb in its past participle form and 2 nouns differing in animacy. Animacy nouns referred to professions (doctor, butler; farmer); inanimate nouns were chosen to be plausible objects of particular verbs. Stimuli either had the animate (Top-An) or inanimate (Top-IN) noun on top of the array, the verb in the center, and the remaining noun below.

Stimuli included 4 types of verb past participles:
- Regular agent-patient (e.g., stirred, kicked)
- Experiencer-theme (Exp-Theme) (e.g., loved, despised)
- Irregular agent-patient (e.g., slapped, thrown)
- Regular Theme-Experiencer (Theme-Exp) (e.g., confused, bored)

Each trial consisted of: a Ready screen (“Ready? Push the space bar”), a fixation star (500 ms), a stimulus set, then the Ready screen. Stimuli disappeared as soon as a response was detected.

Results were analyzed using a series of 3 (Timing) x 4 (Verb Type) x 2 (Noun Position) ANOVAs.