Language Production in Social Interaction: Semantic Interference Turns into Facilitation

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Numerous studies have demonstrated that the production of words is delayed when speakers process in close temporal proximity semantically related words. Yet, in spontaneously occurring conversations interlocutors' utterances are often semantically related to each other.
To investigate whether semantic interference is also observed in social interaction we embedded a picture-word interference task in a communicative setting: Two participants played a card game during which one named the distractor word and, after a stimulus-onset-asynchrony (SOA) of either -100ms or -650ms, the other was prompted to name a semantically related or unrelated target picture, see *Figure 1*. Log-transformed target naming latencies were modeled as a function of semantic relatedness (related vs. unrelated) in a nested structure for each SOA level separately with linear mixed effects models. To both predictors we applied sliding difference contrasts that compare mean differences between adjacent factor levels.
Although picture-word interference is typically quite robust, in the communicative setting of Experiment 1 (N=32) target naming latencies did not differ between semantic conditions, at neither SOA, see *Figure 2 Panel A*. In Experiment 2 (N=32) we embedded audio recordings of the distractors produced in Experiment 1 in a classic single-subject picture-word interference task. In this setting we observed, as expected, semantic interference at SOA -100ms, see *Figure 2 Panel B*. In Experiment 3 (N=32) the card game encouraged a focus on the conceptual relationship between distractor and target, see *Figure 1*. As in Experiment 1 we did not observe semantic interference at SOA -100ms. At SOA -650ms we observed semantic facilitation, see *Figure 2 Panel C*.
Our results demonstrate that semantic context is processed differently when it is embedded in a communicative exchange compared to when it is embedded in a setting devoid of a social context (i.e., the typical picture-word interference paradigm). We suggest that a communicative setting promotes processing the conceptual relationship between distractor and target and hence enhances semantic priming. The striking differences between the pattern of results found in our study and the pattern typically observed in picture-word interference studies highlights the importance to investigate language production in settings in which it typically occurs, namely in social interaction.

The study's hypotheses, as well as its experimental procedures and analyses were pre-registered.

Figure 1. Illustration of trial structure and experimental setting of Experiments 1-3.

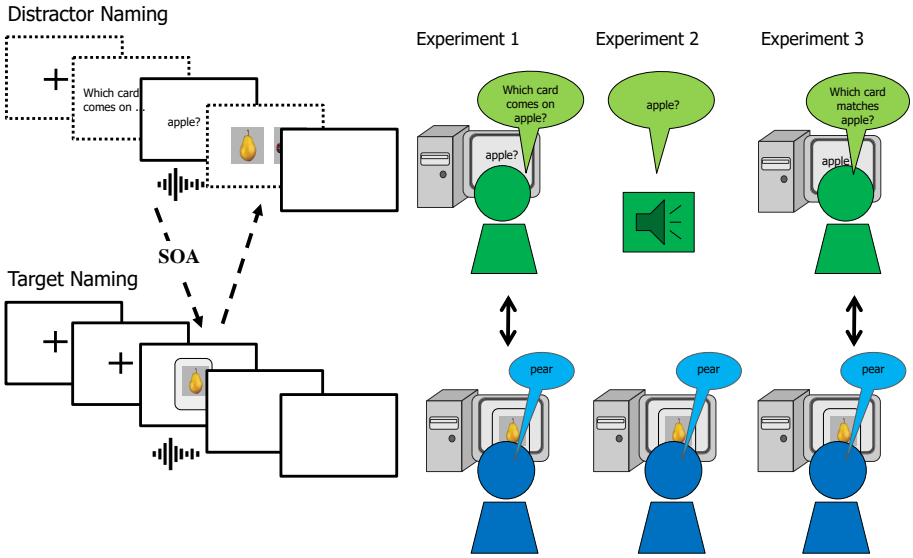

Figure 2. Mean naming latency (in milliseconds) and 95% confidence interval for each SOA and semantic relatedness condition separately of (A) Experiment 1, (B) Experiment 2, and (C) Experiment 3.