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Semantic interference and morphological facilitation in overt compound production: Behavioral and ERP evidence

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The present study examines how compounds (e.g., teaspoon) are stored and processed at the lemma and the word form level in the mental lexicon. According to two-stage models (e.g., Levelt et al. 1999) compounds are represented holistically at the lemma level and decomposed at the form level, while other models propose decomposed representations of compounds at the lemma level (Marelli et al., 2012).

In a picture-word interference (PWI) paradigm (SOA -100 ms), the effects of distractor words on noun-noun compound production (e.g., Teelöffel [tea spoon]) were examined with behavioral and electrophysiological measures (ERPs). In four distractor conditions, morphologically related distractors overlapped with the compound in the first (tea) or second constituent (spoon), while categorically related distractors overlapped with the whole word (fork), or the first constituent (juice). Each related condition was matched to an unrelated one.

The behavioral data showed semantic inference and morphological facilitation during overt compound production, which emerged at different stages of processing as indicated by the ERPs. For whole-word related categorical compared to unrelated distractors longer naming latencies and a sustained anterior negativity between 350-500 ms were obtained. No comparable effects were seen for distractors from the same category as the first constituent. Morphologically related distractors induced shorter naming latencies and a reduced N400 relative to their unrelated controls, independent of constituent. Interestingly, semantic interference was not evident before 300 ms post-stimulus onset at stages associated with lexical selection, but rather during later post-lexical stages of processing.

The findings suggest morpheme-based representations of compounds at the form level (e.g., Levelt et al. 1999).

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