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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Permalink

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Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 43(43)

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Publication Date

2021

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Peer reviewed

‘Kindergarten’ versus ‘Gartenkinder’: EEG-evidence on the effects of familiarity and semantic transparency on German compounds

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Abstract

This study investigated the effects of semantic transparency and familiarity on the lexical processing of German compounds. We measured event-related potentials (ERPs) while participants saw compound triplets that held the same head like /garten/ (‘garden’): (a) semantically transparent compounds /Gemüsegarten/ (‘vegetable garden’), (b) semantically opaque compounds /Kindergarten/ (‘kinder garden’), and (c) possible but nonexistent novel compounds /Gesichtsgarten/ (‘face garden’). Participants made nonword decisions to compounds with a scrambled constituent /Semüregarten/.

ERP potentials for semantically transparent and opaque compounds were alike, irrespective of whether the manipulation was on the modifier or the head. By contrast, novel compounds showed strong N400 effects relative to both transparent and opaque compounds. These findings indicate that – during compound processing – the brain differentiates between familiar and novel, but not between transparent and opaque. Compound processing independent of semantic compositionality differs from that in other Indo-European languages and stresses the importance of cross-language comparisons.