An Ontogenetic Perspective on Mental Representation of Idioms

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Children often struggle with the discrepancy between what is said and what is meant of figurative language. Only at around the age of 10 years, the understanding of idioms seems to be established (Bernicot, Laval & Chaminaud, 2007). The present study asks whether children acquire idioms word by word or as whole phrases. According to Ackerman (1982), children learn idioms as big chunks. Following this approach, a literal interpretation of idiom constituents would not be necessary. We test this assumption in an event-related potential (ERP) study with 9 to 10 year old children. We relied on an N400 paradigm that has formerly shown that adults process written idioms as big chunks (Rommers, Dijkstra & Bastiaansen, 2013).

Participants (21 4th graders and 40 adults) listened to German idioms such as 'Isabell hatte Schmetterlinge im Bauch.' (English: *Isabell had butterflies in the stomach).* The final word was highly predicted and either correct or manipulated. In manipulated conditions, the idiom's last word ('stomach') was replaced by a semantically related item ('arm') or by an unrelated item ('water'). Participants were asked to judge whether or not the sentence was an idiom.

Preliminary results for children and adults show, that N400 effects on the final word were evident. For both groups, we obtained reduced N400 amplitudes for the correct condition compared to the other conditions. In children, early N400 amplitudes for the related condition and for the unrelated condition did not differ. This finding replicates the ERP results obtained by Rommers and colleagues (2013) and indicates that children do not predict literal meanings of idiom constituents. Therewith, this finding is support for Ackermann's assumption that children rely on a holistic representation of idiomatic phrases. However, in a later time window, the difference between the correct condition and the related condition was no longer observable in children. Furthermore, differences between both conditions were also apparent in a response uncertainty: Children made more errors in the related than in the unrelated condition. These findings might reflect late strategies during which children try to decompose an idiom. Furthermore, there were indices of privileged processing of the unrelated condition in adults, pointing to parallel holistic and literal processing of spoken idioms, which might emerge from the early decomposition attempts in children.

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Rommers, J., Dijkstra, T., & Bastiaansen, M. (2013). Context-dependent semantic processing in the human brain: Evidence from idiom comprehension. *Journal of Cognitive Neuroscience, 25,* 762-776.