

The influence of informativeness and predictability on the processing of negation

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In experiments investigating the processing of true and false negative sentences, it is often reported that polarity interacts with truth-value, in the sense that true sentences lead to faster reaction times than false sentences only in affirmative conditions (e.g., Kaup, Lüdtke, & Zwaan, 2006). Also in electrophysiological data, negative sentences typically do not show the expected facilitation in true versus false conditions (e.g., Dudschig, Mackenzie, Maienborn, Kaup, & Leuthold, 2019). Various reasons for this difference between affirmative and negative sentences have been discussed in the literature (e.g., lexical associations, predictability and informativeness).

In the present study, we excluded lexical associations as a potential influencing factor. Participants saw artificial visual worlds (e.g., a white square and a black circle) and a corresponding true sentence (i.e., “The square is white/not black”) or false sentence (i.e., “The square is black/not white”). The results again showed a clear effect of truth-value for affirmative sentences (true faster than false) but not for negative sentences. This result implies that the well-known polarity-by-truth-value interaction cannot solely be due to long-term lexical associations. Additional predictability manipulations allowed us to also rule out an explanatory account that attributes the missing truth-value effect for negative sentences to low predictability. In our presentation, we will discuss the viability of an informativeness account.

Dudschig, C., Mackenzie, I. G., Maienborn, C., Kaup, B., & Leuthold, H. (2019). Negation and the N400: investigating temporal aspects of negation integration using semantic and world-knowledge violations. *Language, Cognition and Neuroscience*, 34(3), 309-319.

Kaup, B., Lüdtke, J., & Zwaan, R. A. (2006). Processing negated sentences with contradictory predicates: Is a door that is not open mentally closed? *Journal of Pragmatics*, 38(7), 1033-1050.