



Coloring Negation – Selection of Alternatives is Situated in Context



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Background

- **Two-step process:** Match-effect differs in affirmative versus negated statements (e.g. Kaup et al., 2006, Journal of Pragmatics)
- **Inference towards the antonym (ITA)** depends on adjective-type (e.g. Ruytenbeek 2020, Xprag; Ruytenbeek et al., 2017, Glossa)

Method & Analysis

- 37 native German speakers saw **affirmations** or **negations**
- They performed a speeded go-nogo task (respond if true)
- Centrally delivered target numbers and responses removed spatial biases
- Blocked design with **simple context** (2 levels: black;white) / ●○
complex context (8 levels: red, green, yellow, blue, orange, brown, pink, purple) ●●●●●●●●
- **2x2rmANOVA** of sentence type (affirmative, negated) x context (simple, complex)

Experimental Procedure



Go-trial: button-press response (spacebar) /
nogo-trial: no response

Hypothesis

Selective processing advantage for negated sentences in simple contexts
→ ANOVA Interaction effect of sentence type x context

Results

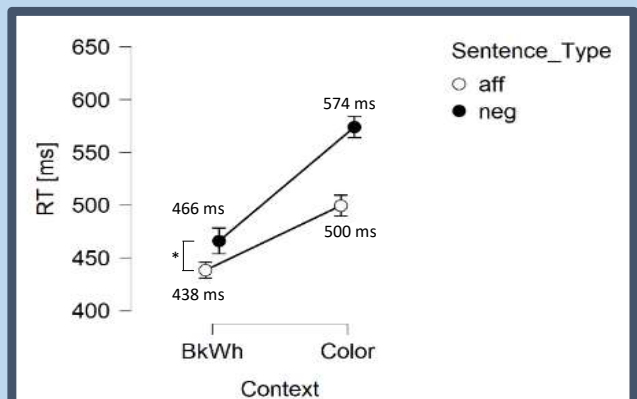
ANOVA main-effects

Main effect of context: F(1,36) = 203.225, p < .001, $\eta^2 = .552$	Main effect of sentence type: F(1,36) = 111.550, p < .001, $\eta^2 = .201$
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ANOVA interaction-effect

Context * Sentence type: F(1,36) = 35.884, p < .001, $\eta^2 = .042$
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Mean RT (ms), error bars denote 1SD



Discussion

- Hypothesis was confirmed ✓ (ANOVA interaction effect of sentence type x context)
- Cognitive inference towards the antonym in binary context (ITA); Actual state of affairs represented?
- Interaction effect smallest (not interpretable? see Garcia-Marques et al., 2014, Psych. Bull & Rev.)

References

- Garcia, L., Garcia-Marques, L. T., & Brauer, M. (2014). Buy three but get only two: The smallest effect in a 2 x 2 ANOVA is always uninterpretable. *Psychonomic Bulletin & Review*, 21, 1415-1430.
- 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.
- Ruytenbeek, N. (2020). Negated adjectives: Disentangling inference to the antonym from linguistic acceptability. Berlin: XPrag.
- Ruytenbeek, N., Verheyen, S., & Spector, B. (2017). Asymmetric inference towards the antonym: Experiments into the polarity and morphology of negated adjectives. *Glossa: a Journal of General Linguistics*, 2(92), 1-27.