Making a good mismatch – (How) syntactic cues license voice mismatches in VP ellipsis

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Voice mismatches under Verb Phrase Ellipsis

Voice mismatches can be acceptable under VP ellipsis (1a), but this is not the case for all connectors (1b) (Kehler 2000)

(1) a. *This problem was <u>to have been looked into</u>, **but** obviously nobody did ⟨look into this problem⟩.*
b. **This problem was <u>looked into</u> by John, **and** (similarly) Bob did ⟨look into this problem⟩, too.*

Discourse structure account (Kehler 2000)

- Different discourse relations between conjuncts require categorially different resolution mechanisms (syntactic/semantic)
- Only *resemblance* relations (1b) require morphosyntactic identity ((1a) is an instance of a *cause-effect* relation)

Information-theoretic account

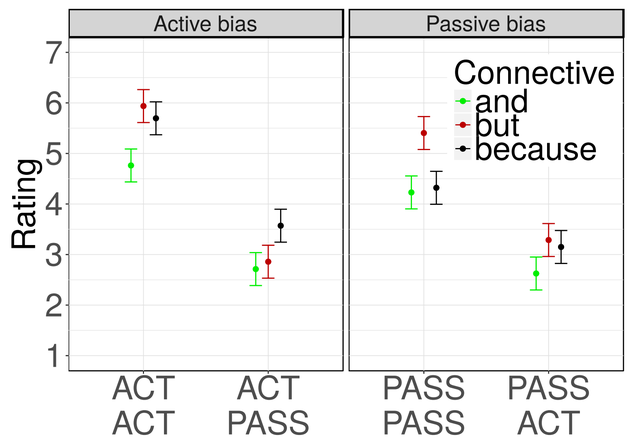
- Information (**$-\log_2 p$ (word | context)**) indexes processing effort (Hale 2001)
- Uniform Information Density (Levy & Jaeger 2007): Avoid peaks and troughs in the ID profile
- Voice mismatches are more acceptable the more likely the target is in context (including connector)

Experiment 1 – *and* vs. *but* vs. *because*

(2) a. *Joshua **didn't** give Sarah private lessons in Mandarin **(and | but | because)** Jacob **(did | was).*** (ACTIVE BIAS)
b. *Sarah **wasn't given** private lessons in Mandarin by Joshua **(and | but | because)** Jacob **(did | was).*** (PASSIVE BIAS)

Method

- **BIAS × CONNECTOR × MISMATCH** (2 × 2 × 3), BIAS tested between subjects
- 96 subjects, 30 items, 78 fillers
- Web-based (`prolific.ac`)
- Analysis with CLMMs in `R` (`ordinal`, Christensen 2015)



Results

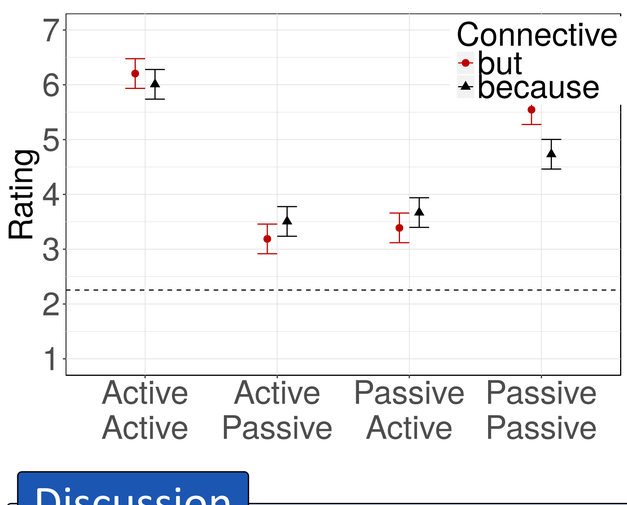
- CONNECTOR:MISMATCH interactions: mismatches with *because* improve compared to *but* ($z_{act} = 4.89$, $z_{pass} = 5.74$, both $p < 0.001$)
- The same holds for *and* vs. *but* ($z_{act} = 6.39$, $z_{pass} = 3.11$, both $p < 0.01$)

Experiment 2 – *but* vs. *because*

Method

- **2 × 2 × 2 design: BIAS × CONNECTOR × MISMATCH**
- 64 subjects, 32 items, 78 fillers

(3) *Joshua **didn't** give Sarah private lessons in Mandarin **(but | because)** Jacob **(did | was).***



Results

Mismatches with *because* are more acceptable than mismatches with *but* ($z = 7.38$, $p < 0.001$)

Discussion

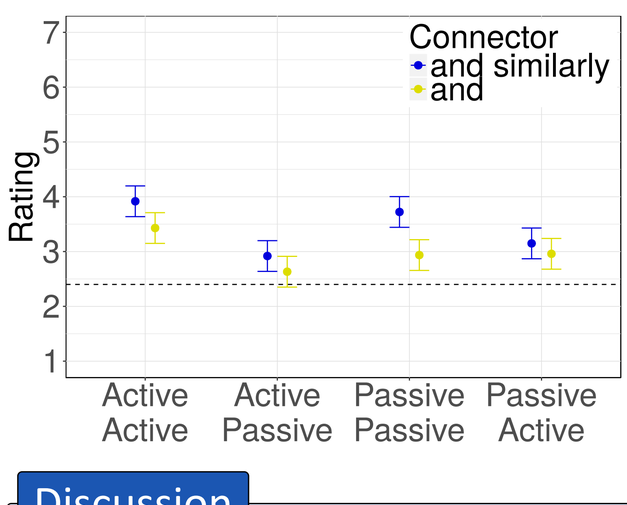
- Effect expected under Kehler's account if *but*, but not *because*, encodes a resemblance relation
- Effect expected under the UID account if a parallel continuation is more likely given *but* than *because*

Experiment 3 – *and* vs. *and similarly*

Method

- **2 × 2 × 2 design: BIAS × CONNECTOR × MISMATCH**
- 64 subjects, 32 items, 78 fillers

(4) *Joshua **gave** Sarah private lessons in Mandarin **(and | and similarly)** Jacob **(did | was).***



Results

Mismatches with *and* are less acceptable when *similarly* is inserted ($z = -4.55$, $p < 0.001$)

Discussion

- Effect of *similarly* unexpected under Kehler's account: Resemblance relation in both CONNECTOR conditions
- Effect expected under the UID account if *similarly* increases the probability of a parallel continuation

Selected references • Christensen, R. H. B. (2015). *ordinal – Regression models for ordinal data. R package version 2015.6-28.* `http://cran.r-project.org/package=ordinal/` • Hale, J. (2001). A probabilistic Earley parser as a psycholinguistic model. *Proceedings of NAACL (Vol. 2)*, 159–166. • Kehler, A. (2000). Coherence and the resolution of ellipsis. *Linguistics and Philosophy*. 23, 533–575. • Levy, R. & Jaeger, T.F.(2007). Speakers optimize information density through syntactic reduction. In: Schlökopf, B.; Platt, J. & Hoffmann, T. (Eds.) *Advances in neural information processing systems* 19, 849–856.