Selecting Contextually Relevant Focus Alternatives during Comprehension.

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I. Introduction

Focus Alternatives. Successful comprehension of focus requires inferring the relevant set of alternatives. [1, 2]

(1) a. ⟦Willie likes only [donuts]$_F$⟧ =
$\textsc{like}(w, d) \wedge \forall x \in ALTS.[\neg \textsc{like}(w, x)]$

b. $ALTS$ = {cookies, cupcakes, …}

Two-Stage Model. Supported by cross-modal forced choice-task experiments with probes at different time points. Access to discourse relevant focus alternatives delayed. [3, 4, 5]

Stage 1: Focus-*Insensitive* Semantic Priming
Stage 2: Focus-*Sensitive* Alternative Selection

(2) The museum thrilled the SCULPtor …

Condition	Target	Early	Late
Alternative	*PAINTER*	Faster RTs	Faster RTs
Associate	*STATUE*	Faster RTs	–
Control	*REGISTER*	–	–

II. Research question

Unrelated Alternatives. Contextually relevant alternatives are not always semantically related to their associated foci. Previous cross-modal forced-choice task experiments did not test such alternatives.

(3) a. There are tanks and flowers on the mural.
Simon painted only the [flowers]$_F$.

b. $\textsc{paint}(s, f) \wedge \forall x \in ALTS.[\neg \textsc{paint}(s, x)]$
$ALTS$ = {tank}

- Alternatives selected anaphorically under Alternative Semantics according to discourse relevance [1, 2]
- Unknown when semantically unrelated, but discourse relevant alternatives are accessed

Question. *When do unrelated alternatives become available?*

1. **Delayed-Access (Two-Stage) Model**. Available only after a delay from when focus is encountered.
   - Initial stages are *insensitive* to discourse relevance
   - Alternatives *constrained* from semantic associates
2. **Immediate-Access (One-Stage) Model**. Available immediately after focus is encountered.
   - Initial stages are *sensitive* to discourse relevance
   - Alternatives *constructed* from discoure context

III. Materials

30 Audio Dialogues ► 2 Speakers ► Speaker B ToBI Trained ► Between-Item Probe Order Manipulation

30 Triples Controlled for ► Length ► Frequency ► ON size ► LSA Cosine-Similarity to Focus [6]

Speaker A:
Andy used a **muffin** and a **pistol** as props in an independent **movie** that he was directing.
Speaker B:
No, he only used a CAKE.

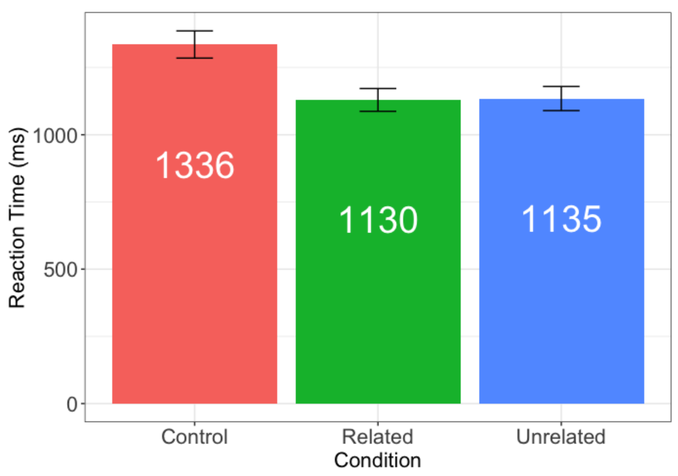
Condition	Probe
Related	*MUFFIN*
Unrelated	*PISTOL*
Control	*MOVIE*

IV. Predictions of models (early)

	Slower RT	Faster RT
Delayed-Access	Control Unrelated	Related
Immediate-Access	Control	Related Unrelated

V. Online pilot experiment

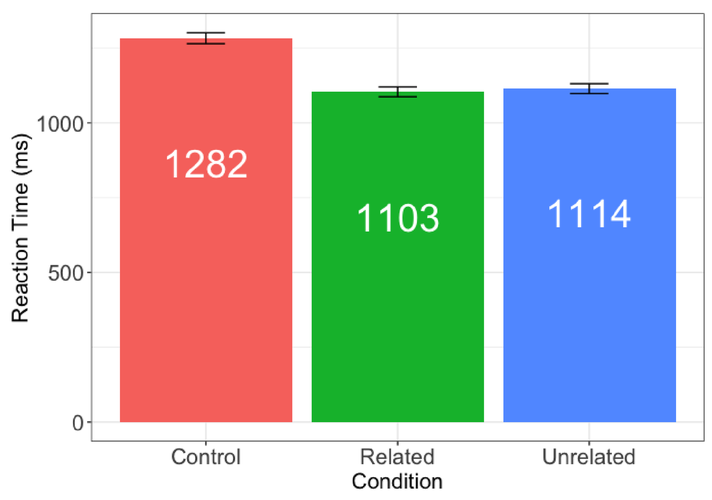
47 native English speakers from UCLA scoring over 75% on probe task. Listened to 12 dialogues and responded to probes immediately after focus (0ms SOA). Only correct responses analyzed.

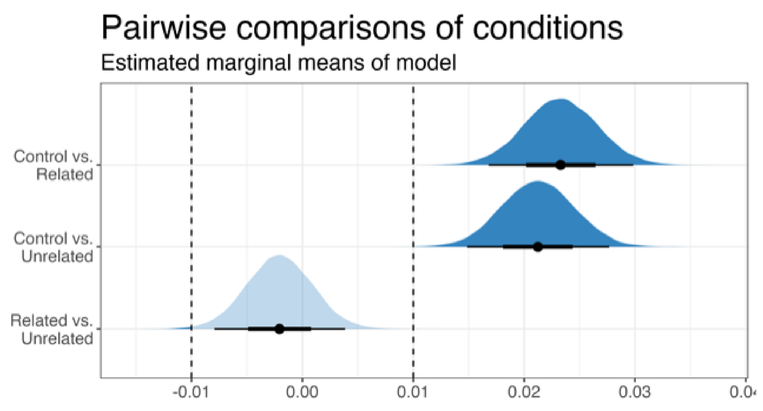


Parameter	Median	89% CrI	BF
Intercept	1.944	[1.930, 1.957]	NA
Control vs. Focus	-0.025	[-0.040, -0.011]	NA
Related vs. Unrelated	0.003	[-0.012, 0.016]	NA

VI. Full in-person experiment

61 native English speakers from UCLA scoring over 75% on probe task and comprehension questions. Listened to 30 dialogues and responded to probes immediately after focus (0ms SOA). Only correct responses analyzed. Pilot data used as informative prior.





Parameter	Median	89% CrI	BF
Intercept	1.946	[1.938, 1.953]	Inf
Control vs. Focus	-0.022	[-0.028, -0.017]	17.23
Related vs. Unrelated	0.003	[-0.012, 0.016]	-0.96

Summary of results

- **Online pilot replicated by in-person study**
- **Faster response times observed for alternatives (*Related*, *Unrelated*) than non-alternatives (*Control*)**
- **Evidence from Bayes Factor that alternatives did not differ from each other**

VII. Conclusions and further questions

- Lexical activation immediately following focus reflects more than just semantic priming
- Potentially reflects discourse representations identifying relevant alternatives instead
- Semantic priming in past studies may be independent from alternative generation
- **Delayed-Access model** does not explain the advantage for unrelated alternatives
- Support for an **Immediate-Access model** more aligned with Alternative Semantics

- Will unrelated alternatives remain highly activated given a delay?
- Are related non-alternatives as activated as alternatives immediately following focus?
- What discourse representations are involved in identifying alternatives? QUD?
- Are alternatives predicted before focus is encountered or rapidly retrieved afterwards?
- Is there any remaining role for semantic priming in selecting alternatives?

References

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