Evaluating the role of semantic priming and particle choice in the early availability of focus alternatives

Christian Muxica (UCLA – cmuxica@g.ucla.edu) & Jesse Harris (UCLA – jharris@humnet.ucla.edu)

I. Introduction

Focus Alternatives. To interpret focus, the discourse relevant alternative set must be inferred. [1, 2]

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

b. $ALTS$ = {cookies, cupcakes, …}

Two-Stage Model. Access to discourse relevant alternatives is delayed. Supported by results from cross-modal forced choice-task experiments. [3, 4, 5]

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

(2) The museum thrilled the $[\text{sculptor}]_F$ …

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

II. Research question

Unrelated Alternatives. Foci do not always semantically prime each relevant alternatives.

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

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

Question. **How long after focus is encountered do unrelated alternatives become available?**

Delayed-Access (Two-Stage) Model.
- Unrelated alternatives only available *after a delay*
- Initial stages *insensitive* to discourse relevance
- Alternatives *constrained* from associates

Immediate-Access (One-Stage) Model.
- Unrelated alternatives available *immediately*
- Initial stages *sensitive* to discourse relevance
- Alternatives *constructed* from discourse context

III. Materials

30 Audio Dialogues.
- 2 speakers (B was ToBI-Trained)
- Between-items probe order manipulation
- Focus was always the final word

30 Triples Controlled for.
- Length
- Frequency
- Orthographic neighborhood size
- LSA cosine-similarity to focus [6]

Example Item (Audio).
A: Andy used a **muffin** and a **pistol** as props in an independent **movie** that he was directing
B: No, he only used a $[\text{cake}]_F$

Condition	Written Probe
Related	MUFFIN
Unrelated	PISTOL
Control	MOVIE

IV. Method and predictions

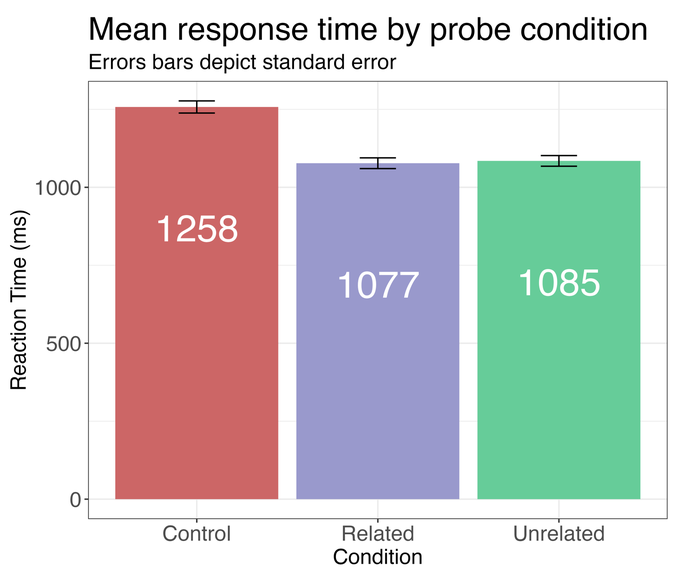
Cross-modal Probe Recognition Task.
- Subjects listened to dialogues then immediately responded to written probes (0ms SOA)
- Administered in sound attenuated booth
- Recruited native English speakers from UCLA
- Online pilots conducted before each experiment
- Informative priors sourced from pilot data

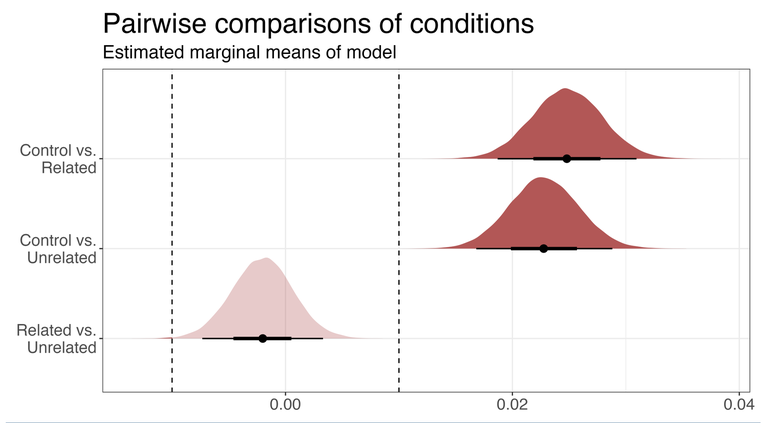
Predictions at 0ms SOA

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

V. Experiment 1 (only)

• N=61 • Only subjects >75% accurate on probe task and comprehension questions • Only correct responses •





Parameter	Median	89% CrI	BF
Intercept	1.943	[1.937, 1.948]	Inf
Control vs. Focus	-0.024	[-0.028, -0.019]	>100
Related vs. Unrelated	0.002	[-0.002, 0.006]	0.584

VI. Follow-up motivation

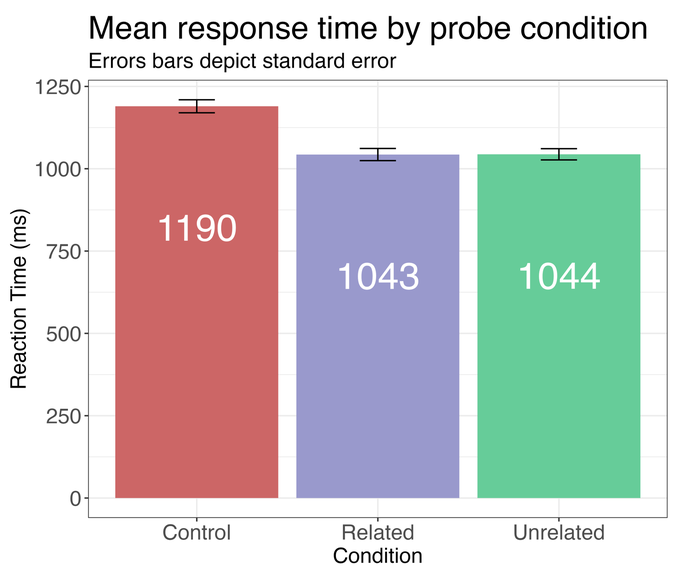
Question. **Is the early availability of alternatives unique to *only* or more general to focus?**

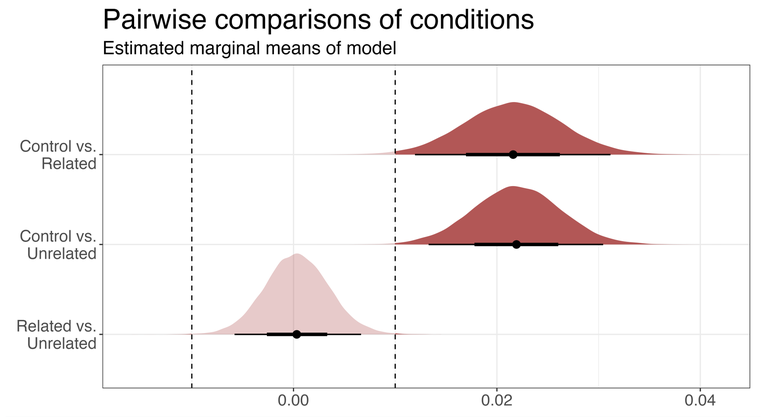
Beyond exhaustivity.
- Exhaustive particles (*only*) indicate that the focus is to the exclusion of the relevant alternatives
- Additive particles (*also*) indicate that the focus is in addition to the relevant alternatives
- Computation of negation required by *only* may drive early availability of relevant alternatives

Cross-modal Probe Recognition Task.
- Rerecorded Speaker B with additive particle
B': He also used a $[\text{cake}]_F$
- Identical procedure to the first experiment

VII. Experiment 2 (also)

• N=61 • Only subjects >75% accurate on probe task and comprehension questions • Only correct responses •





Parameter	Median	89% CrI	BF
Intercept	1.938	[1.930, 1.946]	Inf
Control vs. Focus	-0.022	[-0.030, -0.013]	>100
Related vs. Unrelated	0.000	[-0.006, 0.006]	0.315

VIII. Conclusions

- **Faster response times for alternatives** than non-alternatives immediately following focus
- Evidence from Bayes Factor that responses to **alternatives did not differ** from each other
- Early lexical activation reflects **more than just semantic priming** from focus
- Choice of **focus particle had little effect**
- **Delayed-Access model** cannot explain the early advantage for unrelated alternatives
- Support for an **Immediate-Access model**

IX. Further Questions

- How would a related non-alternative pattern with respect to relevant alternatives?
- Would bare focus also yield early availability for relevant alternatives?
- What representations of the discourse yield the early availability of alternatives? QUD?
- Are relevant alternatives predicted before focus is encountered or retrieved afterwards?
- Is there any remaining role for semantic priming in the selection of alternatives?

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