Free Choice Questions

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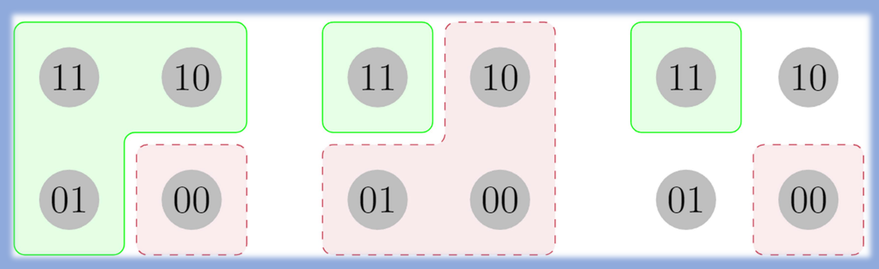
A: ***May I visit the Big Ben or the London Eye with this tourist pass?***
B: ***Yes/No***

REASERCH QUESTIONS

1. What do response particles (*Yes* and *No*) correspond to as answers to FCQs?
2. What is the source (pragmatic/semantic) of the inferences from the responses particles?



60 participants; $\mathbf{2} \times \mathbf{2} \times \mathbf{3}$; 48 test items + 24 fillers;

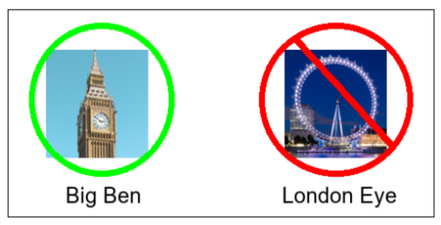
Response particles: ***Yes***, *No*.

Scenarios

Allowed items: *both*, ***one***, *neither*

Bill is in London at a tourist office. He wants to know more about the tourist pass they offer. He asks the employee of the office:

BILL: Am I allowed to go to **Big Ben or the London Eye** with this pass?
EMPLOYEE: **Yes**



Was the employee's answer accurate given the picture?

Accurate | Inaccurate

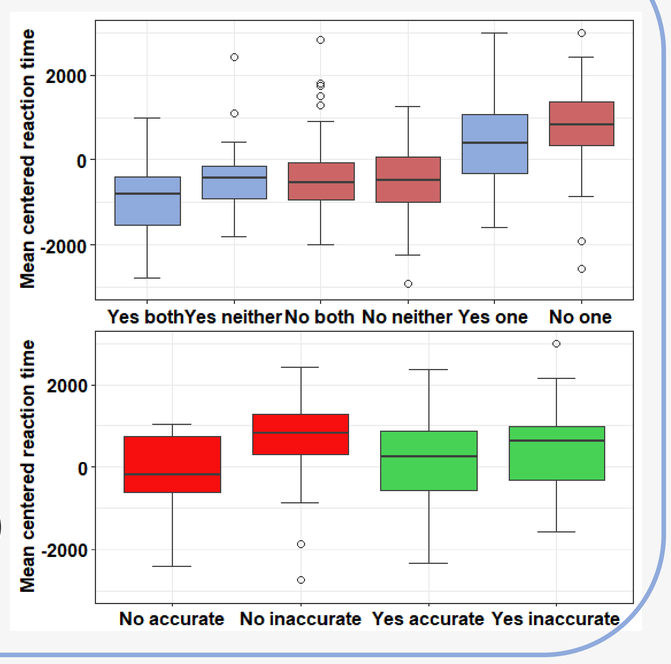
RESULTS: CENTERED REACTION TIMES

$\mu_{RT} \approx 4.3sec$;
$\sigma_{RT} \approx 3sec$

Negation effect:
(β ≈ 0.3sec, p < .001)

Zero model effect:
(β ≈ 1.4sec, p < .001)

Delay effect:
Insignificant ($\alpha = .01$)



POSSIBLE THEORIES OF FCQs

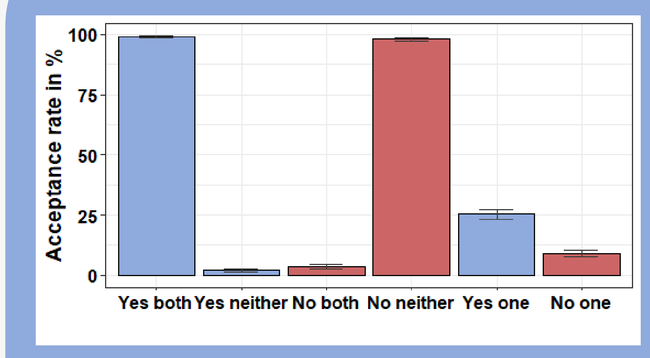
Semantic: Inquisitive disjunction + Deontic modality (Nygren 2022)

Exhaustification: Exhausting the set of alternatives and computing a scalar implicature. (Bar Lev & Fox 2020) Delay effect present.

Homogeneity: "Disjunctions are homogeneous with respect to modal status." (Goldstein, 2019, p.35) Processing contexts in which presupposition is violated takes longer.

Neglect-zero tendency: In reasoning, we systematically neglect zero models (Aloni 2022). Reasonings involving zero models take longer (Bott et al. (2019); Ramotowska et al. (2022))

RESULTS: ACCEPTANCE RATE



All differences are significant (mixed logistic regression);

ONE-conditions are significantly closer to the *NEITHER*-condition for *"Yes"* and *to* the *BOTH*-condition for *"No"* (p < .001).

"Yes" corresponds to Free Choice: $\Diamond(\alpha \vee \beta) \rightarrow \Diamond\alpha \wedge \Diamond\beta$

"No" corresponds to Dual Prohibition: $\neg\Diamond(\alpha \vee \beta) \rightarrow \neg\Diamond\alpha \wedge \neg\Diamond\beta$

PREDICTIONS VS. DATA

$$?\Diamond(\alpha \vee \beta) \leftrightarrow [\Diamond(\alpha \vee \beta) \vee \neg\Diamond(\alpha \vee \beta)]$$

Theory	FC	DP	FCQ	Longer RT	Delay
Classical Logic	×	✓	-	No	No
Deontic InqLogic	✓	×	×	No	No
Exhaustification	✓	✓	?	For FC	Yes
Homogeneity	✓	✓	✓	For FC &DP	Reversed FC &DP
BSML + NE	✓	✓	✓	For FC & DP	Reversed FC

Potential solutions for the grammatical approach:
1. **Disambiguation** between two readings as an explanation for longer reaction times.
2. **Pressuppositional exhaustification** by Del Pinal et al. (2023), as presuppositions carry over to questions.

Find the experiment demo and a draft of a paper here: *tklochowicz.com/fcq*

This work is supported by Nothing is Logical (NihiL),an NWO OC project grant no 406.21.CTW.023

Aloni, M. (2022). *Logic and conversation: the case of free choice.* Semantics and Pragmatics, 15:5–EA.
Bar-Lev, M. E. and Fox, D. (2020). *Free choice, simplification, and innocent inclusion.* NLS 28(3):175–223.
Bott, O., Schlotterbeck, F., and Klein, U. (2019). *Empty-set effects in quantifier interpretation*. Journal of Semantics, 36(1):99–163.
Goldstein, S. (2019). Free choice and homogeneity. Semantics and Pragmatics, 12:23–EA.
Roelofsen, F. and Farkas, D. F. (2015). *Polarity particle responses as a window onto the interpretation of questions and assertions*. Language, pages 359–414.
Ramotowska, S., Marty, P., Romoli, J., Sudo, Y., and Breheny, R. (2022). *Diversity with universality*. Proceedings of the 23rd Amsterdam Colloquium.
Nygren, K. (2022). Free choice in modal inquisitive logic. Journal of Philosophical Logic, pages 1–45.