What is the representational target of island satiation effects?

Introduction: Certain types of sentences with island violations satiate: e.g., sentences with a *whether* island violation like "What does Jack wonder whether Mary spilled?" become more acceptable with exposure [1,2]. A recent proposal construes satiation of island violations as an instance of syntactic adaptation [3]: with exposure, participants update their beliefs about the occurrence probability of linguistic forms [4,5]. This raises an important question: which information about the linguistic signal do comprehenders track and update their beliefs about? That is, what are the representational targets of syntactic satiation?

Research questions: We tested two hypotheses: One possibility is that comprehenders track the specific type of island violation (e.g., subject island violation, *whether* island violation). Another possibility is that comprehenders track whether any type of island violation has occurred, regardless of island type. We tease these hypotheses apart by testing for generalization of satiation effects from one island violation type to another. If comprehenders track island type-general information, exposure to one type of island violation should increase the acceptability of other types. If comprehenders track only island-specific representations, no generalization is expected.

Design (Tab. 2): We tested for generalization of island satiation in two experiments using a sliding-scale acceptability judgment task (Exp.1: n=973, Exp.2: n=968). Each experiment consisted of an exposure phase (12 exposure and 12 filler sentences) followed by a test phase (10 exposure and 10 filler sentences). Exposure sentence type (subject island, *whether* island, polar question) was manipulated between participants. Exps. 1 and 2 differed in test sentence type (Exp.1: subject island, Exp. 2: *whether* island). Example sentences are in Tab. 1. The polar question group served as a negative control (no satiation expected) and the within-category group served as a positive control (maximal satiation expected) in both experiments. Generalization of satiation across island types was detected as a positive difference between the between-category exposure group and the negative control group in the test phase.

Results: Mean acceptability ratings by exposure group are shown in Fig. 1 (test phase) and Fig. 2 (over time). A linear mixed-effects model predicted acceptability rating from fixed effects of *experimental phase* (reference level: test), *exposure group* (reference level: between-category exposure) and the maximal random effects structure justified by the design. In both experiments there was a significant exposure group effect such that test phase acceptability ratings were higher in the between-category than in the control condition (Exp. 1: β=-.06, SE=.02, p<.001; Exp.2: β=-.10, SE=.02, p<.001), and significantly lower than in the within-category condition (Exp. 1: β=.09, SE=.02, p<.001; Exp.2: β=.06, SE=.02, p<.001). Thus, satiation effects generalize across island types, but the amount of between-category generalization is smaller than within-category satiation. Fig. 3 shows that the cumulative mean acceptability rating crosses the scale midpoint, suggesting that the increase in acceptability is indeed the result of satiation rather than of an equalization response strategy [6].
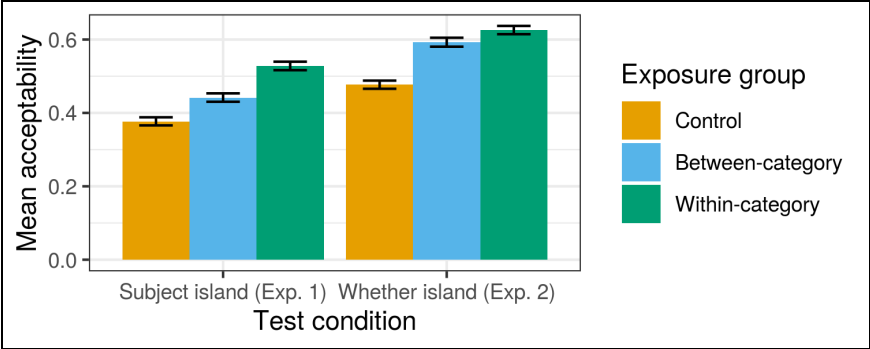
Discussion: These results rule out specific island types as the sole representational targets for island satiation. Future research can use the same paradigm to further investigate the general features of island violating sentences that comprehenders track (e.g., filler-gap dependencies), alongside island-specific representations and possibly the degradedness of sentences more generally.

Polar question	Did Jack think that Mary spilled a bottle of water?
Subject island	What does Jack think that a bottle of was spilled by Mary?
Whether island	What does Jack wonder whether Mary spilled?
Grammatical filler	Who believed the claim that the waiter mixed up all the orders?
Ungrammatical filler	What out find to trying officials are the city?

Table 1: Examples of critical (black) and filler (gray) sentences.

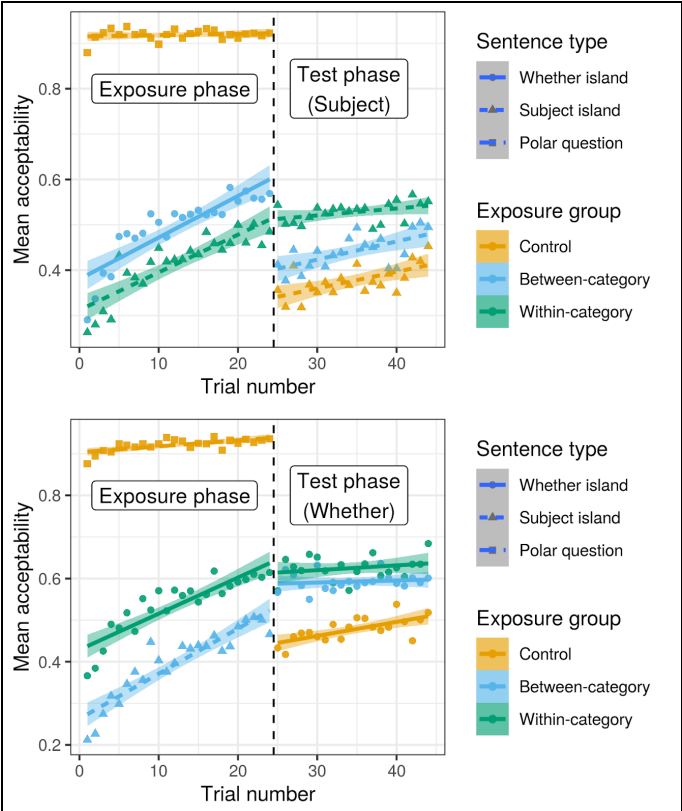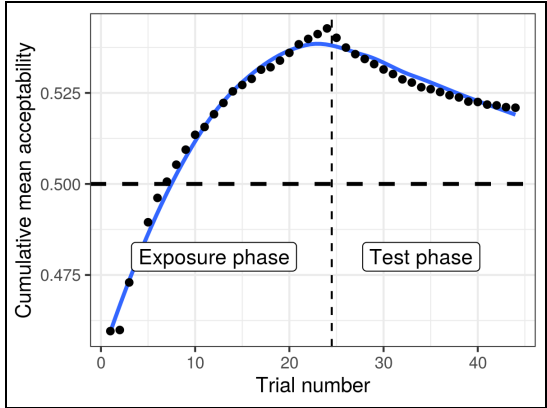| Exposure phase	Sentence type	Test Phase
Control group	Polar question	
Between-category group	Exp. 1: *Whether* island Exp. 2: Subject island	Exp. 1: Subject island Exp. 2: *Whether* island
Within-category group	Exp. 1: Subject island Exp. 2: *Whether* island	

Table 2: Experimental design.

Figure 1: Mean acceptability ratings in test phase.

Figure 2: Mean acceptability ratings over time in Exp. 1 (top) and Exp. 2 (bottom).

Figure 3: Cumulative mean acceptability ratings over time.

References: [1] Snyder (2000). *Linguistic Inquiry.* [2] Chaves & Dery (2019). *Journal of Linguistics.* [3] Lu, Lassiter, & Degen (2021). *Proceedings of CogSci.* [4] Kleinschmidt, Fine, & Jaeger, (2012). *Proceedings of CogSci.* [5] Fine, Jaeger, Farmer, & Qian, (2013). *PLOS One.* [6] Sprouse (2009). *Linguistic Inquiry.*