

Interference effects in Tagalog reflexive processing: A visual world study

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One account of reflexive processing involves cue-based retrieval [1]. Upon encountering *himself* in (1), comprehenders retrieve a feature-matching antecedent in memory. Some have argued, based on weaker interference effects in reflexives (compared to agreement), that comprehenders selectively use [2] or highly weight [3] structural cues to constrain their search. However, privileged access to the antecedent may also be due to the post-verbal position of the reflexive [4]. Upon encountering *doubted* in (1), comprehenders retrieve the target for thematic integration, and thus, upon encountering the reflexive, it could still be highly activated, ensuring its retrieval/making retrieval unnecessary. As in (2), Tagalog's word order is verb-initial, allowing us to investigate retrieval associated, while setting aside any verb-processing effects [5].

The present study investigates the extent to which Tagalog comprehenders leverage structural information when processing a reflexive. Experiment 1 is an offline antecedent selection task, and experiment 2 is a visual world study. Both experiments use a number mismatch paradigm, crossing whether the target was SG or PL (TARGET: SG,PL) and whether the distractor, the structurally illicit antecedent, matched the features of the target or not (MATCH: \pm MATCH). See Table 1. We look at Tagalog because (i) its word order can control for any verb-processing effects; and (ii) it allows us to survey the systematicity of interference effects cross-linguistically. We use the visual world because reading studies reveal a mixed empirical picture, which could be due to the small effect size of interference in reading measures [6]. Thus, an alternative methodology could be helpful in establishing the empirical picture. In short, we found that while number-matching distractors had little impact on how Tagalog comprehenders ultimately interpreted the reflexives, participants attended to them in real-time.

Exp1: Antecedent selection ($N_{\text{subj}}=100$, $N_{\text{items}}=24$). We probed the participants' preference for the target/distractor. They preferred the target over the distractor ($p<.001$). We probed the availability of the target, distractor, and an unmentioned noun as the antecedent. They allowed the target as the antecedent ($p<.001$). They also disallowed the distractor ($p<.001$), though were more likely to allow it if it matched the number of the target ($p=.01$). See Table 2. Matching distractors only had little impact on how comprehenders ultimately interpreted the reflexives.

Exp2: Visual world ($N_{\text{subj}}=80/120$, $N_{\text{items}}=20$). We will finish data collection this March. Figure 1 provides a sample visual display and visualizes the proportion of looks to different AOs. We calculated log target/distractor ratios for two time windows: the reflexive and a spillover region. See Figure 2. At the reflexive, their proportion of looks to the target relative to the distractor was comparable across conditions ($p>.5$). At the spillover region, it was smaller when the distractor matched in number ($p=.02$). One might interpret the results as immunity to interference in the early stages of processing the reflexive, but susceptibility to interference in later stages—à la [7]. However, the analysis above does not allow us to distinguish between effects on current eye movements and effects continuing due to fixations that began in previous time windows [8]. To address this, we present a secondary analysis involving only new fixations. At the reflexive, the proportion of looks to the target relative to the distractor was numerically smaller when the distractor matched in the PL-conditions ($p=.44$), but was larger in the SG-conditions ($p=.68$). At the spillover region, it was smaller when the distractor matched in number ($p=.03$). These results show that comprehenders attended to number-matching distractors in real-time.

- (1) The new executive who oversaw the middle manager(s) doubted himself...
- (2) Verb Target [RC Verb Distractor XP] Reflexive ...

Table 1. Schematization of the critical items in both experiments

	PL	SG
Mismatch	Verb <u>mga</u> NP1 [that Verb \emptyset NP2 XP] Reflexive ... 'NP1s [that NP2 Verb] Verb themselves'	Verb \emptyset NP1 [that Verb <u>mga</u> NP2 XP] Reflexive ... 'NP1 [that NP2 Verb] Verb him-/herself'
Match	Verb <u>mga</u> NP1 [that Verb <u>mga</u> NP2 XP] Reflexive ... 'NP1s [that NP2s Verb] Verb themselves'	Verb \emptyset NP1 [that Verb \emptyset NP2 XP] Reflexive ... 'NP1 [that NP2s Verb] Verb him-/herself'

Table 2. Breakdown of participants' responses by condition and probe-type in exp.1

Target	Distractor	Preference probe (%)		Availability Probe (%)			
		NP1	NP2	NP1	Not NP1	NP2	Not NP2
PL	Mismatch	95.2	4.8	92.0	8.0	5.7	94.3
PL	Match	92.8	7.2	89.5	10.5	9.2	90.8
SG	Mismatch	94.2	5.8	91.7	8.3	4.4	95.6
SG	Match	94.9	5.2	93.9	6.1	7.0	93.1

Figure 1. (Left) Sample visual display [SG, Mismatch]. (Right) Proportion of looks to different areas of interest (Target, Distractor, Unmentioned-SG, Unmentioned-PL, and Outside)

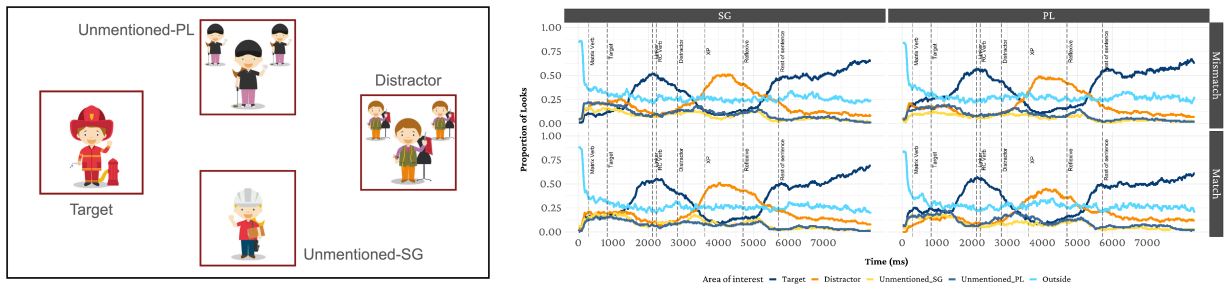
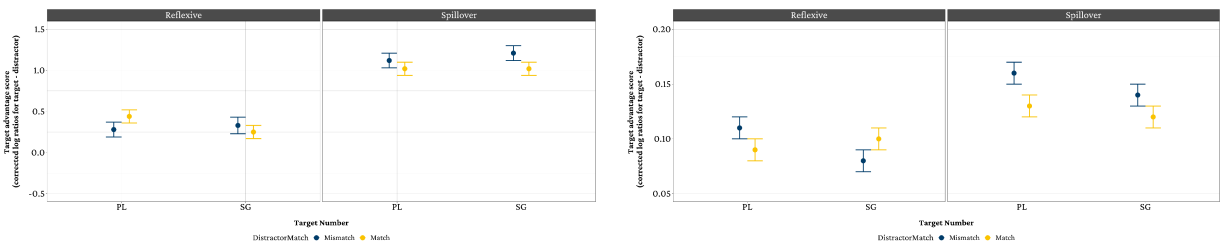


Figure 2. Mean corrected log target - distractor ratios for the reflexive and spillover time windows. (Left) All fixations. (Right) Only new fixations



References: [1] Lewis & Vasishth, 2005; [2] Dillon et al., 2013; [3] Cunnings & Sturt, 2014; [4] Kush & Phillips, 2014; [5] Pizarro-Guevara & Dillon, 2022; [6] Jäger et al., 2020; [7] Sturt, 2003. [8] Kingston et al., 2016.