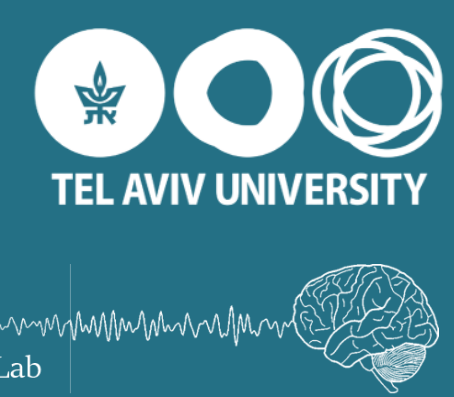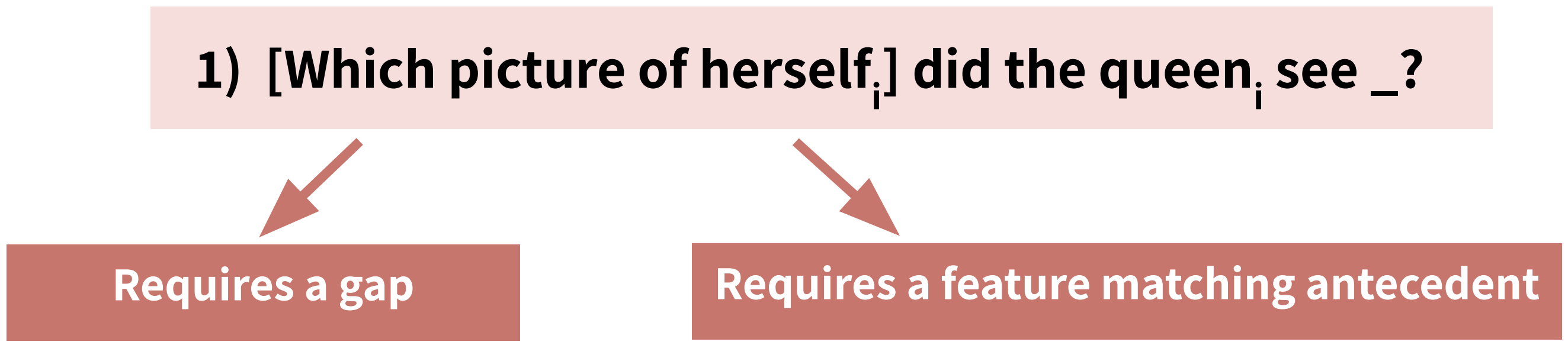# Reflexive-antecedent search modulates gap formation? Evidence from Hebrew

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Dependency resolution is a predictive, grammatically informed online process [1,2].

We explore an interplay between **filler-gap** and cataphoric **reflexive-antecedent** dependencies, by **embedding reflexive pronouns in fronted wh-fillers (*reflexive-filler*),** e.g., (1).

> 1) [Which picture of herself$_i$] did the queen$_i$ see _?

→ Requires a gap

→ Requires a feature matching antecedent

> **The dependencies are co-dependent**: the reflexive's antecedent must c-command the gap.

We investigated sentences such as (2), in which a **potential gap position is filled by an overt argument** [3].

> 2) Which picture of <u>herself</u> did the {queen | king} see <u>the girl</u> admiring _?

By manipulating the **gender** of the highest subject, we examine whether:

- The parser initiates an **active search for an antecedent** upon encountering the reflexive
- The absence of a grammatical antecedent for the reflexive disrupts usual **gap prediction**
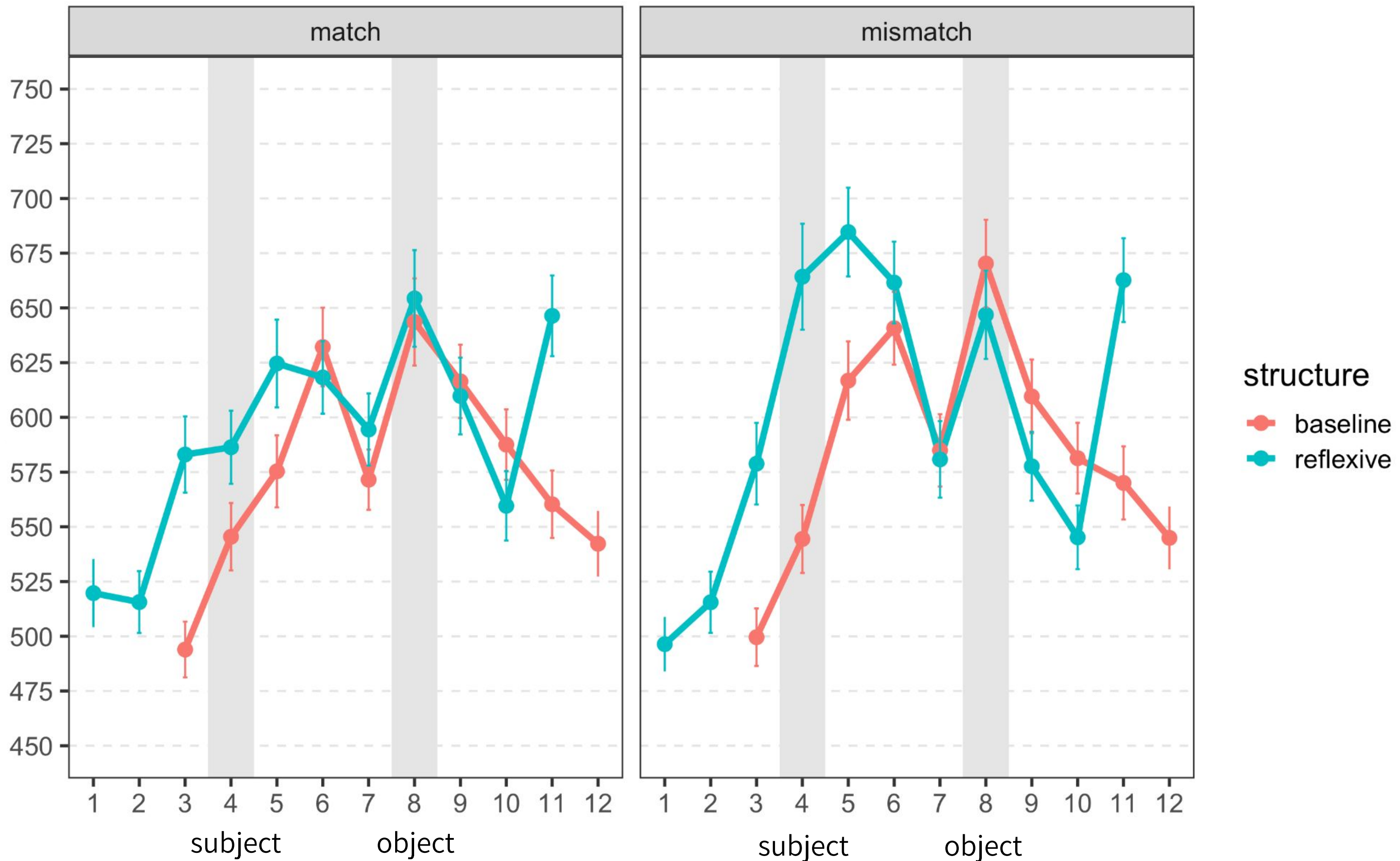
METHOD

Self-paced reading experiment in Hebrew (Participants=60, Sets=24), crossing two factors:

- **Gender** of the highest subject: *match* or *mismatch* with the reflexive.
- **Structure**: a question headed by a *reflexive-filler* or a *baseline* with the reflexive in situ.

reflexive-filler	match	*Which video of himself* **the-detective.M** *the-young.M from-America filmed.M ACC* <u>*the-suspect.M*</u> *the-arrogant delete secretly?*
	mismatch	*Which video of himself* **the-detective.F** *the-young.F from-America filmed.F ACC* <u>*the-suspect.M*</u> *the-arrogant delete secretly?*
		Which video of himself did the young detective(M/F) from America film the arrogant suspect(M) delete secretly?
baseline	match	*When* **the-detective.M** *the-young.M from-america filmed.M ACC* <u>*the-suspect.M*</u> *the-arrogant delete video of himself secretly?*
	mismatch	*When* **the-detective.F** *the-young.F from-america filmed.F ACC* <u>*the-suspect.M*</u> *the-arrogant delete video of himself secretly?*
		When did the young detective(M/F) from America film the arrogant suspect(M) delete a video of himself secretly?

RESULTS

RTs were analyzed using linear mixed effects models (lmer), estimated for two regions.

<u>Subject</u>: **In the *mismatch* condition, RTs were significantly longer in the *reflexive* vs. *baseline*** (*p<.001*), but **not it the *match* condition** (*p=.07*) (structure ✕ gender: *p=.05*).

<u>Object</u>: no significant interaction (*p=0.26*) or main effect of structure (FGE) (*p=.62*) were detected.

DISCUSSION

Prolonged RTs at a mismatching subject provide evidence that the parser immediately initiates **a forward-looking search for an antecedent** upon encountering the reflexive-filler [cf. 4], mimicking similar effects found with pronominal cataphors [5,6].

We expected an unresolved antecedent search to affect gap prediction, but **failed to find a FGE** or an **interaction** with the subject's gender at the object region.
The lack of effect seems to stem both from large variance and prolonged baseline RTs at the object.

<u>Future steps</u>: Maze task in Hebrew to hopefully minimize noise.

References: [1] Wagers & Phillips 2009, *JML*; [2] Keshev & Meltzer-Asscher 2017, *Language*; [3] Stowe 1986, *Lang Cogn Process*; [4] Omaki et al. 2019, *JML*; [5] Kazanina et al. 2007, *JML*; [6] Giskes & Kush 2021, *Mem Cognit*.