# Variation in reflexive processing across constructions and individuals

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## Phenomena of interest & Motivation

**1) Three-way gradient in reflexive pronoun resolution** [1: Offline task]

(1) Comparative (Comp.)  (2) Coargument (Coarg.)
(3) Picture NP (PNP)  (4) Prepositional Phrase (PP)

(1) Comp.  **The queen** knew that **the princess** was nice than <u>herself</u> ...
(2) Coarg.  **The queen** knew that **the princess** had lost <u>herself</u> …
(3) PNP  **The queen** knew that **the princess** left a portrait of <u>herself</u> …
(4) PP  **The queen** knew that **the princess** had spoken about <u>herself</u> …

Preference for **nonlocal entity**  ←———●————————●————————●——→  Preference for **local entity**
(1)  (3 & 4) [2-3]  (2) [4-5]

🤔 Do we see the same three-way division with **online measures**?

**2) Individual variation in dependency resolution**

Cue weighting on structural (e.g., c-command) or nonstructural (e.g., gender or number feature) information varies across individuals [e.g., 6]

🤔 Is there **variation across individuals in the reflexive binding locality constraint?**

## Current work

How does **structural leniency** (see top-right definition) affect locality in real-time reflexive resolution?

- 100 native English speakers via Prolific; 32 items
- Gender congruence manipulated for all ((1) – (4)): **MATCH** vs. **MISMATCH**
  "The queen knew that the {princess-**MATCH**/prince-**MISMATCH**} had lost <u>herself</u>…"
- Web-based Visual World Paradigm [7] with an antecedent selection task
- 4 images in visual world: Nonlocal (*queen*), Local (*prince(ss)*), 2 distractors

## Summary of findings

- Structurally "strict" and "lenient" groups show different resolution pattern across constructions (Coarg., PNP & PPNP) in offline & eyetracking methods; but the same pattern in Comp. construction.
- In the offline task, the "lenient" group relies on nonstructural cues even in MATCH condition.
- In the eyetracking experiment: group difference emerged most saliently for the late time windows.

Selected References.
[1] Fagen & Xiang. (2024). Proc. LSA. [2] Clackson et al. (2011). JML. [3] Cunnings & Sturt. (2014). JML. [4] Sturt. (2003). JML.
[5] Dillon et al. (2013). JML. [6] Yadav et al. (2022). Open Mind. [7] Zehr & Schwarz. (2018). PCIbex. [8] Ito & Knoeferle. (2022). BRM.

## Working definition of "structural leniency"

**Structural leniency**: The likelihood to use nonstructural cues in resolving linguistic dependency.

**Structural leniency in the current work**: The likelihood of choosing the structurally nonlocal entity as antecedent.
- Calculated based on the averaged nonlocal-preference across constructions, excluding comparatives
  Ex) Structural leniency = 1 chooses *the queen* in "The queen knew that the prince-**MISMATCH** had lost <u>herself</u>…"
  Ex) Structural leniency = 0 chooses *prince* in "The queen knew that the prince-**MISMATCH** had lost <u>herself</u>…"

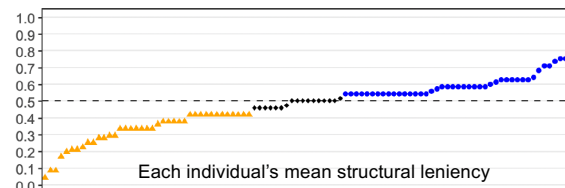

**Figure 1.** Structural leniency

Each individual's mean structural leniency

Groups
- ▲ **Strict** (i.e., with score within the bottom 30%; n = 39)
- ♦ Moderate (dropped in the main analysis)
- ● **Lenient** (i.e., with score within the top 30%; n = 44)
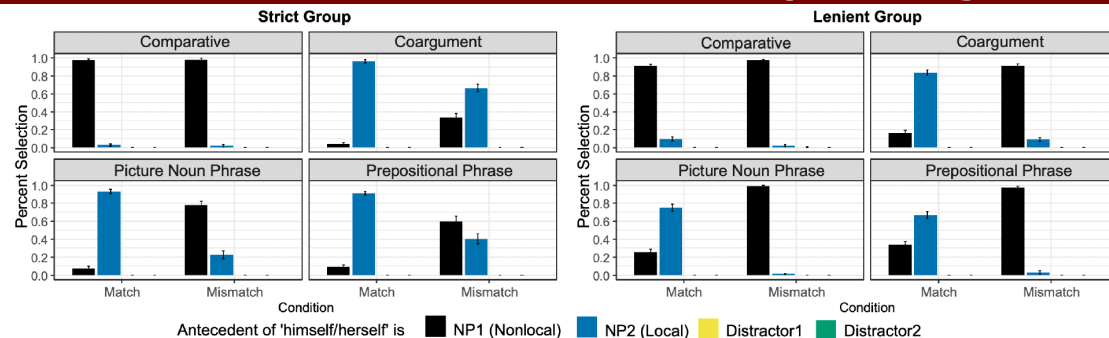
## Results: Offline antecedent selection & Eyetracking



Strict Group / Lenient Group
Comparative / Coargument / Picture Noun Phrase / Prepositional Phrase

Antecedent of 'himself/herself' is ■ NP1 (Nonlocal)  ■ NP2 (Local)  ■ Distractor1  ■ Distractor2

**Figure. 2.** Antecedent selection



Comparative / Coargument / Picture Noun Phrase / Prepositional Phrase

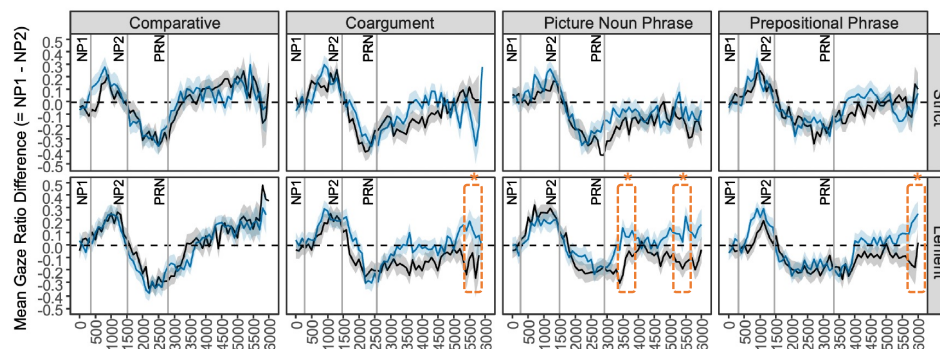Mean Gaze Ratio Difference (= NP1 - NP2)

**Figure 3.** Eye-gaze difference.

NP1 = Nonlocal.
NP2 = Local.
PRN = Pronoun.

— Match
— Mismatch

Cluster-based permutation analysis [8]