

## I. Introduction

- **Stripping** (1) elides all but a **remnant** (*the police*) after a negative marker (*not*).
- Resolution of the ellipsis depends on which **correlate** the remnant contrasts with:

(1) The smuggler followed the gangster, but not [the police] ⇔  
**Subject:** The smuggler followed the gangster, but **the police** didn't follow the gangster.  
**Object:** The smuggler followed **the gangster**, but the smuggler didn't follow **the police**.

- **Locality bias:** General preference to contrast with the structurally most local/recent correlate noun (Frazier & Clifton, 1998; Carlson et al., 2009; Harris, 2015).

- **Locality bias modulated by information structure:** Non-local noun more likely as correlate when marked for focus (2) or is semantically parallel with the remnant (Carlson, 2001; Harris & Carlson, 2017).

(2) *Focus marking via particle only*  
 Only **the smuggler** followed the gangster, but not **the police**.

- Raises possibility that Locality only serves as default proxy for contrast, which might be mitigated when contrast marked explicitly.

- **Persian** overtly marks definiteness and information structure:
  1. *-ra* suffix marks definiteness/specificity (3b)
  2. Information structure expressed via word order scrambling (3c).

(3) a. *babr āhoo gereft.*      b. *babr āhoo-ra gereft.*  
*tiger deer caught.3SG*      *tiger deer-ra caught.3SG*  
 'Tiger caught a deer.'      'Tiger caught the deer.'

c. *āhoo-ra<sub>i</sub> babr t<sub>i</sub> gereft.*  
*deer-ra tiger caught.3SG*  
 'It was the deer that was caught by tiger.'

**Semantic / Morphological Parallelism (SMP):** Contrast items of qualitatively similar types.

- Conveyed with morphology, semantic features, prominence, discourse status, etc.

- In **Persian stripping ellipsis** (Toosarvandani, 2015; Rasekhi, 2018), the remnant *police* can contrast either with the **Subject** or **Object** in the antecedent clause:

(4) *qāchāqchi gāngester-ra donbāl=kard, vali polis na* ⇔  
*smuggler gangster-ra follow=did.3SG but Police NEG*  
**Subject:** The smuggler followed the gangster, but **the police** didn't follow the gangster.  
**Object:** The smuggler followed **the gangster**, but the smuggler didn't follow **the police**.

- Since both the scrambled object and definite/specific object carry *-ra* marking, we can explore the interaction between Locality and SMP.

- When antecedent **Scrambled**:
  1. If the remnant contrasts with the **Object**, correlate selection favors **SMP**.
  2. If the remnant contrasts with the **Subject**, correlate selection favors **Locality**.

**Research questions:**

1. Does Persian exhibit a general Locality preference? A preference for SMP?
2. When placed in conflict, which determines how stripping ellipsis is resolved?

**General research goal:** To assess what kinds of information different languages use to resolve ellipsis ambiguity when they have different properties at their disposal.

## II. Experiment 1: Acceptability Rating

**Purpose:** Assess (i) relative importance of Locality vs. SMP in Persian stripping ellipsis and (ii) how ambiguous cases are resolved.

**Manipulation:** The degree of SMP between the matrix and the ellipsis clause was manipulated by using *-ra* marking and word order in 24 sextets:

Antecedent clause	No <i>-ra</i> in remnant	<i>-ra</i> in remnant
Canonical: SOV	koose māhi gereft, vali panguan na <i>shark fish caught but penguin not</i>	koose māhi gereft, vali panguan-ra na <i>shark fish caught but penguin-ra not</i>
Canonical marked: SO-raV	koose māhi-ra gereft, vali panguan na <i>shark fish-ra caught but penguin not</i>	koose māhi-ra gereft, vali panguan-ra na <i>shark fish-ra caught but penguin-ra not</i>
Scrambled: O-raSV	māhi-ra koose gereft, vali panguan na <i>fish-ra shark caught but penguin not</i>	māhi-ra koose gereft, vali panguan-ra na <i>fish-ra shark caught but penguin-ra not</i>

- **60 native speakers of Persian** completed an Ixet Farm questionnaire online.
- Test items, filler items and catch items were presented in counterbalanced and randomized order (80 sentences total).
- The participants rated items on their **naturalness** on a scale of 1 (completely unnatural) to 7 (completely natural), and then **answered an interpretation question**, choosing a **Subject** interpretation, **Object** interpretation, **Both**, or **Neither**.
- Results were modeled as (G)LMERs.

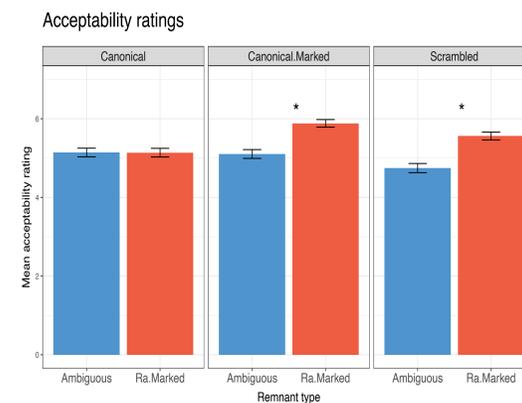


Fig 1: Acceptability ratings

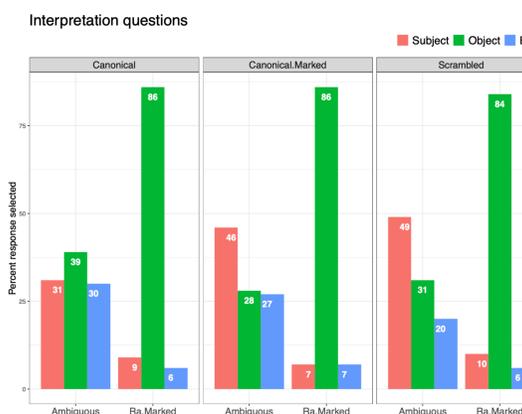


Fig 2: Interpretation questions

**Exp 1 Conclusion:** SMP is used to resolve ambiguous ellipsis structures, pairing two nouns as the remnant and correlate that matched with regard to the presence/absence of *-ra* marking. Little evidence for influence of Locality Bias in Persian.

**Acceptability ratings results:**

- **Ambiguity:** Canonical SOV order was equally acceptable with both Ambiguous (without *-ra* marking) and *ra*-marked remnants (left panel).
- **SMP:** *-ra* marking improved acceptability ratings for Canonical Marked and Scrambled conditions ( $p$ 's < 0.001; center and right panels).

**Interpretation questions results:**

- **Unmarked remnants** compatible with either Subject (Non-Local) or Object (Local) contrasts.
- **Object contrast** preferred when the remnant was *-ra* marked.
- A **Subject contrast** selected more often when the remnant did not have *-ra* marking and the object in the antecedent clause was *-ra* marked.

## III. Experiment 2: Sentence Completion

**Purpose:** Determine whether subjects prefer to supply completions that conform to Locality or SMP.

**Manipulation:** Noun animacy in the antecedent clause was controlled to allow us to determine whether the completion contrasted with a **Subject** (animate) or an **Object** (inanimate) remnant.

Antecedent clause	Object / Inanimate remnants				Ra marked remnants				
Canonical: SOV	mard-e	javān	māshin	kharid	vali	_____	na	_____	na
	<i>man-EZ</i>	<i>young</i>	<i>car</i>	<i>bought</i>	<i>but</i>	_____	<i>not</i>	_____	<i>not</i>
Canonical marked: SO-raV	mard-e	javān	māshin-ra	kharid	vali	_____	na	_____	na
	<i>man-EZ</i>	<i>young</i>	<i>car-ra</i>	<i>bought</i>	<i>but</i>	_____	<i>not</i>	_____	<i>not</i>
Scrambled: O-raSV	māshin-ra	mard-e	javān	khaire	vali	_____	na	_____	na
	<i>car-ra</i>	<i>man-EZ</i>	<i>young</i>	<i>bought</i>	<i>but</i>	_____	<i>not</i>	_____	<i>not</i>

- 21 native speakers of Persian **completed sentence fragments with remnants** to allow us to gauge production preferences with a less constrained method.
- Used  $\chi^2$  tests due to categorical absence of *-ra* marking in canonical conditions.

Completion study

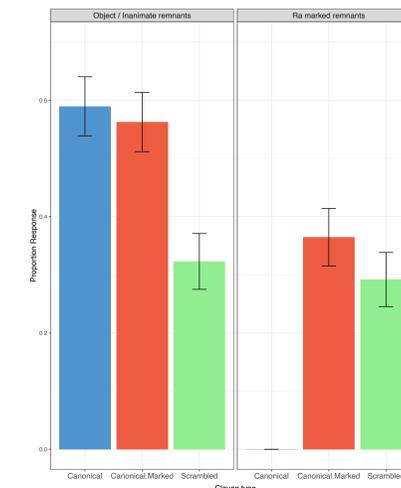


Fig 3: Completion proportions

Clause	Response	Ra.marked	Not -Ra. marked
a. Canonical	Object	0%	56%
	Subject	0%	44%
b. Canonical. Marked	Object	41%	18%
	Subject	0%	40%
c. Scrambled	Object	33%	2%
	Subject	0%	64%

Table 1: Summary of completions

**Completion task results:**

- **Object remnants** *-ra* marked more often when the correlate was also *-ra* marked;  $\chi^2(2) = 48.59, p < 0.001$ .
- Both types of **Canonical orders** (SOV and SO-raV) elicited more Object contrasts (56-59% Object contrasts) compared to the Scrambled order (O-raSV).
- The **Scrambled** order was biased towards Subject contrast completions (64% Subject contrasts);  $\chi^2(2) = 8.15, p < 0.001$ .
- Both **Locality Bias** and **SMP** affect remnant choice.

**Exp 2 Conclusion:** When the Object *-ra* marking in the antecedent clause was required independently by Scrambling, a Subject contrast became more tempting, possibly because it was now Local.

**General conclusions:**

- Information structure and SMP dominant factor in resolving stripping ellipsis.
- Locality Bias appears in Scrambling, where *-ra* marking on Object is required independently by the grammar.

## References and Acknowledgments

Carlson (2001). Predicting contrast in sentences with and without focus marking. *Lingua*. Carlson et al. (2009). Information structure expectations in sentence comprehension. *Quarterly Journal of Experimental Psychology*. Frazier & Clifton (1998). Comprehension of sluiced sentences. *Language & Cognitive Processes*. Harris (2015). Structure modulates similarity-based interference in sluicing: An eye tracking study. *Frontiers in Psychology*. Harris & Carlson (2017). Zero-Adjective contrast in much-less ellipsis: the advantage for parallel syntax. *Language, Cognition, and Neuroscience*. Rasekhi (2018). Ellipsis and Information structure: Evidence from Persian. PhD Dissertation, Stony Brook University. Toosarvandani (2015). Persian. In: *The Oxford Handbook of Ellipsis*.

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