Asymmetries in voice-mismatched VP-ellipsis

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1 The “mismatch asymmetry”

1.1 An example

Consider (1), adapted from Arregui et al. (2006).

(1) a. The judge read the report first, and then the lawyer did too.  \([A \rightarrow A]\]
b. The report was first read by the judge, and then the confession was too.  \([P \rightarrow P]\]
c. The report was first read by the judge, and then the lawyer did too.  \([P \rightarrow A]\]
d. The judge read the report first, and then the confession was too.  \([A \rightarrow P]\]

Two empirical findings

• Mismatch penalty: (c-d) are less acceptable than (a-b)  
  (Sag, 1976; Kehler, 2002; Kim et al., 2011; SanPietro et al., 2012; Kertz, 2013; note that the theoretical status of this fact,  
  which is irrelevant for our purposes, remains controversial:  
  Merchant, 2013; Kim & Runner, 2018; and many others)

• Mismatch asymmetry: \([A \rightarrow P]\) less acceptable than \([P \rightarrow A]\)  
  (Arregui et al., 2006; Kim & Runner, 2018; Parker, 2017; but  
  note null effect in Kim et al., 2011)

1.2 A memory-based account: the Recycling Hypothesis

• Two explanatory components:
  - Grammar: simple syntactic identity ⇒ rules out mismatches as  
    ungrammatical
  - Processing: Recycling of non-ID antecedents ⇒ “acceptable  
    ungrammaticality”

• Memory asymmetry: passive antecedents are more likely to be mis-  
  remembered as active than vice versa (Mehler, 1963).

• memory asymmetry ⇒ asymmetric illusion of grammaticality  
  ⇒ mismatch asymmetry: \([P \rightarrow A]\) mismatches more likely to be  
  misremembered as \([P \rightarrow A]\) matches.

(2) a. The report was first read by the judge, and then the lawyer did too.  \([P \rightarrow A \rightarrow A]\]
b. The judge read the report first, and then the confession was too.  \([A \rightarrow P]\]

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2 The Recycling Hypothesis was first  
proposed in Arregui et al. (2006) and fur-  
ther defended in Frazier (2013).
1.3 The remainder of this talk

- **Thesis**: mismatch asymmetry can’t be explained in terms of Recycling
- **Support**: evidence from 3 acceptability judgment experiments
- **Next directions**: preliminary look at alternative, ellipsis-specific explanation (Expt 4)

2 Experiment 1

- **Goals**:
  - Replicate the mismatch asymmetry
  - Test voice-matched controls
- **Methods**: 2x2 design; 30 participants; 24 items like (3), 40 fillers; 5-point acceptability judgment task

2.1 Stimuli (Expt 1)

Expt 1 tested items like (1), repeated in (3). 3

(3)  
- a. The judge read the report first, and then the lawyer did.  
- b. The report was first read by the judge, and then the confession was too.
- c. The report was first read by the judge, and then the lawyer did too.
- d. The judge read the report first, and then the confession was too.

(4)  
- a. The thief was arrested and his brother was as well.  
- b. A proof that God exists doesn’t.

2.2 Predictions from Recycling (Expt 1)

- **Mismatch penalty**: \([P \rightarrow A]\) and \([A \rightarrow P]\) less acceptable than \([A \rightarrow A]\) and \([P \rightarrow P]\)
- **Mismatch asymmetry**: \([P \rightarrow A]\) more acceptable than \([A \rightarrow P]\)
- **No “match asymmetry”**: \([A \rightarrow A]\) and \([P \rightarrow P]\) should be equally acceptable

2.3 Results (Expt 1)

[Figure 1: Results from Expt 1. There was a mismatch penalty \((\beta = -0.41, p < 0.001)\), and a passive penalty \((\beta = -0.22, p = 0.001)\), but no interaction between the two \((\beta = -0.02, p = 0.67)\). Statistical results here and throughout are based on linear mixed-effects regression analyses with maximal random effect structure (Barr et al., 2013), and all p-values are derived from likelihood-ratio model comparisons. Dashed lines indicate mean ratings of (un)acceptable elliptical fillers.]

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• As predicted: mismatch penalty and mismatch asymmetry
• Contrary to Recycling: “match asymmetry”
• Mismatch asymmetry due to penalty for passive ellipsis clauses

Experiment 2

• Goal: introduce subordination (‘before’ or ‘after’ instead of ‘and (then)’)
• Methods (same as in Expt 1): 2x2 design; 30 participants; 24 items like (5), 40 fillers; 5-point acceptability judgment task

3.1 Stimuli

(5) a. The judge read the report first before the lawyer did. [A <-> A]
b. The report was first read by the judge before the confession was. [P <-> P]
c. The report was first read by the judge before the lawyer did. [P <-> A]
d. The judge read the report first before the confession was. [A <-> P]

3.2 Predictions (same as for Expt 1)

• Mismatch penalty: [P -> A] and [A -> P] less acceptable than [A -> A] and [P -> P]
• Mismatch asymmetry: [P -> A] more acceptable than [A -> P]
• No “match asymmetry”: [A -> A] and [P -> P] equally acceptable

3.3 Results

Figure 2: Results from Expt 2. Like Expt 1, Expt 2 revealed significant mismatch ($\beta = -0.66, p < 0.001$) and passive penalties ($\beta = -0.25, p < 0.001$). Unlike Expt 1, there was also a small, but significant interaction: $\beta = -0.1, p = 0.04$. Dashed lines indicate mean ratings of (un)acceptable elliptical fillers.

• As in Expt 1, 2 main effects:
  – Mismatch penalty
  – Passive penalty
• Contrary to Expt 1: small, but significant interaction: asymmetry greater in mismatched items than their matched counterparts
• This interaction is driven by items with ‘before’ connective:
Experiment 3

- **Goal:** Distinguish passive-penalty and Recycling explanations by manipulating clause order

- **Methods** (same as in Expts 1-2): 2x2 design; 30 participants; 24 items like (6), 40 fillers; 5-point acceptability judgment task

4.1 **Stimuli (Expt 3)**

(6)  
- a. Before the lawyer did, the judge read the report first.  \[[A \leftarrow A]\]
- b. Before the confession was, the report was first read by the judge.  \[[P \leftarrow P]\]
- c. Before the lawyer did, the report was first read by the judge.  \[[A \leftarrow P]\]
- d. Before the confession was, the judge read the report first.  \[[P \leftarrow A]\]

4.2 **Predictions (Expt 3)**

- **Passive penalty explanation:** if mismatch asymmetry is driven by passive penalty, \[[P \leftarrow A]\] should be less acceptable than \[[A \leftarrow P]\]

- **Recycling explanation:** if asymmetry is due to asymmetrically noisy memory for past material, \[[P \leftarrow A]\] should be more acceptable than \[[A \leftarrow P]\] (cf. (7) and (8))

Logic behind Recycling prediction:

Without cataphora, repeated from (2):

(7)  
- a. The report was first read by the judge before the lawyer did too.  \[[PA \rightarrow A]\]
- b. The judge read the report first before the confession was too.  \[[A \rightarrow P]\]

Under cataphora, the predictions flip:

(8)  
- a. Before the lawyer did, the report was first read by the judge.  \[[A \leftarrow P]\]
- b. Before the confession was, the judge read the report first.  \[[PA \leftarrow A]\]
4.3 Results (Expt 3)

- As in Expts 1 and 2: mismatch penalty and passive penalty
- Contrary to Recycling: mismatch asymmetry did not flip

4.4 Discussion (Expt 3)

- Passive ellipsis clauses remain degraded even when they precede the antecedent (despite being subject to misremembering), which is inconsistent with Recycling account
- Across Expts 1-3, we found 2 independent main effects:
  - mismatch penalty
  - passive penalty
- Expt 4: are these effects ellipsis-specific?

5 Experiment 4

- Goals:
  - Replicate Expt 1
  - Test if passive penalty is specific to ellipsis
- Methods: 2 x 2 design; 60 participants; 24 items like (9), 40 fillers; 5-point acceptability judgment task

5.1 Stimuli (Expt 4)

In addition to the VP-ellipsis variants in (3), Expt 4 tested their non-elliptical counterparts:

(9) a. The judge read the report first, and then the lawyer read it. [A - A]
    b. The report was first read by the judge, and then the confession was read too. [P - P]
    c. The report was first read by the judge, and then the lawyer read it too. [P - A]
    d. The judge read the report first, and then the confession was read too. [A - P]
5.2 Predictions (Expt 4)

- Replicate results from Expt 1: mismatch and passive penalties
- If mismatch penalty and passive penalty are ellipsis-specific effects, they should disappear in non-elliptical variants.

5.3 Results (Expt 4)

- Full replication of Expt 1
- No mismatch penalty without ellipsis
- No (or much reduced) passive penalty without ellipsis

6 Conclusion

- Main take-away: mismatch asymmetry can’t be explained in terms of Recycling
- Evidence is inconsistent with memory-based accounts more generally, e.g. Parker (2017) or Xiang & Klafka (2018)
- New puzzle: ellipsis-specific passive penalty

Figure 5: Results from Expt 4. Left: full replication of Expt 1. Right: Non-elliptical item variants revealed no mismatch penalty, and a substantially reduced, statistically marginal passive penalty: $\beta = -0.1, p = 0.068$. Dashed lines indicate mean ratings of (un)acceptable elliptical fillers.

Figure 6: Overview of results from Expts 1-4. Orange lines indicate items with passive ellipsis clauses, which were consistently less acceptable across all experiments.

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References


