Antecedent ambiguity and ellipsis: Testing the reactivation account

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Previous work

In a self-paced reading study, Paape (2015) investigated sluicing with temporarily ambiguous antecedents to compare the predictions of copy-pointer- and reconstruction-based accounts of ellipsis processing.

Reconstruction

The antecedent is retrieved without structure and parsed from scratch (most compatible with the account of Kim et al. 2011).

The experiment manipulated Word order (SVO vs. OVS, a/c vs. b/d) and Case marking of the first NP (ambiguous vs. unambiguous, a/b vs. c/d).

Paape found a garden-path effect for the antecedent in the OVS/ambiguous condition, along with a significant Word order x Case marking interaction three regions after the sluicing site.

The results are incompatible with a reconstruction approach, but cannot be explained straightforwardly by the copying:pointer approach either.

The reactivation (+ mismatch) hypothesis

Paape (2015) explained the finding in terms of reactivation of the antecedent's memory trace through reanalysis, coupled with a mismatch penalty for OVS antecedents.

German subordinate clauses are verb-final:

```plaintext
aber die Quelle konnte nicht mitteilen, ...

wo einen Sprecher die Sportler getroffen hatte. SVO → SOV

wo einen Sprecher die Sportler getroffen hatten. OVS → OSV

Mismatch between antecedent and ellipsis site's structure is stronger for the OVS conditions – the penalty is in line with Arregui et al.'s (2006) recycling hypothesis or with imperfect cue matching in a retrieval-based parsing architecture (Lewis & Vasishth, 2005).

Cue-based retrieval parsing also predicts that syntactic chunks in memory are reactivated when they are retrieved for reanalysis, which explains why OVS/ambiguous is processed faster.

Activation decay never cancels the reactivation effect completely: \( \sum_{t=1}^{∞} \frac{1}{(t-d)} \)

The current study

Since the reactivation hypothesis of Paape (2015) was conceived post-hoc, further investigations are in order.

We used a different variety of ellipsis – bare argument ellipsis, or 'stripping' – as well as a different ambiguity (dative/genitive instead of nominative/accusative).

No antecedent-ellipsis mismatch was present in this experiment, but the reactivation advantage should still be visible.

Experimental design and procedure

Non-cumulative self-paced reading, *w* indicates presentation regions

- 2 x 2 design: Case ambiguity x Structure

A-AA Der Makler wollte | [die Sommerhäuser] | der ehemaligen

Bürgermeisterin und dem reichen Apotheker | verkauften,

mager and the dat wealthy pharmacist sell

A-AM Der Makler wollte | [die Sommerhäuser] | der ehemaligen

Bürgermeisterin und des reichen Apothekers | verkauften,

mager and the gen wealthy pharmacist sell

U-AA Der Makler wollte | [die Sommerhäuser] | dem ehemaligen

Bürgermeister und des reichen Apothekers | verkauften,

mager and the gen wealthy pharmacist sell

U-AM Der Makler wollte | [die Sommerhäuser] | des ehemaligen

Bürgermeisters und des reichen Apothekers | verkauften,

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A-AA Der Makler wollte | [die Sommerhäuser] | [dem reichen Apotheker] | verkauften,

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A-AM Der Makler wollte | [die Sommerhäuser] | [dem reichen Apotheker] | verkauften,

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U-AM Der Makler wollte | [die Sommerhäuser] | [des reichen Apothekers] | verkauften,

mager and the gen wealthy pharmacist sell

Antecedent ends at verkauften, 'sell', not 'not' marks the ellipsis site

Structure (ARG-MOD vs. ARG-ARG) is disambiguated by overt case marking on the pharmacist NP

60 participants, 32 items, 96 fillers

Comprehension test with its own design:

a. The realtor wanted to sell summer residences. Antecedent target, TRUE

b. The realtor did not want to sell summer residences. Antecedent target, FALSE

c. The superior wanted to sell summer residences. Ellipsis target, FALSE

d. The superior did not want to sell summer residences. Ellipsis target, TRUE

Results

Antecedent: Main effect of Structure (t = -2.78), Case ambiguity x Structure interaction (t = 1.99) at NP2

Ellipsis: No significant effects

Accuracy: Main effects of Case ambiguity (z = -2.4), log(RT) (z = -2.88); Case ambiguity x Structure interaction (z = 2.11)

Discussion

No additional evidence in favor of the reactivation hypothesis; however

Null result for ellipsis in RTs may not be informative since the garden-path effect was smaller than in the sluicing study (30 ms vs. 100 ms)

Comprehension results may indicate that participants did not always create a detailed parse of the ellipsis, but used a "good-enough" heuristic instead.

References: