Ellipsis with garden-path antecedents in French

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The reactivation hypothesis

- Paape (2016) found a reduction in reading times at a sluicing site if the antecedent had been syntactically reanalyzed
- In cue-based retrieval parsing (e.g., Lewis & Vasishth, 2005), syntactic phrases are stored in memory as chunks
- Observed speedup is hypothesized to be the result of reactivation of the antecedent’s memory trace during reanalysis

### Garden-path sentence:
- Anna forgot the baby that the baby had spit up
  - Chunk created (base activation)
  - Reanalysis created (go-past time)

### Control sentence:
- Anna forgot that the baby had spit up
  - Chunk created (base activation)
  - Retrieval speed (go-past time)

Results

- **Reduced relative clauses**: Garden-path effect visible in the disambiguating region (go-past times & total reading times*)
- **Subject-object inversion**: Garden-path effect on the auxiliary (go-past times & total reading times*); continues into the following regions
- **‘Triple trouble’**: Garden-path effect on the adjective (go-past times, see below); reversed on the verb

\[ \text{Pre-ellipsis fixations only} \]

\[ \text{Antecedent (Go-past times), ‘Triple trouble’} \]

### Issues

- Evidence comes from a late spillover region in a self-paced reading study
- Result has failed to replicate (Paape, 2015)
- Previous studies were limited to German

A new eye-tracking study

- Three types of potential garden-path sentences were identified in French: Reduced relative clauses, sentences featuring subject-object inversion and clauses involving triple lexical ambiguity (‘triple trouble’):

### Context
The market is known for its large sides of beef which are delivered during the night.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Ambiguous</th>
<th>Unambiguous</th>
<th>Ellipsis</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ambiguous</strong></td>
<td>Le boucher sale les trancheurs</td>
<td>les bouchers sales les trancheurs,</td>
<td>mais les clients se demandent quand,</td>
<td>mais les clients en demandent la technique,</td>
</tr>
<tr>
<td><strong>Unambiguous</strong></td>
<td>the butcher filthy them cuts</td>
<td>the butchers filthy.pl them cut</td>
<td>but the clients ask when</td>
<td>but the clients of.it ask the technique</td>
</tr>
<tr>
<td><strong>Ellipsis</strong></td>
<td>mais les clients se demandent quand,</td>
<td>but the clients self ask when</td>
<td>vu que la viande est vendue déjà marinée</td>
<td>vu que la viande est vendue déjà marinée</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>mais les clients en demandent la technique,</td>
<td>but the clients ask the technique</td>
<td>seen that the meat is sold already marinated</td>
<td>en début de matinée.</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>at beginning of morning</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ellipsis region (Total reading times), ‘Triple trouble’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition: Unambiguous</td>
</tr>
<tr>
<td>Control/Ambiguous</td>
</tr>
<tr>
<td>Condition: Avg/Unambiguous</td>
</tr>
<tr>
<td>Control/Ambiguous</td>
</tr>
</tbody>
</table>

\[ \text{Post-ellipsis fixations only} \]

### Discussion

- Garden-path effects were observed in all three sentence types
- Only in ‘triple trouble’ sentences, additional ellipsis processing difficulty (elevated reading times at the ellipsis site + antecedent re-reading) was observed with temporally ambiguous antecedents

Results do not support the reactivation hypothesis, but are compatible with accounts in which ellipsis acts as a memory pointer (Frazier & Clifton, 2001; Martin & McElree, 2008)

Results for ‘triple trouble’ sentences suggest that subjects fail to resolve the garden-path before reaching the ellipsis site → implies ‘good enough’ processing (e.g., Ferreira & Patson, 2007)

Why is this visible only in ‘triple trouble’ sentences? Were the other garden-paths easier to resolve?

**References**