Prosodic Focus Strengthens Semantic Persistence

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Misinterpretations in the Garden-Path
Misinterpretations in the Garden-Path

As Harry chewed the brown and juicy steak fell to the floor.
Misinterpretations in the Garden-Path

As Harry chewed the brown and juicy steak fell to the floor.

× Did Harry chew the steak?

Yes \hspace{1cm} No
As Harry chewed the brown and juicy steak fell to the floor.
Hypothesis: The erroneous semantic interpretation independently lingers despite the success of syntactic reanalysis.
Syntactic or Semantic in Nature?

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To disentangle the two, we draw on a well-known relationship between *pitch accent* and *semantic processing*:
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A rising pitch accent (H*) is a strong cue for FOCUS in phrase-medial positions but not so much in phrase-final positions.
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To disentangle the two, we draw on a well-known relationship between pitch accent and semantic processing:

A rising pitch accent (H*) is a strong cue for FOCUS in phrase-medial positions but not so much in phrase-final positions.

If prosodic focus facilitates deeper semantic processing in the incorrect local parse, we should observe a stronger lingering effect.
Auditory Comprehension Experiment

**Design:** Manipulate location of pitch accent to induce an asymmetrical interpretation of FOCUS between local parses.
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While Anna dressed the baby stopped crying.
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While Anna dressed the baby stopped crying.

**VERB ACCENT Condition:**

While Anna *DRESSED* the baby stopped crying.

- While Anna [dressed] *FOCUS* the baby, ... (late closure) ✗
- While Anna dressed, the baby ... (early closure)
Auditory Comprehension Experiment

**Design:** Manipulate location of pitch accent to induce an asymmetrical interpretation of FOCUS between local parses.

While Anna dressed the baby stopped crying.

**SUBJECT ACCENT Condition:**

While ANNA dressed the baby stopped crying.

- While [Anna]$_{FOCUS}$ dressed the baby, ... (late closure) ×
- While [Anna]$_{FOCUS}$ dressed, the baby ... (early closure)
Prediction

Lower accuracy on comprehension questions in VERB ACCENT condition than in SUBJECT ACCENT condition.

Was the baby dressed?

Yes  No
Results

1. Significant negative effect of VERB ACCENT on accuracy:

<table>
<thead>
<tr>
<th></th>
<th>Estimate (SE)</th>
<th>$\chi^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitch (Verb)</td>
<td>-0.19 (0.08)</td>
<td>6.23</td>
<td>0.044</td>
</tr>
<tr>
<td>Semantic Fit</td>
<td>-0.44 (0.15)</td>
<td>7.45</td>
<td>0.006</td>
</tr>
<tr>
<td>Transitivity</td>
<td>-0.19 (0.16)</td>
<td>1.39</td>
<td>0.238</td>
</tr>
</tbody>
</table>
Results

2. No differences in **response time** between accent conditions:
Conclusion

Evidence for the **semantic nature of the lingering effect** & a model of an **independent semantic processor**

- Initial semantic commitments may fail to be revised, especially when it contains focused information.

- But syntactic reanalysis always succeeds, and the parser never builds an ungrammatical structure

... and more to discuss!