Agreement attraction: Roles of active dependencies and attractor positio

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Agreement attraction: Roles of active dependencies and attractor position

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### Background
- Subject-verb number agreement is affected by attraction (e.g. Wagers et al (2009, JML); Lago et al (2015, JML)).
- Processing difficulty for ungrammatical agreement is reduced in presence of matching attractor.

#### Is attraction affected by the "active" status of a distractor?
- The widows said that the nurse were reluctant to work long shifts.
- The widows who said that the nurse were reluctant to work long shifts.

#### Is attraction affected by relative order of distractor & target?
- The nurse who the widows said were reluctant to work long shifts.
- The nurse who the widows who said were reluctant to work long shifts.

### Experiment 1: Inactive, non-intervening distractor

<table>
<thead>
<tr>
<th>Condition</th>
<th>Sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a. Ungrammatical: Matching distractor</td>
<td>The widows said that the nurse most definitely were reluctant to work long shifts.</td>
</tr>
<tr>
<td>1b. Ungrammatical: Mismatching distractor</td>
<td>The widow said that the nurse most definitely were reluctant to work long shifts.</td>
</tr>
<tr>
<td>1c. Grammatical</td>
<td>The widow said that the nurses most definitely were reluctant to work long shifts.</td>
</tr>
</tbody>
</table>

#### Experimental details (applies to all 4 Exps)
- Critical verb (were) identical in all three conditions
- Items adapted from Dillon et al (2013, JML)
- Design focused on attraction in ungrammatical sentences, so included only one grammatical condition
- 16 items per condition (48 items overall), so reasonable power to detect effect
- 39 participants; 48 sentences; Eyelink 1000
- Analysis concentrated on GO-PAST:
  - Sum of fixation durations from first entry into the region from left to first exit to right
  - Analysis used LMER on combined region ("reluctant" + "to work"), including region as a factor.

### Experiment 2: Active, non-intervening distractor

<table>
<thead>
<tr>
<th>Condition</th>
<th>Sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a. Ungrammatical: Matching distractor</td>
<td>The widows who said that the nurse most definitely were reluctant to work long shifts had become quite annoyed.</td>
</tr>
<tr>
<td>1b. Ungrammatical: Mismatching distractor</td>
<td>The widow who said that the nurse most definitely were reluctant to work long shifts had become quite annoyed.</td>
</tr>
<tr>
<td>1c. Grammatical</td>
<td>The widow who said that the nurses most definitely were reluctant to work long shifts had become quite annoyed.</td>
</tr>
</tbody>
</table>

### Experiment 3: Intervening Subject distractor

<table>
<thead>
<tr>
<th>Condition</th>
<th>Sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a. Ungrammatical: Matching distractor</td>
<td>The nurse who the widows relied on definitely were reluctant to work long shifts.</td>
</tr>
<tr>
<td>1b. Ungrammatical: Mismatching distractor</td>
<td>The nurse who the widow relied on definitely were reluctant to work long shifts.</td>
</tr>
<tr>
<td>1c. Grammatical</td>
<td>The nurses who the widow relied on definitely were reluctant to work long shifts.</td>
</tr>
</tbody>
</table>

## Results and Summary

- Attraction effect (ungrammatical-matching vs. ungrammatical-mismatching) reliable only for INTERVENING distractors (Exps 3,4), and significantly greater than for NON-INTERVENING distractors (Exps 1,2)
- No difference in (null) attraction effect as function of active status of dependency (Exp1 vs. Exp2)
- Grammaticality effect (grammatical vs. ungrammatical/mismatch) didn’t differ as a function of intervention or active status of distractor

### Conclusions
- Attraction effect may be affected by decay of distractor’s activation over time (relative to target)
- Decay appears to be unaffected by whether the distractor participates in an active dependency.

### Acknowledgements

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