Acoustic Prominence Perceived Differently for Fluent and Distracted Speakers

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Conclusions

The given bias for acoustically reduced targets is restricted to fluent contexts. Categorization as “reduced” is not purely a function of relative prominence. Lengthening signals difficulty, even when the pitch is reduced. Prosodic signals of discourse status and production difficulty are intertwined.

Background

- Variation between acoustically prominent and reduced words can signal two things, and listeners are sensitive to both:
  - Discourse Status Information: REDUCED words are preferentially linked to given information, and PROMINENT words to new information (Arnold, 2008; Dahan et al., 2002).
  - Speaker’s Processing Load: Disfluent speech leads listeners to expect a new, difficult, or unexpected referent (Arnold et al., 2004; Arnold et al., 2007; Corley et al. 2007).

Stimuli

<table>
<thead>
<tr>
<th>Stimuli</th>
<th>Avg. dur</th>
<th>Resid. dur</th>
<th>Avg pitch</th>
<th>pitch mvt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distracted / prominent</td>
<td>661</td>
<td>93</td>
<td>239</td>
<td>104</td>
</tr>
<tr>
<td>Distracted / reduced</td>
<td>697</td>
<td>130</td>
<td>215</td>
<td>52</td>
</tr>
<tr>
<td>Fluent / prominent</td>
<td>483</td>
<td>84</td>
<td>250</td>
<td>57</td>
</tr>
<tr>
<td>Fluent / reduced</td>
<td>428</td>
<td>139</td>
<td>206</td>
<td>52</td>
</tr>
</tbody>
</table>

Method

- Eyetracking: participants follow instructions to move objects
  - Two blocks: ATTENTIVE and DISTRACTED
  - Prominent (BAGEL) vs. Reduced (bagel) targets
  - Given vs. New discourse contexts

Distracted/ given
Put the bacon on the star. Now...put the... BACON/bacon...

Distracted/new
Put the bagel on the star. Now...put the... BACON/bacon...

Fluent/given
Put the bacon on the star. Now put the BACON/bacon...

Fluent/new
Put the bagel on the star. Now put the BACON/bacon...

References