The role of duration as a phonetic correlate of focus

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1. Introduction

Duration and f0 are phonetic correlates of pitch accents, and pitch accents indicate a focused element in German.

**Question:**
Is duration an independent correlate of focus?
Or is duration dependent on higher scaling of f0?

- Focus causes an increase in duration (e.g., Féry & Kügler, to appear)
- Duration of a constituent depends on its position in a sentence
- Duration appears to correlate with the size of focus domain (e.g., Baumann et al. 2006)
- Duration and focus appear to correlate – even without f0 correlates (SOF) (e.g., Ishihara & Féry, 2006)

**Specific goal:** To determine the durational patterns in German

2. Duration – A production study

**Question:**
Does duration depend on information structure?
Does duration depend on position of the constituent?
Does duration depend on the length of the sentence?

**Conditions:**
1. Information structure:
   (i) wide focus (ii) narrow focus (iii) contrastive focus (iv) pre-focally given (v) post-focally given
2. Position:
   (i) early (ii) late in the sentence
3. Length:
   (i) short (7 – 8 o) (ii) long sentence (13 – 20 o)

3. Stimulus Materials

**Sentences:**
- Frau Mohn will ein Lamm malen.
- Ein Lamm will Frau Mohn malen.
- Frau Mohn will ein Lamm im Berliner Tierpark malen.
- Im Berliner Tierpark will Frau Mohn ein Lamm malen.

**Contexts:**
- a. What happened?
- b. Who does want to paint a lamb?
- c. Does Mrs Drähner want to paint a lamb?
- d. Does Mrs Mohn want to paint a hoarse?
- e. Does Mr Mohn want to paint a lamb?

4. Experimental design and procedure

**Design:**
8 unique question-answer pairs:
2 items × 2 positions × 2 sentence lengths
5 information structure conditions:
   all-new, narrow & contrastive focus, pre- and post-focally given
   = 40 sentences per speaker

**Procedure:**
- 10 native speakers of German (Standard variety around Berlin)
- Pseudo-randomized order of stimuli including filler
- Sound proof booth, condenser microphone
- Contexts were presented visually and orally
- Participants had to answer the question reading the sentence presented on the screen.

**Data processing:**
- 44.1 kHz, 16 bit resolution, Praat
- Hand labeling on syllable level
- Repeated measures ANOVA, dependent variable: duration

5. Predictions

**Information structure:**
- **Focus:** Increase in duration
- **Givenness:** Decrease in duration
- **Position:** Longer durations for earlier target words
- **Sentence length:** Shorter durations in longer sentences

6. Results – Information structure

**Baseline: All-new sentence**

<table>
<thead>
<tr>
<th></th>
<th>Mean duration “Liener”</th>
<th>Mean duration “Mohn”</th>
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</thead>
<tbody>
<tr>
<td>post Given</td>
<td></td>
<td></td>
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<tr>
<td>pre Given</td>
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<tr>
<td>Contrast</td>
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<tr>
<td>Narrow</td>
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<tr>
<td>All-new</td>
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**Focus:** Longer duration than baseline
No difference between Contrast & Narrow

**Givenness:** Shorter duration only in pre-focal position
Post-focal duration is similar to baseline

7. Results – Position of target word

**Target words:** [m o:n] [l i:n nu]

- **Difference between mono- and disyllabic target word**
- **Disyllabic Liener no durational difference**
- **Mono- syllabic Mohn on average 28 ms shorter if occurring earlier in the sentence**

8. Results – Sentence length

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<td>short</td>
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<td></td>
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<tr>
<td>long</td>
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</table>

**Longer target constituents in short sentences**
**Disyllabic Liener no significant difference**
**Mono- syllabic Mohn on average 18 ms shorter in long sentences**

9. Discussion & Conclusion

Predictions by and large borne out: Focus increases, givenness decreases duration, yet only in pre-focal position. Post-focal correlates of prominence seem to survive (cf. SOF, Féry & Ishihara, ms).

The data do not support a division of different focus categories prosodically.

**Position & Sentence length affect the duration of a constituent. The difference between mono- and disyllabic target words remains unclear, however.**

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http://www.sfb632.uni-potsdam.de/projects_d5eng.html

References


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- 8 unique question-answer pairs:
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  - Duration:
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