The Role of Tonal Onglides in German Nuclear Pitch Accents

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Background

- Models within the AM-framework differ with respect to what tonal movement is considered part of the pitch accents.

On-ramp
- Leading tones (L+H*)

Off-ramp
- Trailing tones (H*+L)

Gussenhoven (2004)
Different models for German:
- Leading and trailing tones (Grice & Baumann 2002)
- Trailing tones (Peters 2009)
- Leading tones only in tritonal accents (Féry 1993; Mayer 1995)
### Background

- **British School: Focus on context after nuclear syllable**

<table>
<thead>
<tr>
<th>Prehead</th>
<th>Head</th>
<th>Nucleus</th>
<th>Tail</th>
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- *That's a very tall tower you've built*

- **Onglide doesn't contribute to the categorization of the contour (although it is annotated ↑↓ by e.g. Crystal 1969)**
Background

For Dutch:

- Pitch before the tonal target of T*:
  - Initial boundary tone (%H vs. %L)
  - Trailing tone of the preceding accent (Gussenhoven 2005, 2008)

- Grabe et al. (1998): Pitch before target T* is important to differentiate attitudinal meaning
Background (Production)

- Onglide measure in production data

(Ritter, Krüger, Mücke & Grice 2012)
Aspects of information structure could be classified by the direction and magnitude of the onglide with little overlap.
Different strategies among speakers

1. Onglide direction
   - Discrete

2. Onglide magnitude
   - Continuous

Onglide by speaker

Contrastive Broad

Onglide in semitones

Falling Rising
Background (Perception)

- Perception experiment: Good correlation of rating for focus types and tonal onglide.

- But: Also other acoustic cues were present (Krüger 2009)
Background

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falling

rising
Aim of this study

Assess the importance of the onglide for German in single accent phrases

If the onglide plays an important role, it should be possible to change the meaning by manipulating the onglide only.
Methods: Manipulation

- 3 short phrases, one pitch accent only:
  - Für Janina (For Janina)
  - Für Marlene (For Marlene)
  - Für Ramona (For Ramona)
Methods: Task

- Match utterance to context on screen

A: Ist das Paket für Janina?  
*Is the parcel for Janina?*

B: Ja, **für Janina.**  
*Yes, for Janina.*

A: Ist das Paket für Sofie?  
*Is the parcel for Sofie?*

B: Nein, **für Janina.**  
*No, for Janina.*

- Affirmative
- Given information
- Not contrastive

**Given/non-contrastive**

- Negating
- New information
- Explicit contrast (corrective)

**New/contrastive**
Methods: Participants & Procedure

- 20 native speakers of German (12 f., 8 m., μ = 21 years)
- Training phase (12 items)
- 4 Blocks with pauses in-between
- Duration of experiment: ~10 min.
- Different orders of context presentation:
  - 10 participants: (i) – (ii)
  - 10 participants: (ii) – (i)
- Laptop with PsychoPy (Peirce 2007); stimuli through headphones
- Dataset: 1431 items
Results: Responses

- Rising onglide most frequently rated as new/contrastive (75%)
- Falling onglide less often rated as new/contrastive (27%)
- Level onglide in between (55%)
Results: Responses

- Linear mixed model:
  - *Fixed effects*: gender, repetition, presentation order of contexts and manipulation base
  - *Random effects*: intercepts for subjects and by-subject random slopes for the effect of onglide
  - Likelihood ratio test (full model vs. null model): $\chi^2(2) = 15.043$, $p < 0.001$
  - Significant effect of onglide on responses
Discussion

Listeners assign pragmatic meaning on the basis of onglide

The onglide plays an important role in German
Discussion

- F0 target for starred tone constant
- Off-ramp part of contour constant
- On-ramp part of contour changes

- Leading tone or initial boundary tone
- Important to look at the window before target for the T*

Window before target of T*
Outlook

- Finer grained manipulation scale $\rightarrow$ continuous effects
- Look more at listener specific differences
- Alignment $\leftrightarrow$ onglide
Thank you!
References