

How 'ornamental' are German prenuclear accents?

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■ Outline

- Background and Motivation
- Production Study
- Conclusions and Outlook

Background and Motivation

- Most studies on the relation between prosody and meaning restrict themselves to form and function of *nuclear* accents
- **Nuclear accent** = last pitch accent in (and structural head of) an intonation unit
- **Prenuclear accent** = pitch accent that occurs *before* the nucleus within the same intonation unit

JOHN and MAry went to a fanTASTic **PARty** last night.

↑ prenuclear ↑ prenuclear ↑ prenuclear ↑ **nuclear**

■ Background and Motivation

- Status of prenuclear accents is unclear
- Previous studies draw inconsistent conclusions

1) Prenuclear accents are **optional** – or *ornamental* – on prefocal (= non F-marked) elements (Büning 2007)

– Who did Gus vote for?

GUS VOTED [for a friend of his neighbors from LITtleville]_F

Prenuclear accents may be used due to general principles of rhythmic organization

■ Background and Motivation

- 2) **Low listener sensitivity** in prominence judgments (and longer RTs) of prenuclear accents compared to nuclear accents (Jagdfeld & Baumann 2011)

- 3) **Lower inter-transcriber agreement** for prenuclear accents (Ladd 2008)

■ Background and Motivation

4) Prenuclear accents are **placed consistently**, irrespective of information status

- Textually given information in narrow focus contexts (Baumann et al. 2007, Féry & Kügler 2008)
- Topics in topic-comment structures (Braun 2006)

However, accents displayed subtle changes in peak scaling or peak alignment, which expressed meaning differences (Braun 2006, Féry & Kügler 2008)

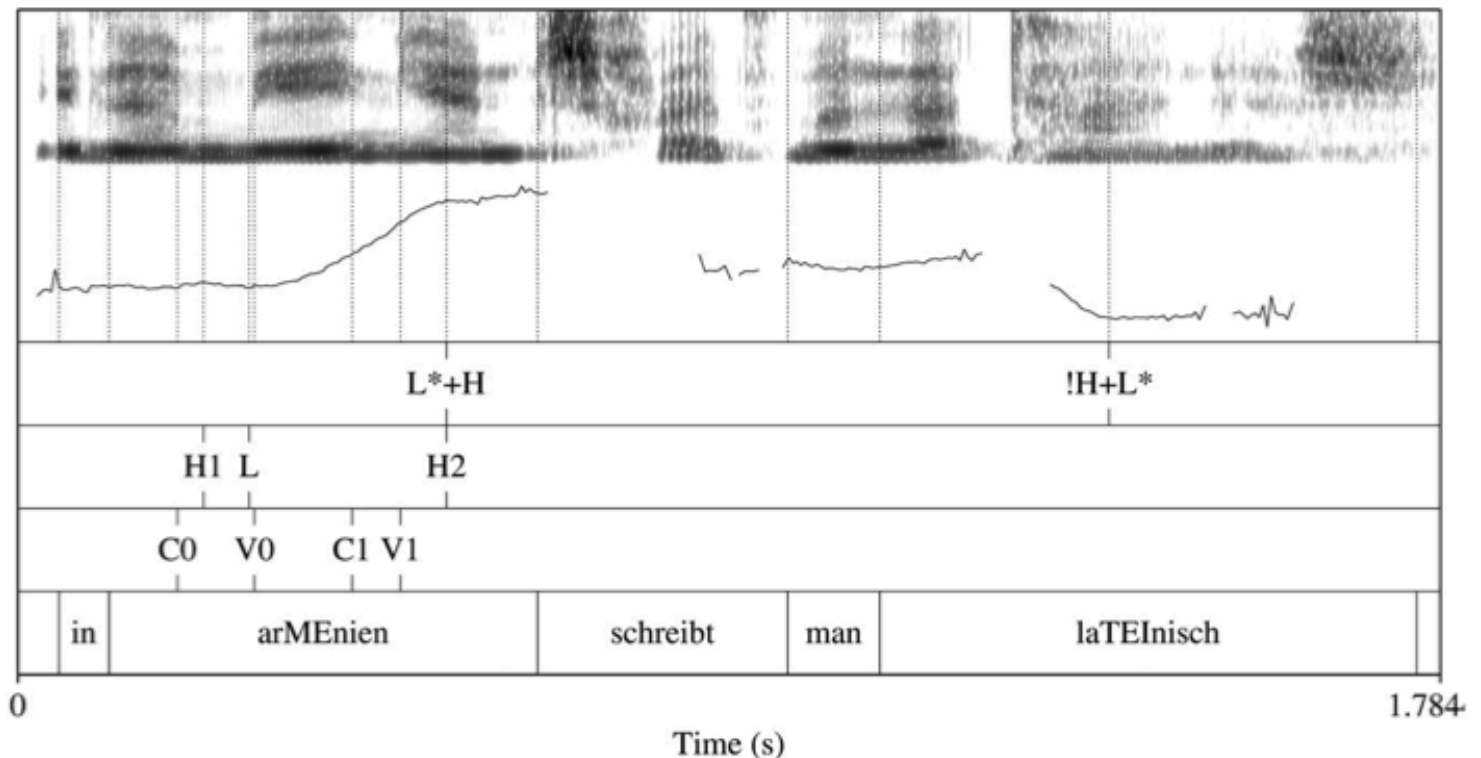
Background and Motivation

E.g. higher and later F0 peaks in contrastive prenuclear accents vs. non-contrastive prenuclear accents (Braun 2006)

Contrastive:

[...] *Die Georgier hingegen besitzen sogar eine eigene Schrift.*

(‘The Georgians, however, even have their own writing system.’)



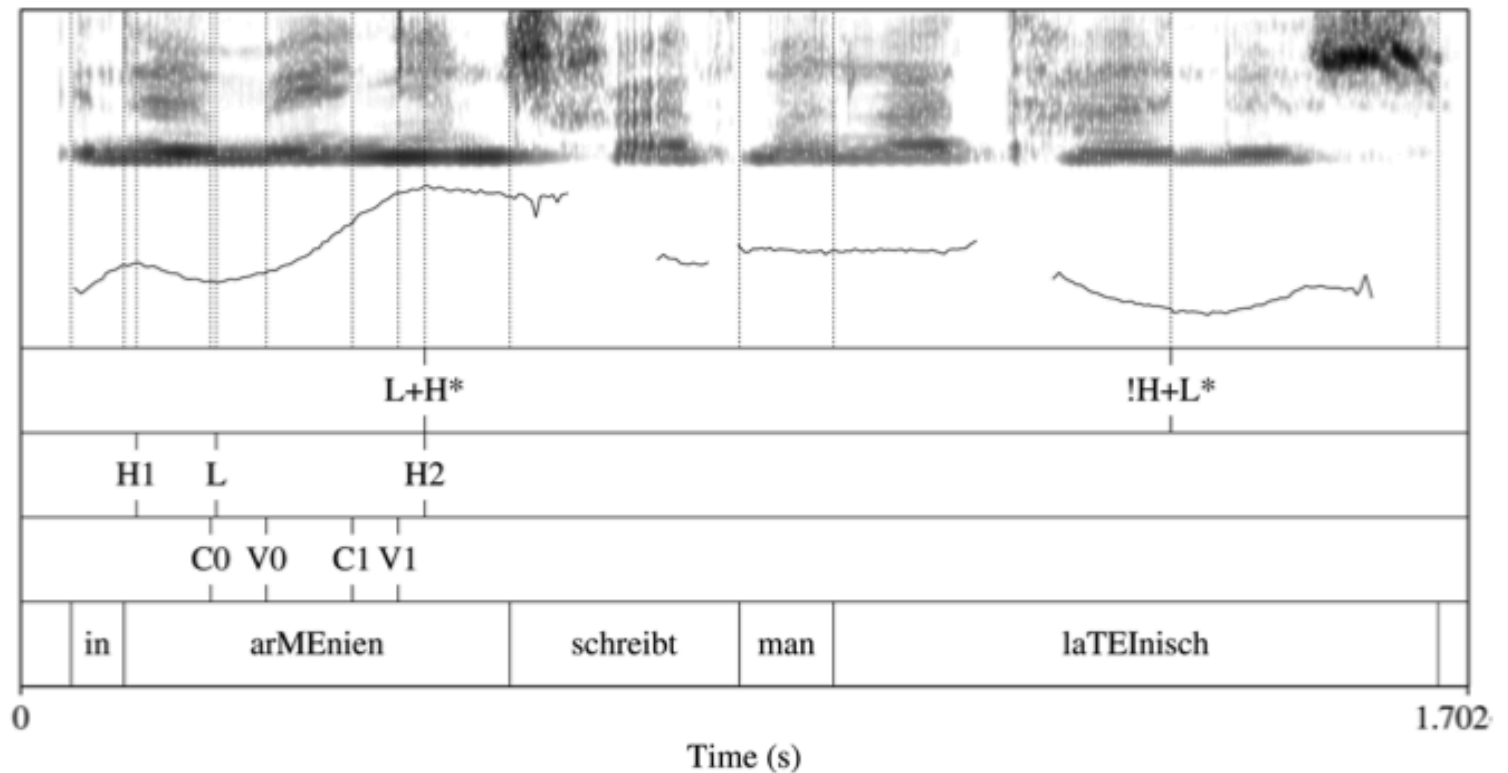
(‘In Armenia, the Latin alphabet is used’)

Background and Motivation

Non-contrastive:

[...] *Ungefähr 80% der Bevölkerung sind Christen.*

(‘About 80% of the population are Christians.’)



(‘In Armenia, the Latin alphabet is used’)

■ Background and Motivation

- **Motivation:** Investigate relation between form and function of prenuclear accents in German
- Specifically: Find out whether differences in the **information status of a sentence-initial referent** influence its prosodic realisation
- **Hypothesis:** Positive correlation between informativeness and prosodic prominence

■ Production Study – Method

- 20 native German speakers (13f, 7m), aged 23-69
- Presentation of four different mini-stories on a computer screen
- Target words: *Bananen*, *Chamäleons*, *Neffe*, *Superheld* (‘bananas’, ‘chameleons’, ‘nephew’, ‘superhero’)
- Two pre-recorded context sentences
- Subjects read out only the last sentence at a natural but swift speech rate

■ Method

Johannes hat den ganzen Samstag an seinem Stand auf dem Markt verbracht.



Jeder schien Bananen kaufen zu wollen. Es gab allerdings ein kleines Problem.

Die Bananen wurden an den Zoo verkauft.

Method

Context 1: John spent all day Saturday at his produce stand at the market.



Context 2a ('**given**'): It seemed like everyone was asking for **bananas**.
There was a little problem, though.



Context 2b ('**accessible**'): It seemed like everyone at the market that day
was asking for **fruit and vegetables**.
There was a little problem, though.



Context 2c ('**new**'): There were a lot of customers and it seemed
like he had a really good day.



Context 2d ('**contrast**'): It seemed to be a good day for fruit.
A **restaurant** bought all the **oranges**.



Target: The bananas were sold to the zoo.

■ Method

- Each participant (20) read only one condition (out of 4) per story (4):
 - = 80 utterances in total
 - = 5 utterances per condition and story

■ Method: Analysis

- Annotation: Accent types on target words
- Measurements:
 - Duration of target words
 - Duration of stressed syllables
 - RMS amplitude of stressed syllables
 - Pitch excursion of prenuclear accents
- Descriptive statistics only

■ Results

- In 32.5 % of the cases, subjects produced a **phrase break**
= excluded (break turns accent into nuclear accent)

- Example:

Die **B**ananen wurden an den **Z**oo verkauft.



*(The **ban**anas were sold to the **zoo**.)*

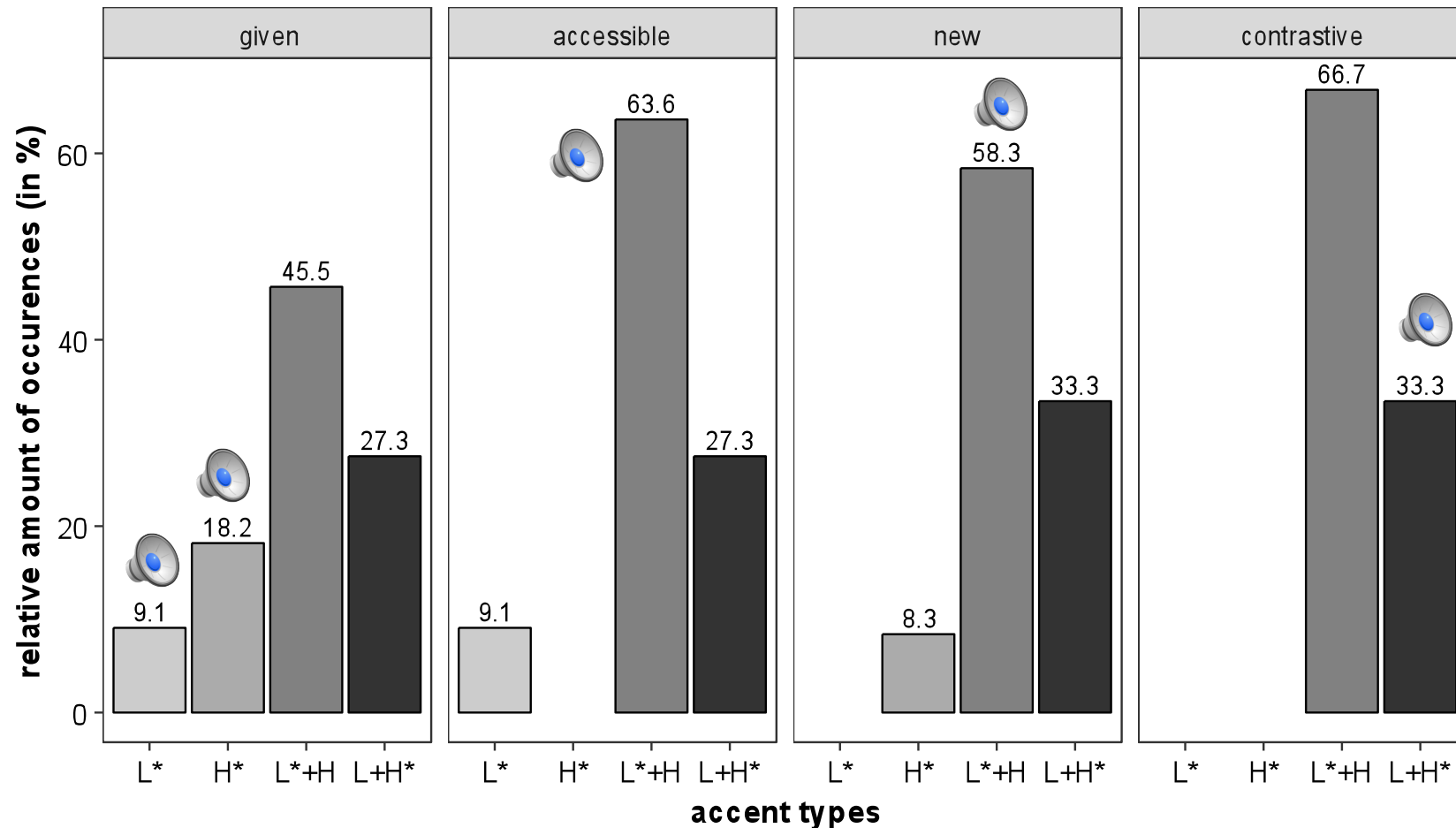
■ Results

- Remaining 54 utterances carried a prenuclear accent on target word

= no cases of deaccentuation (!)

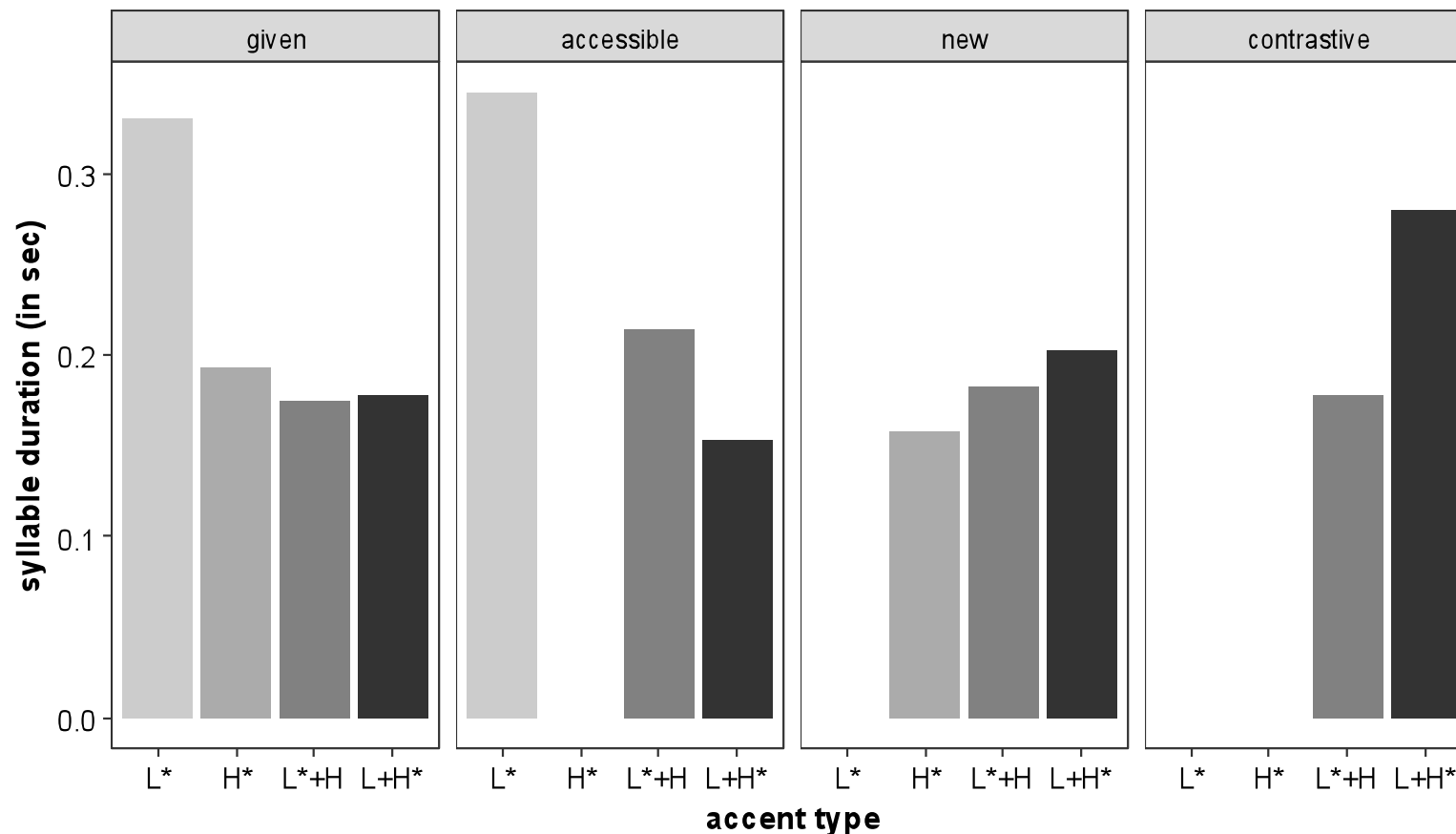
Results: Accent types

- Slight increase in prominence from *given* to *contrastive* items



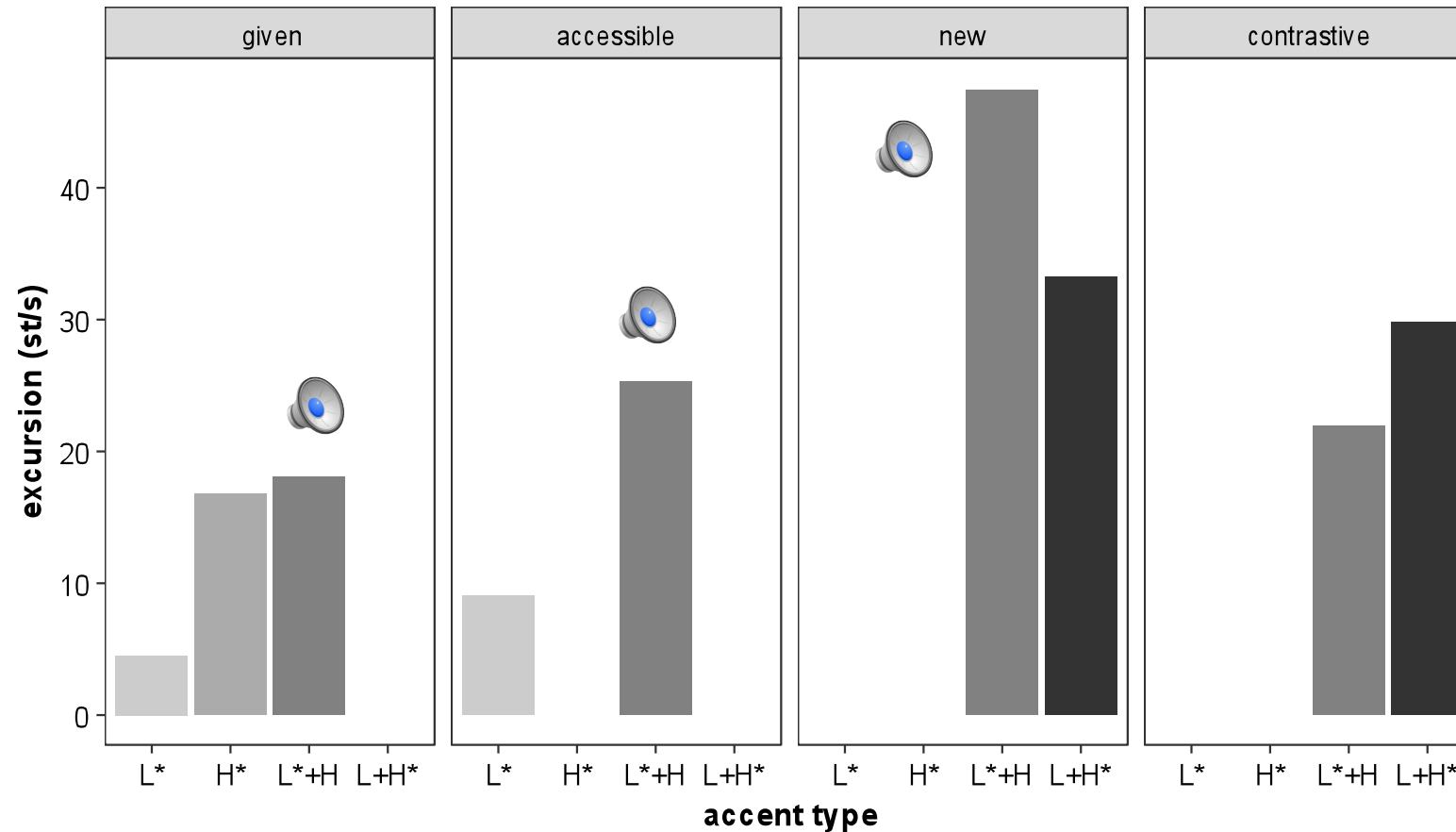
Results: Syllable duration

- No duration differences due to information status (only *contrast*)
- Duration mainly **dependent on accent type**



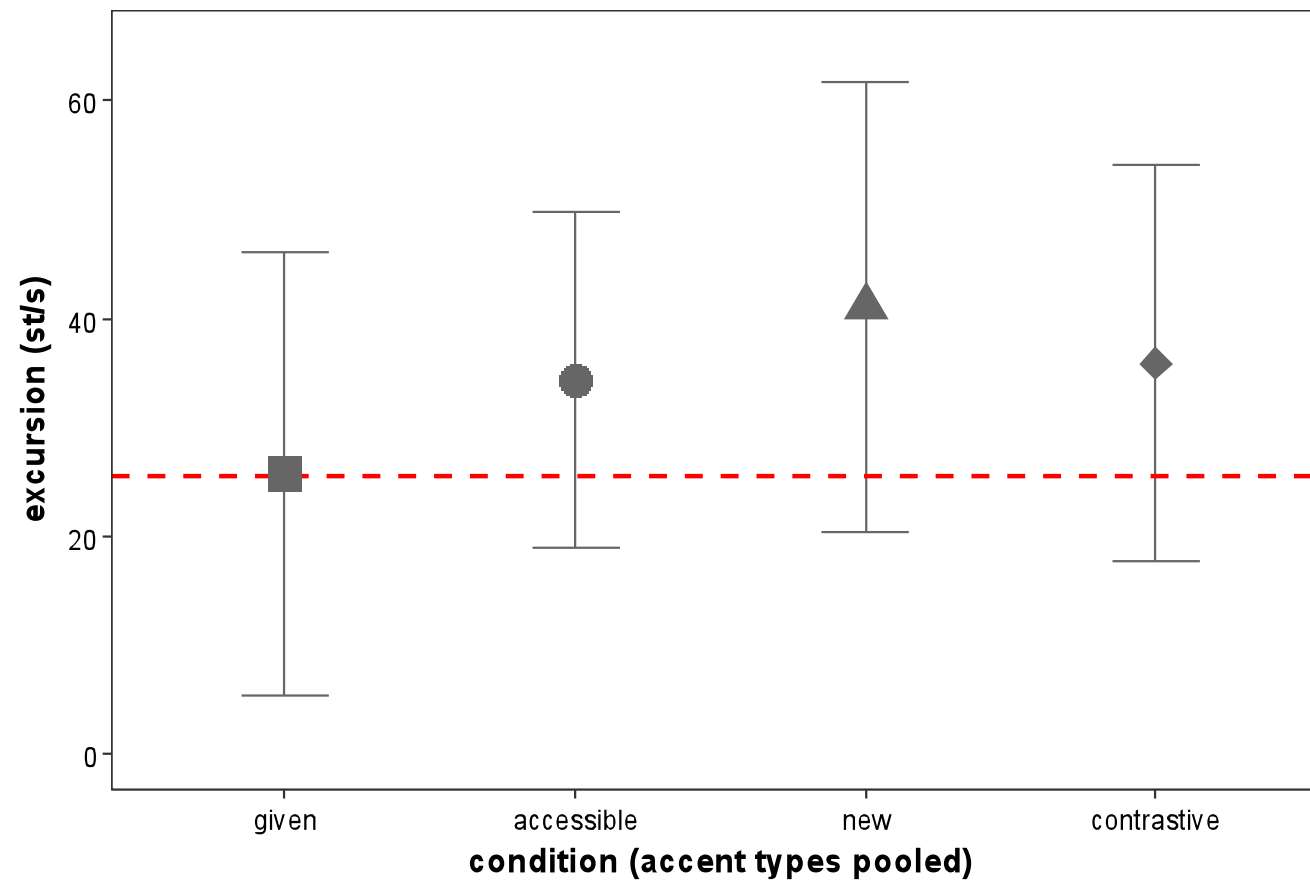
Results: Pitch Excursion on *Bananen*

- Increase in pitch excursion in all accent types (from *given* to *new*)



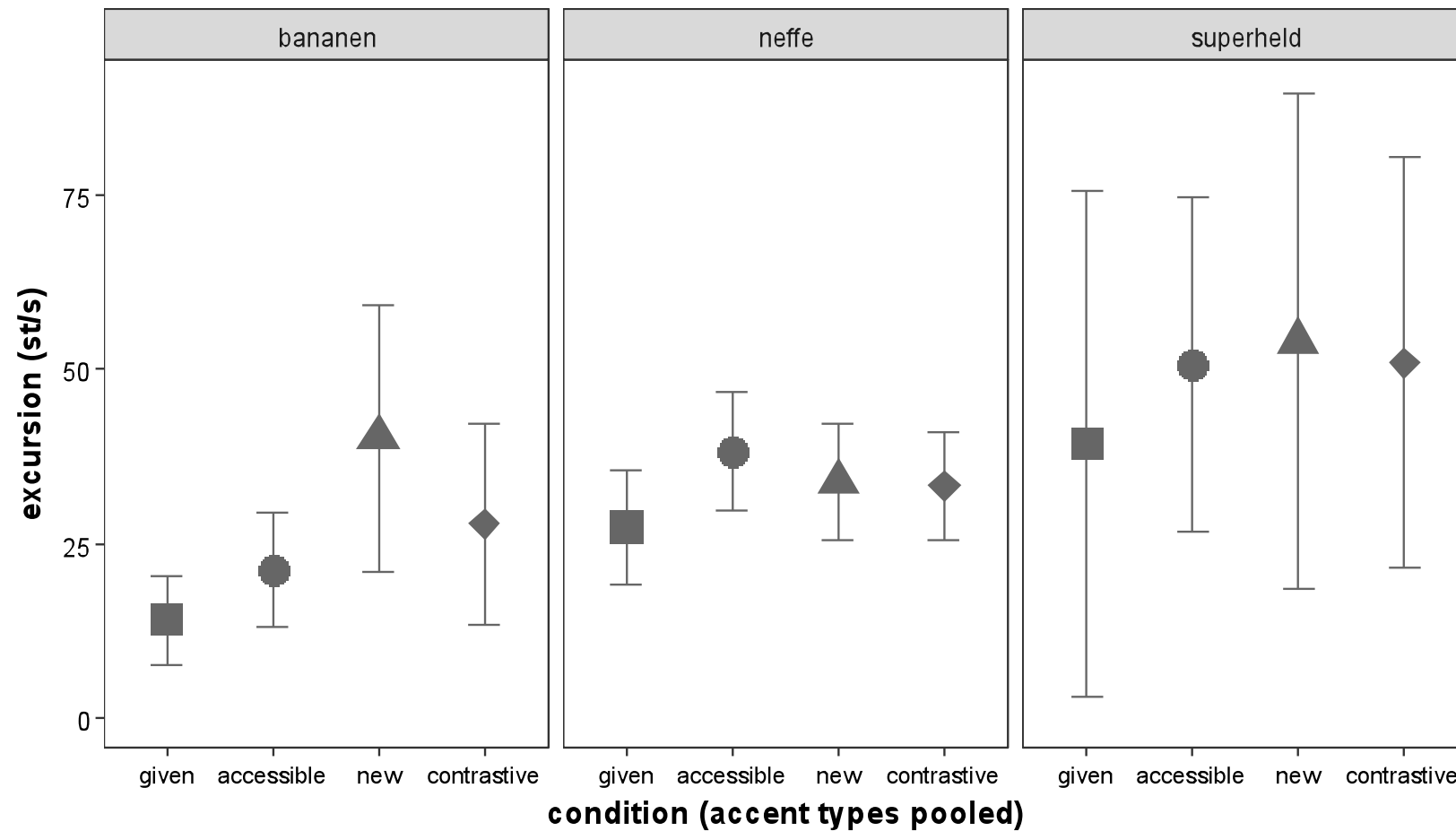
Results: Pitch Excursion

- Pooled over all accent types and target words: Non-given referents produced with **steeper excursion** than given referents



Results: Pitch Excursion

- High degree of variability, depending on target word



■ Conclusions

- Results suggest that the form of a prenuclear accent is affected by the **information structure** of an utterance in German
- That is, speakers not only make systematic use of **nuclear** accents to express meaning differences – this also applies to **prenuclear** accents

= Prenuclear accents are **not just ‘ornamental’**

■ Conclusions

- Our data show the expected distribution: The **more informative** a referring expression, the higher its **prosodic prominence**
- Although the **variability** in the production of prenuclear accents is high, the emerging patterns do not seem to be random
- However, we found that sentence-initial referents were **always accented**, even if they represented given information

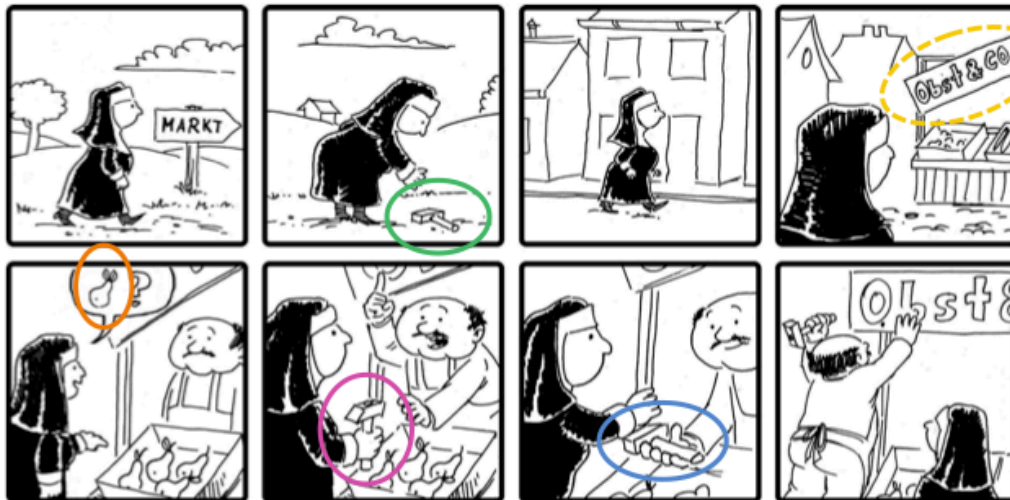
■ Outlook

- **Methodological challenge:** difficult to obtain comparable prenuclear accents in controlled contexts (due to production of phrase breaks)

= more natural and efficient elicitation method needed

Outlook

- For example retelling a picture story in which the target words' information status can be controlled for



The structure of the stories:

- Picture 1 = Filler
- Picture 2 = **Item 1** (*new discourse referent*)
- Picture 3 = Filler
- Picture 4 = sets up a **Scenario**
- Picture 5 = **Item 2** (*inferentially accessible referent*)
- Picture 6 = **Item 1** (*given-displaced referent*)
- Picture 7 = **Item 1** (*given referent*)
- Picture 8 = Filler

■ Outlook

- **Typological comparison** with prenuclear accents in American English (J. Cole) and Spanish (J. Hualde)
- Analogous stories in the three languages:
 - Ger: Mein **Neffe** hat seine berühmte **Limonade** mitgebracht.
 - Eng: My **nephew** brought his famous **lemonade**.
 - Spa: Mi **sobrino** trajo su famosa **limonada**.

■ Outlook

Thank you for your attention!

- Follow-up **perception** study: How relevant is prosody of prenuclear elements for interpretation?
- Variation of prosody of target word in different contexts
- Subjects judge appropriateness of contour

*It seemed like everyone was asking for **bananas**.*

*The bananas were sold to the **zoo**.*

0	H* L-%
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References

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