

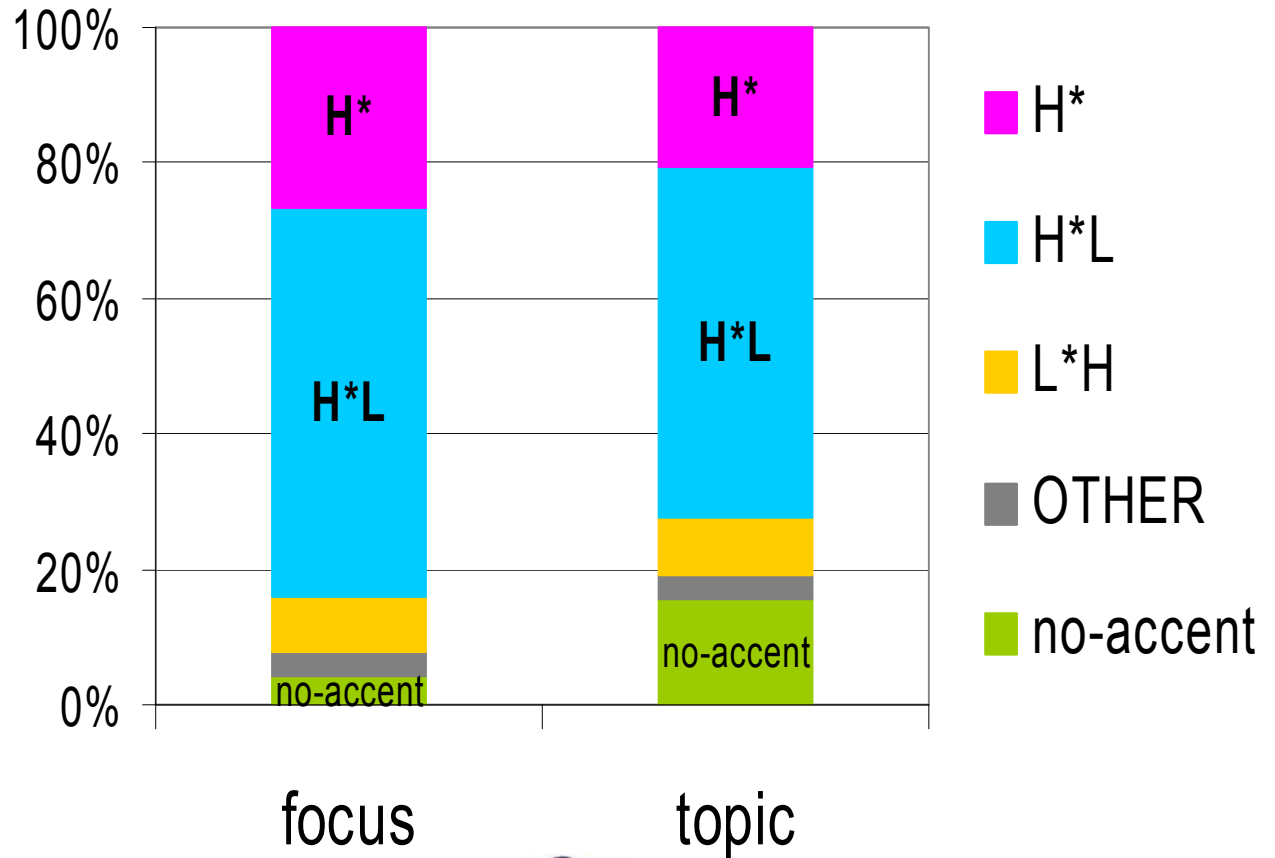
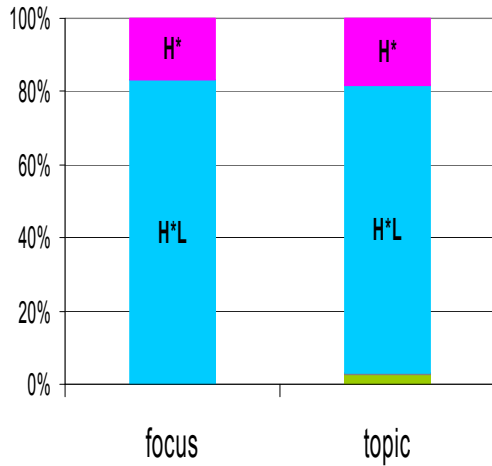
Lecture 4

Intonation and information structure (part II)

CN MSc course 'Language Acquisition', 22 March 2011

Instructor: Aoju Chen

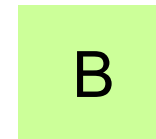
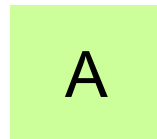
Topic and focus in sentence initial position



Learning phonetic marking

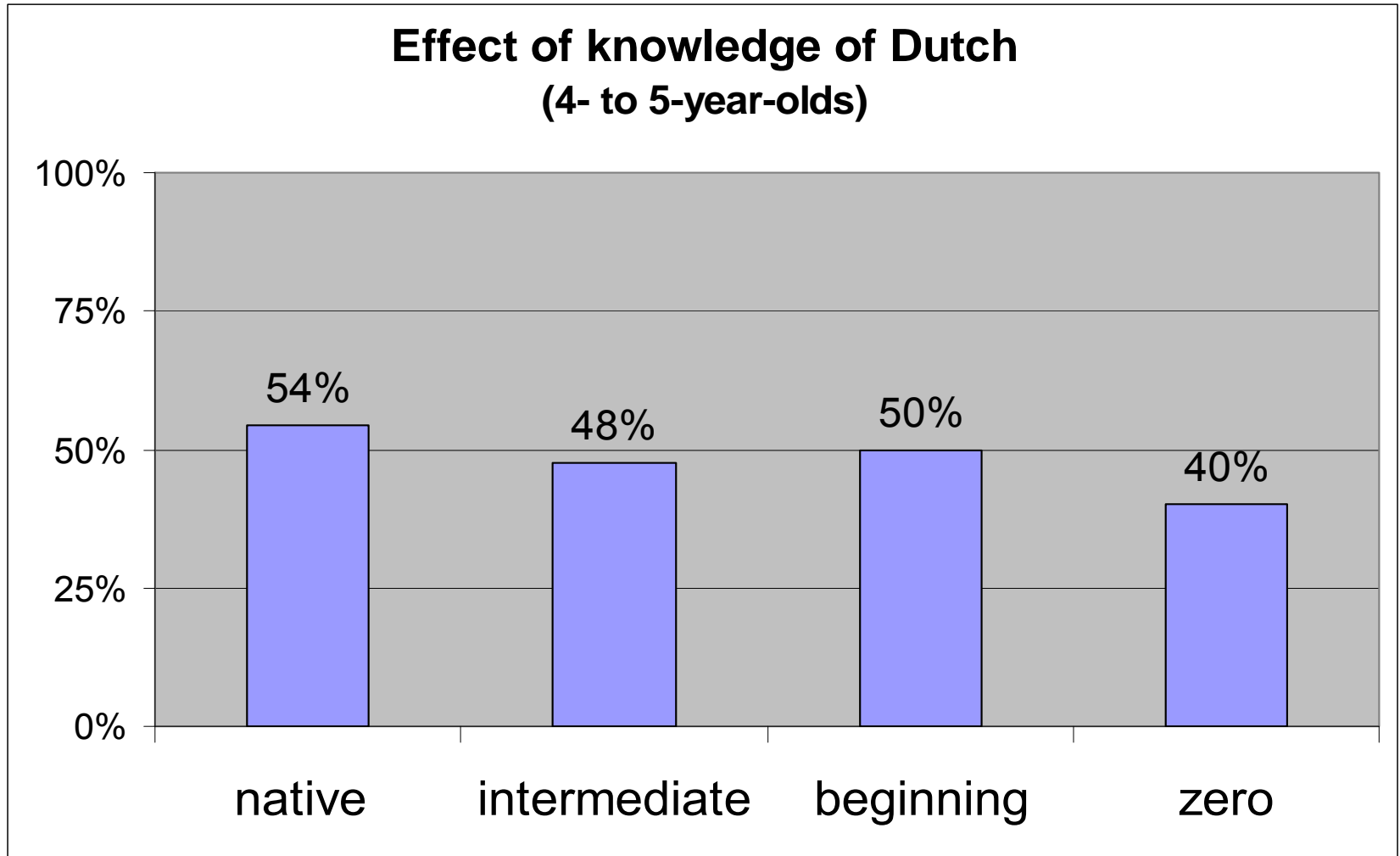
- Test case: sentence-initial topic and focus
 - Do children distinguish them phonetically even though they use the same accent type?
 - Do they differ from adults?

Wie kleurt het bed?
Who paints the bed?

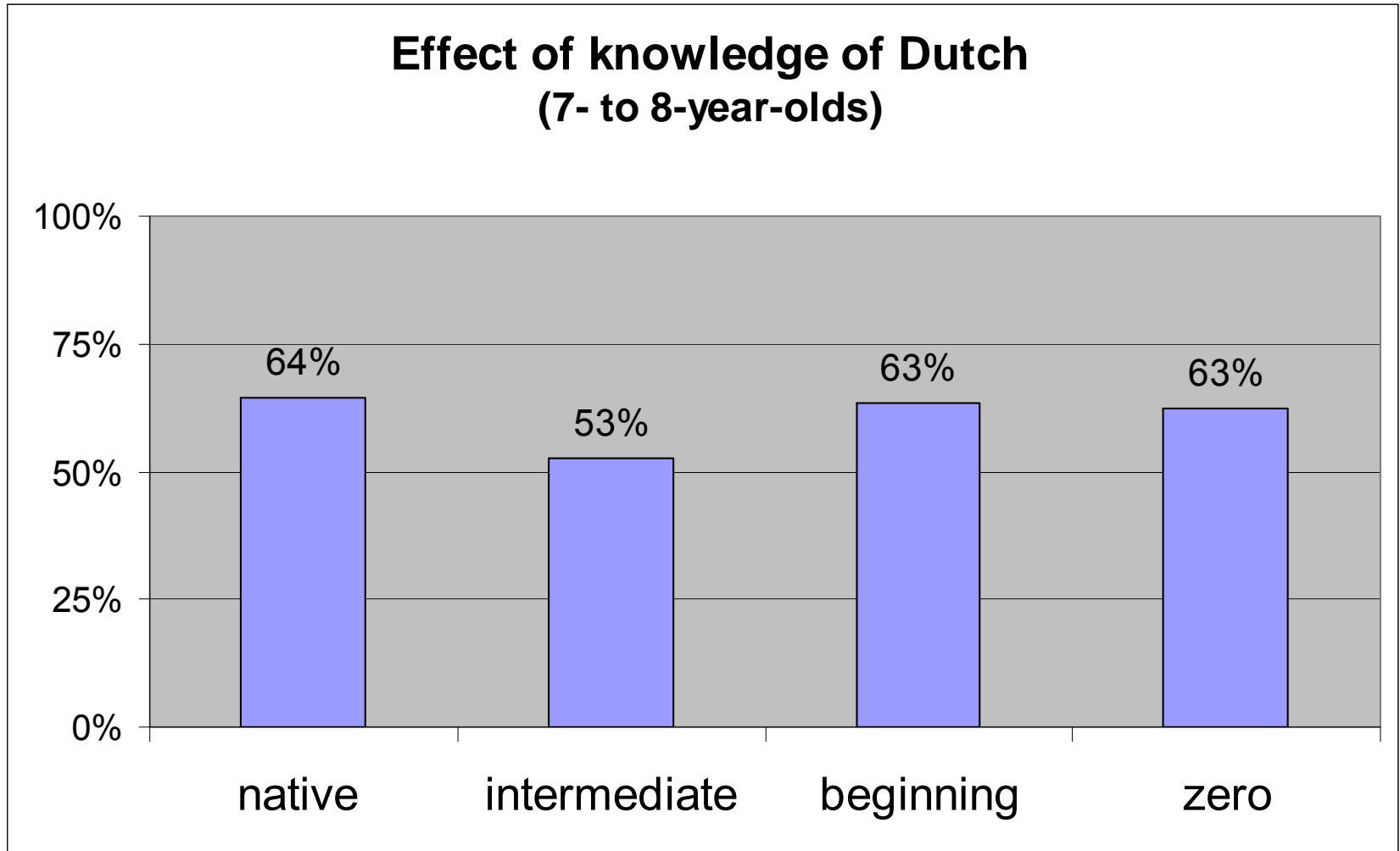


De paashaas ...
The Easter-bunny ...

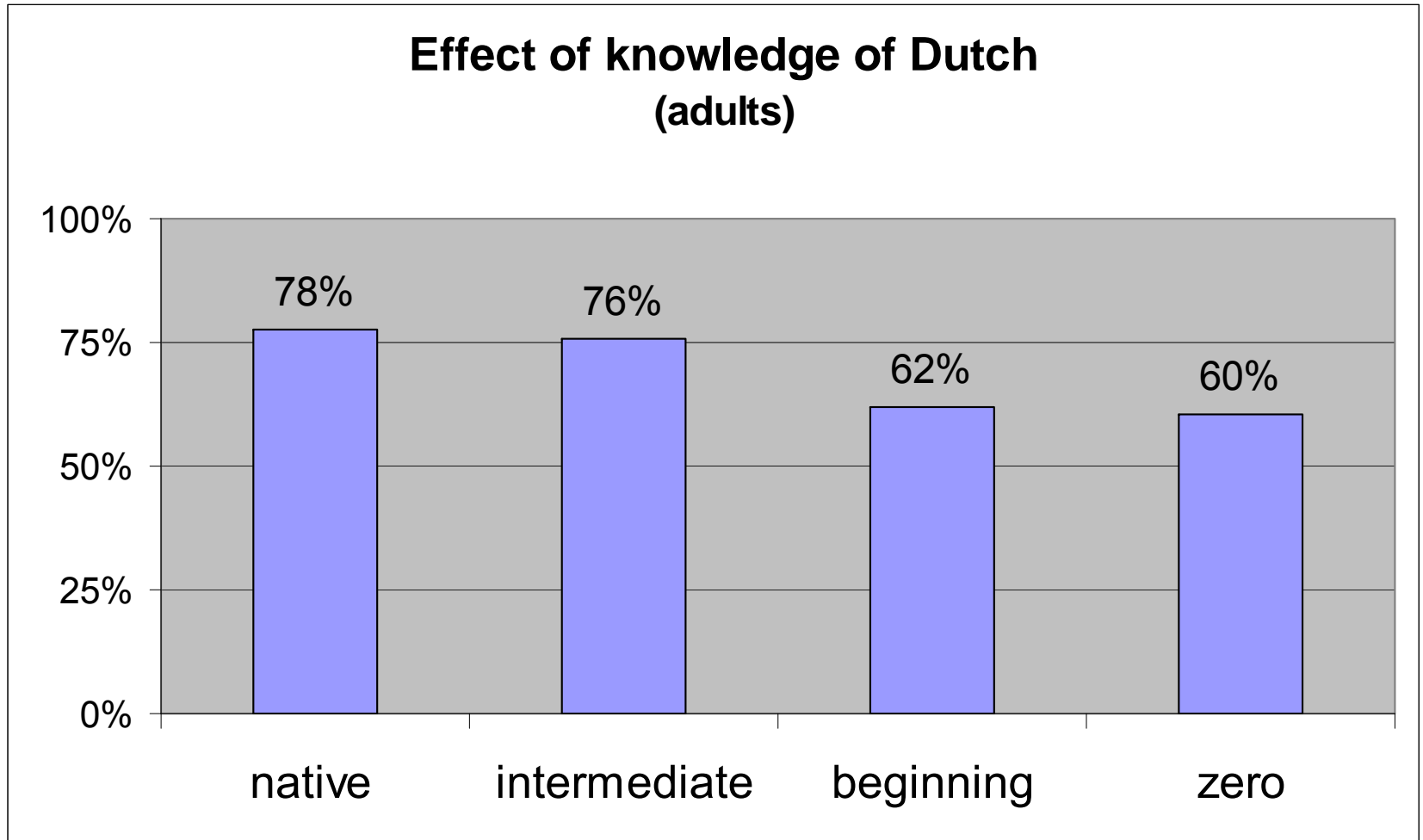
Results from the perception test



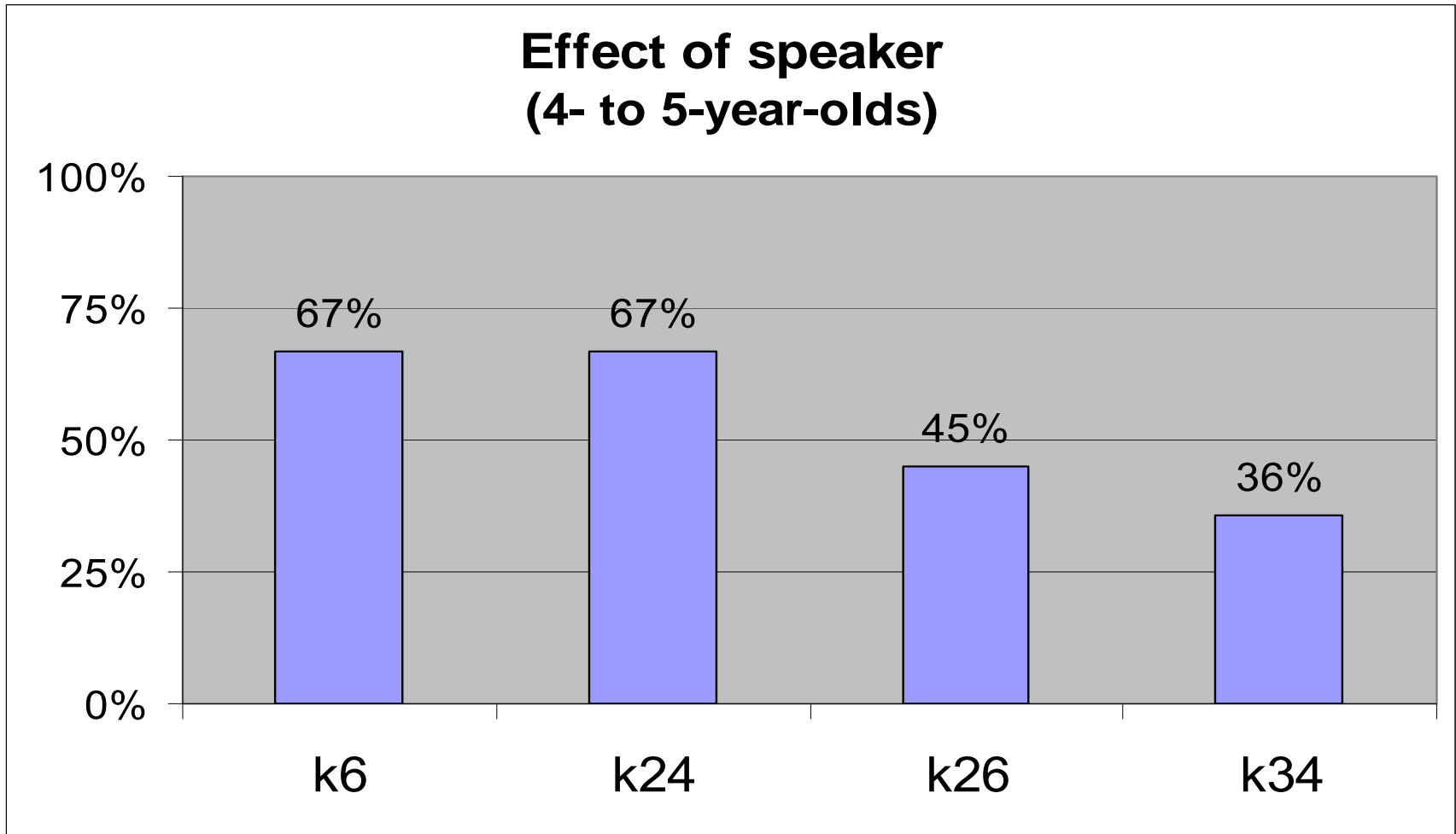
Results from the perception test



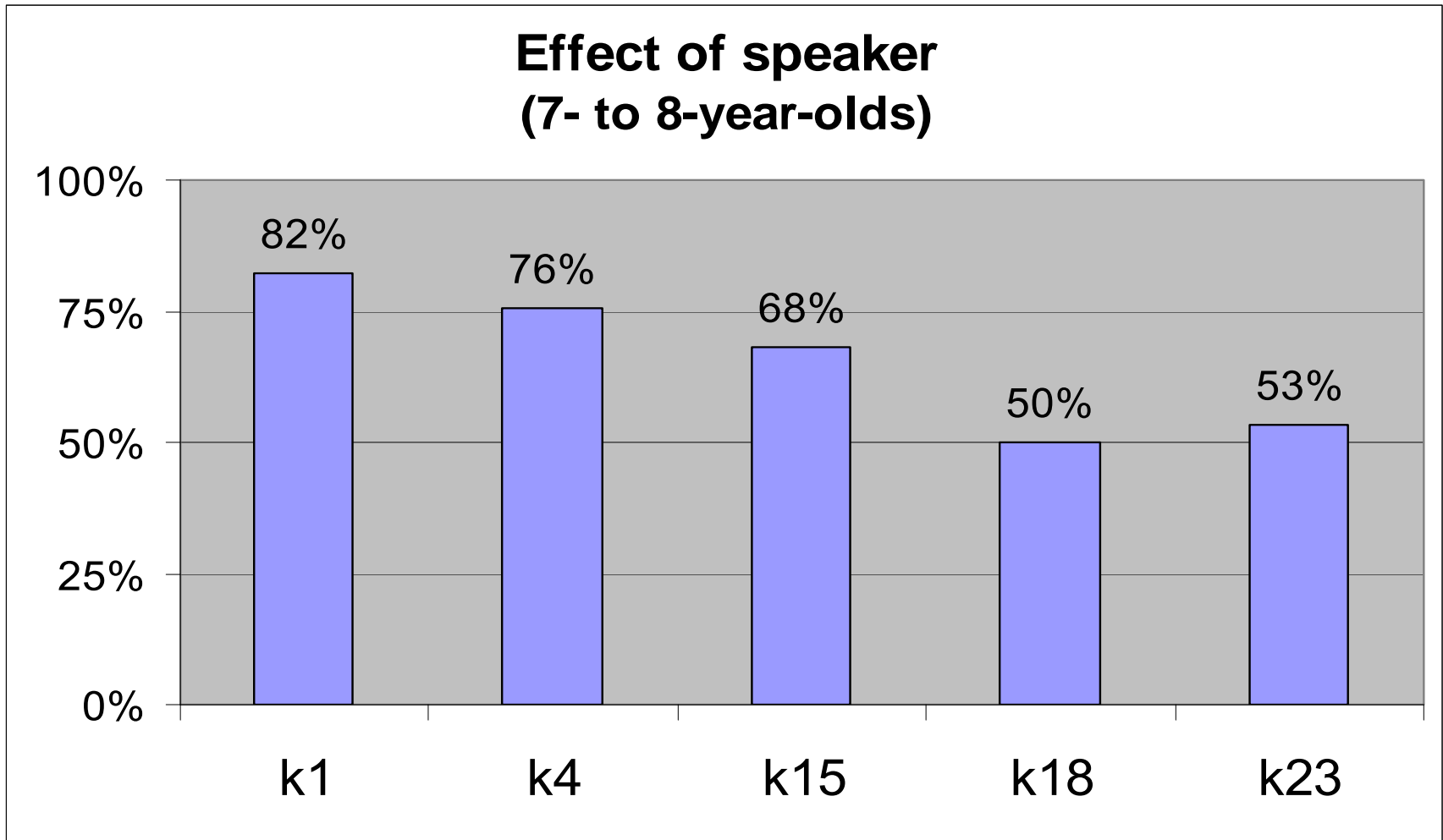
Results from the perception test



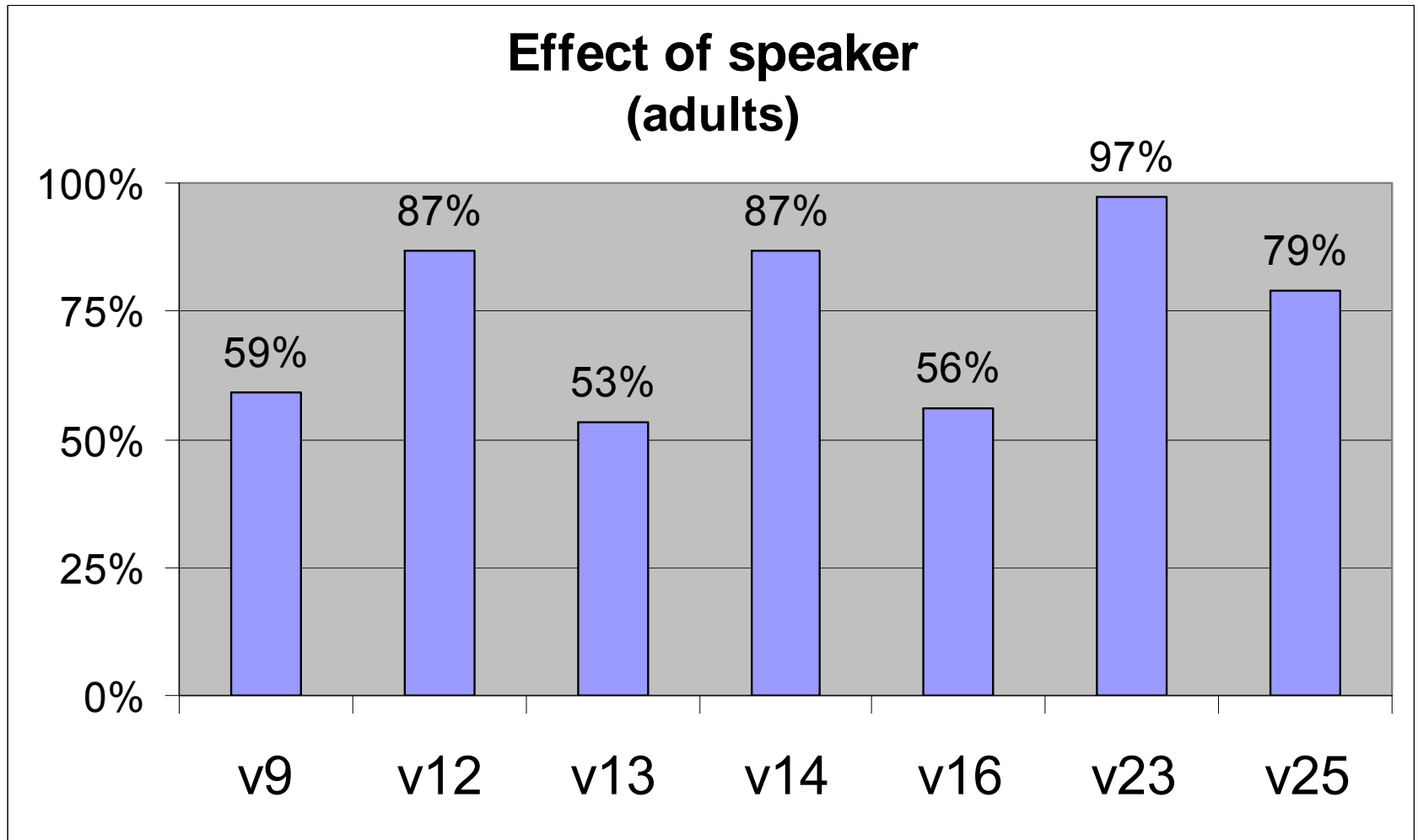
Results from the perception test



Results from the perception test

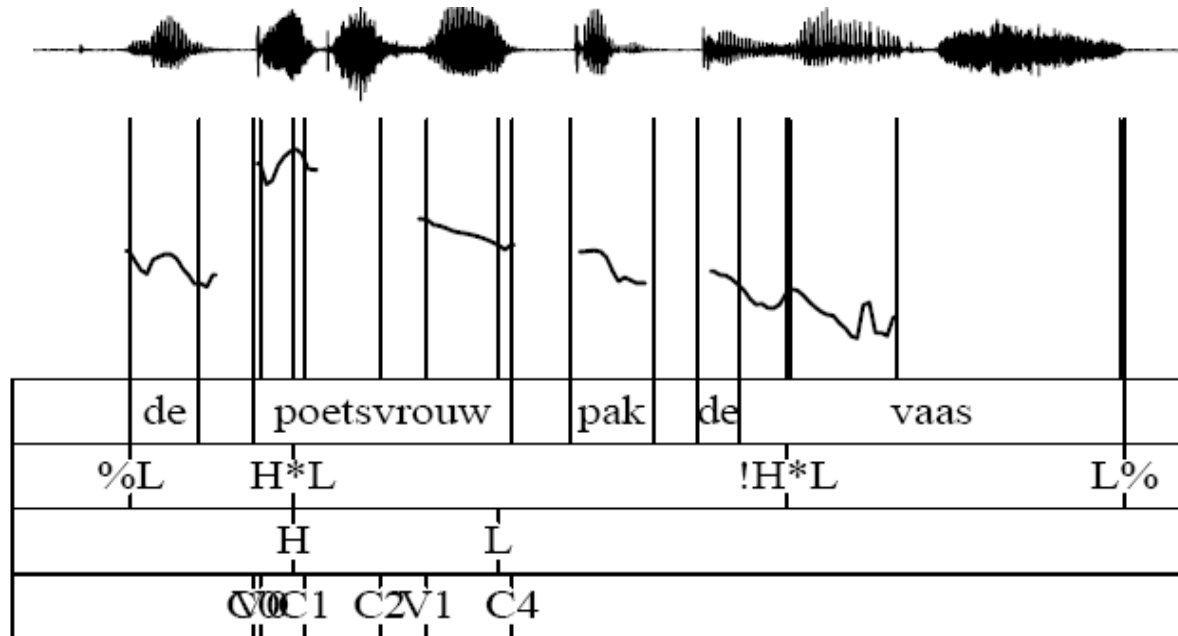


Results from the perception test



Method

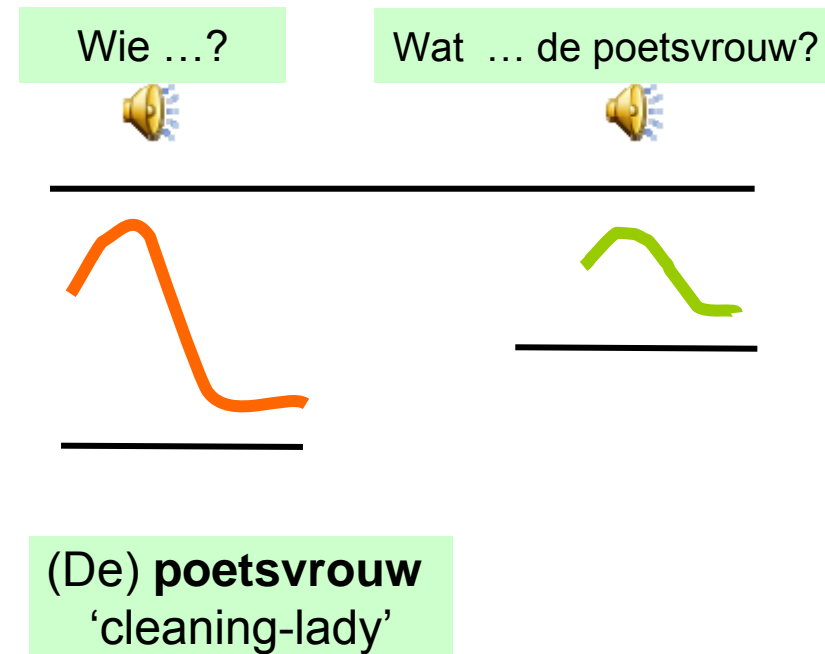
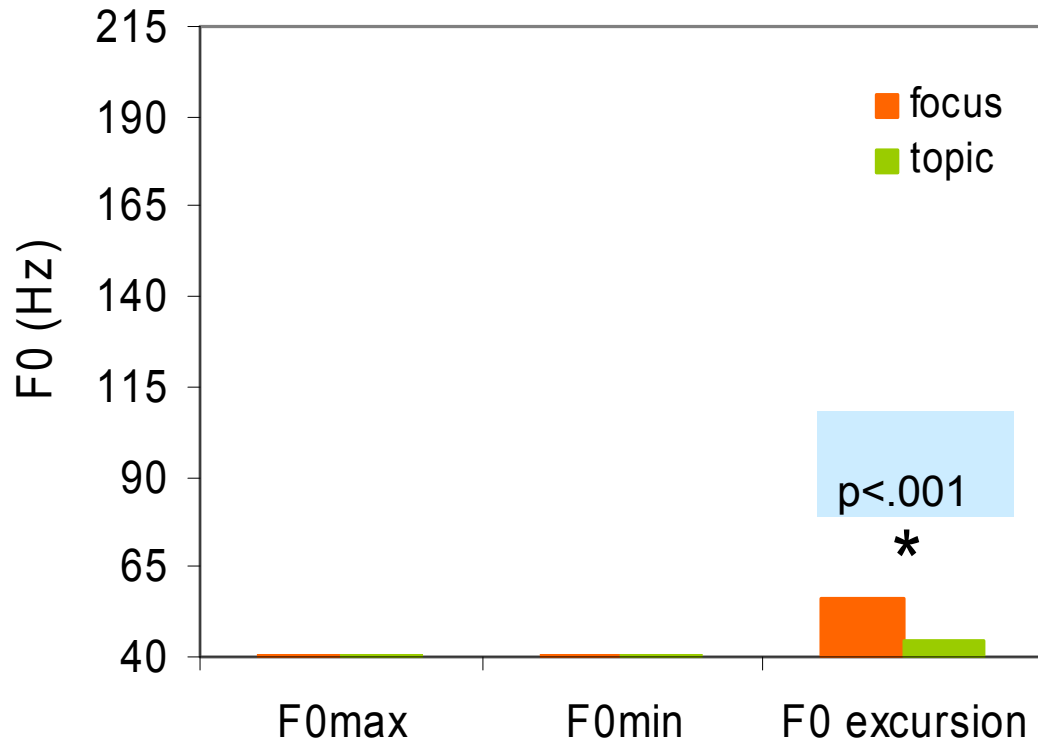
- Pairs of sentence-initial nouns accented with H*L in both topic and focus
- Phonetic annotation



- Mixed-effect modeling in R

Results: Pitch (adults)

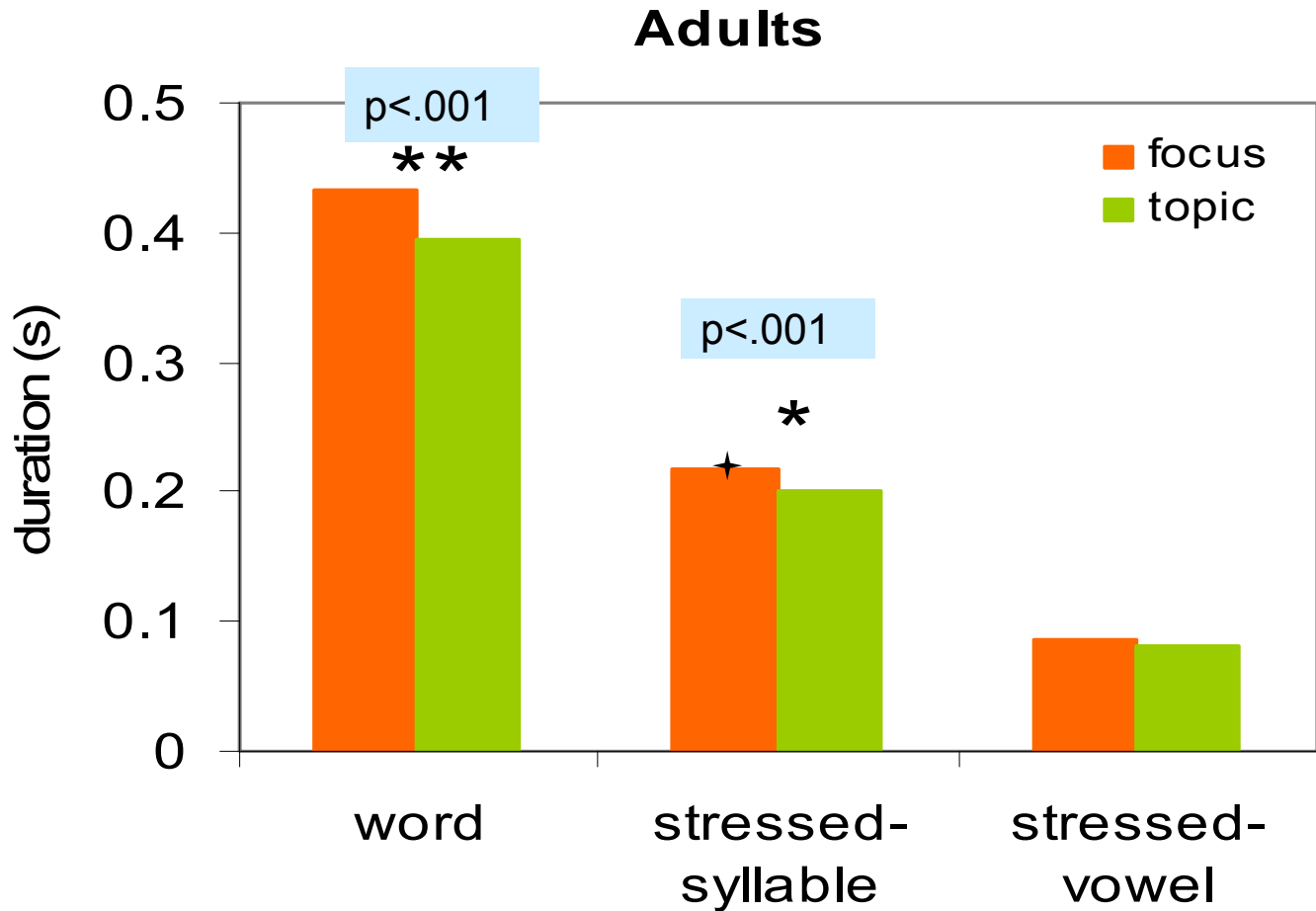
Adults



- Larger pitch excursion in focus

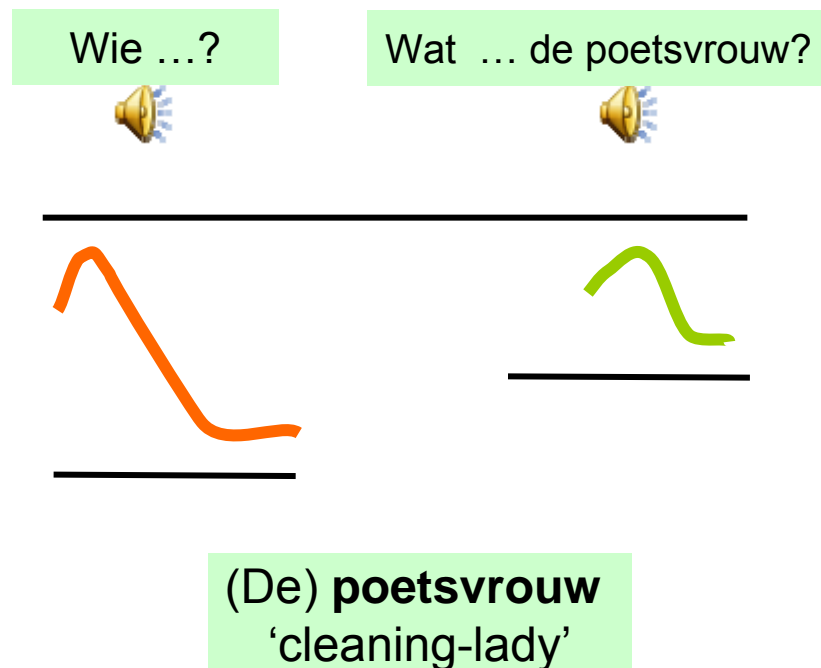
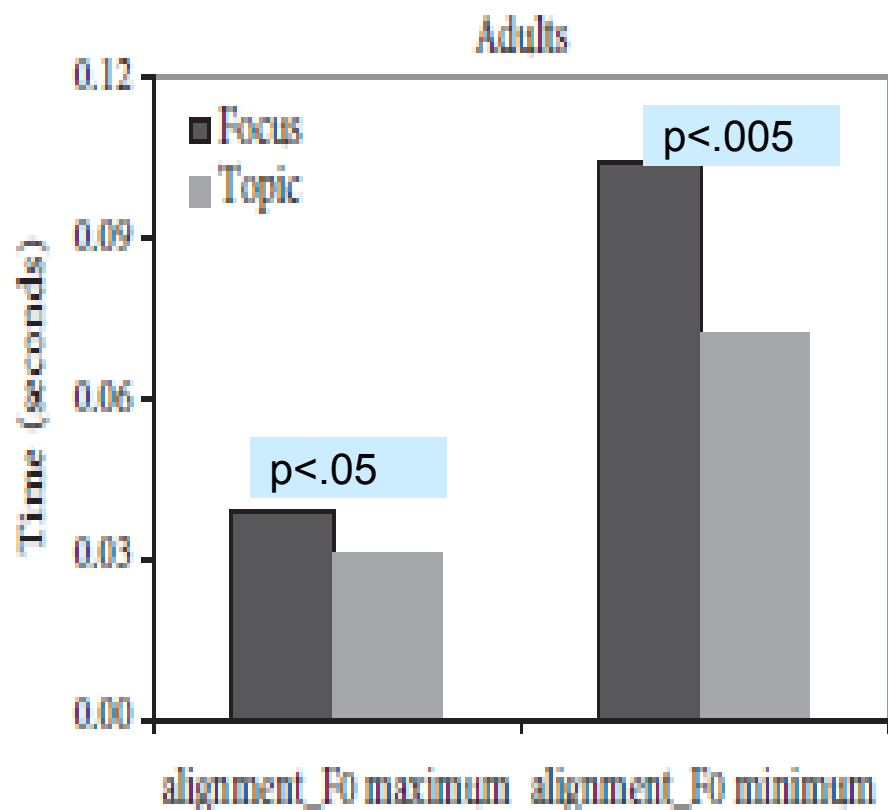
- pitch-minimum lower in focus

Results: Duration (adults)



- General lengthening in stressed as well as unstressed syllables

Results: Alignment (adults)



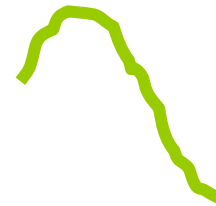
- Alignment of F0max: relative to end of stressed vowel (why?)
- Alignment of F0min: relative to end of word (why?)

Results: 4- to 5-year-olds

- No use of phonetic means

Wie ...?

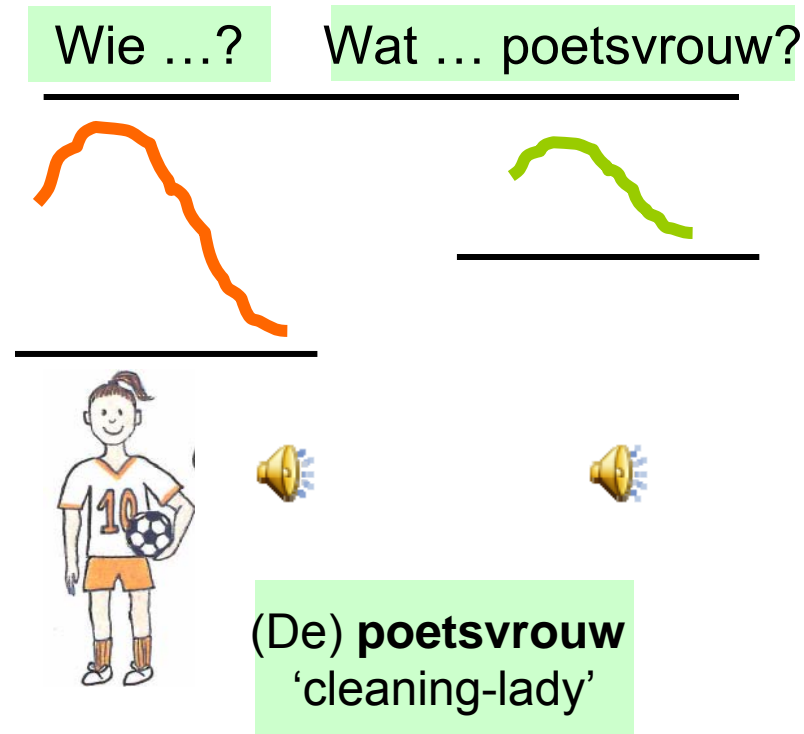
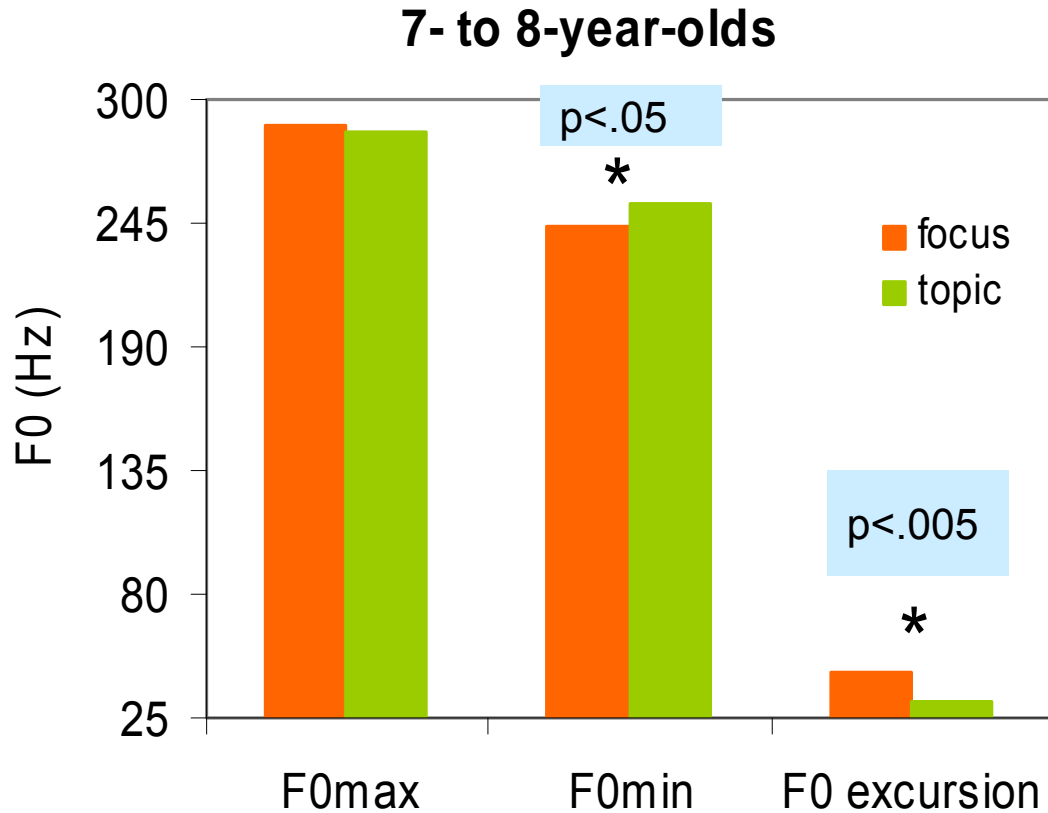
Wat ... poetsvrouw?



(De) poetsvrouw
'cleaning-lady'



Results: 7- to 8-year-olds



- Adult-like use of pitch lowering

Results (cont'd)

- No use of phonetic means at 4 or 5
- Adult-like use of pitch lowering at 7 or 8
- Implications
 - Phonetic marking acquired later than phonological marking
 - Less salient cues are more difficult to learn
- But why the asymmetry in acquisition of different phonetic cues?
 - Duration initially used for lexical purpose in Dutch vs. duration is a more difficult cue for all children

The (a)symmetry between
production and comprehension

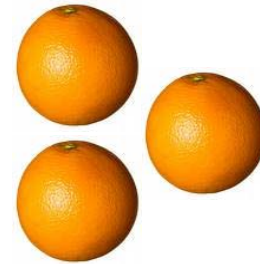
The alleged asymmetry

- Adult-like in using accentuation to mark (narrow) focus by age 5
- Not adult-like in interpreting & processing the focus-to-accentuation mapping at the age of 4 and 5

Cruttenden (1985), Cutler & Swinney (1987), P. Hendriks (2005)

The problem

- Limited comparability between production data and comprehension data in past work



On production

- By age 5 children can use accentuation ...
 - to mark contrastive focus (Hornby & Hass 1970, MacWhinny & Bates 1978, Baltaxe 1984, Müller et al. 2005)



e.g. *A horse is eating carrots* vs. ***A RABBIT** is eating carrots.*

- to mark non-contrastive narrow focus (Chen 2011)



e.g. *Look! Carrots! Who is eating carrots?* ***A RABBIT** is eating carrots.*

On comprehension

- Directing attention to certain words in narratives (Cutler & Swinney 1987)
- Creating acceptable intonation in a sentence (Lahey 1974, Bates 1976)
- Marking focus in sentences with ‘only’ (e.g. Halbert et al. 1995, Gualmini et al. 2002, Paterson et al. 2003, Paterson et al. 2005, Szendrői 2003)
 - e.g. The farmer only sold a banana to Snow White.
- Pronominal disambiguation in coordinate sentences (Solan 1980, McDaniel & Maxfield 1992)
 - e.g. The camel hit the lion, and then HE hit the elephant.
- Distinguishing focus from topic in SVO sentences (Hornby 1971)
 - e.g. The rabbit is eating CARROTS.



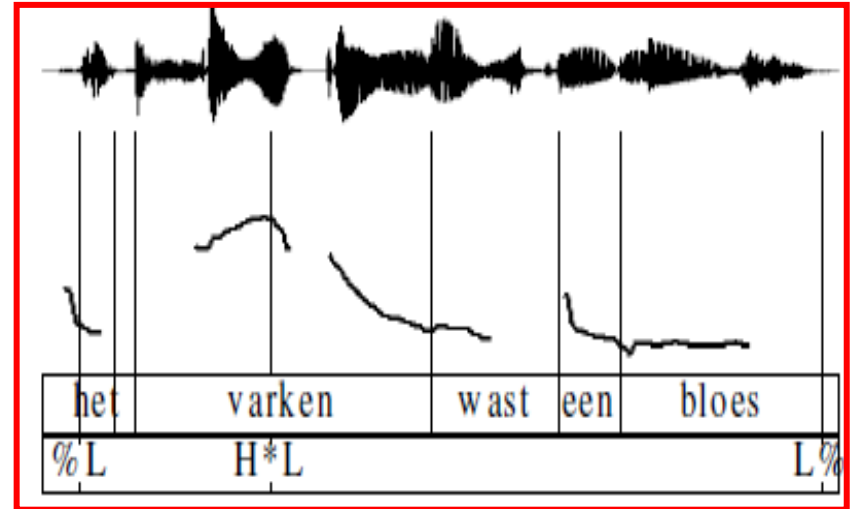
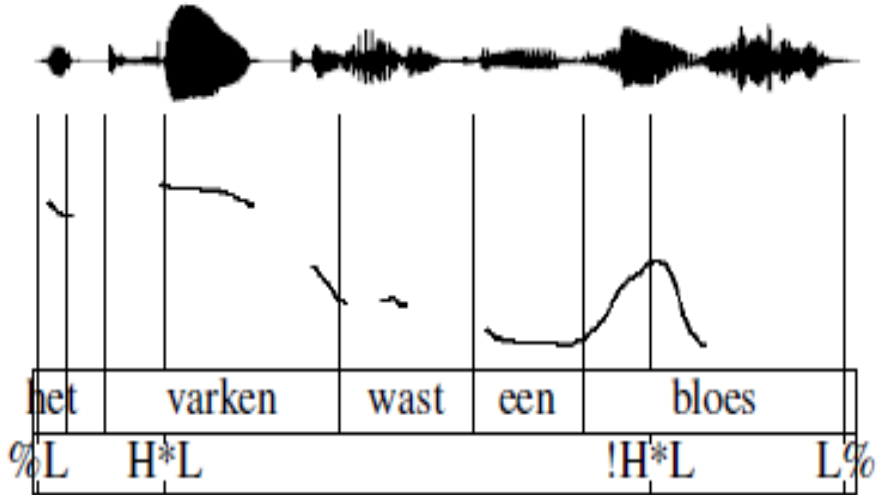
The present study

- Prosody and language comprehension in adults
(Birch and Clifton 1994)
 - The Reaction Time technique
 - The ‘make-sense’ task
e.g. Isn't Kerry pretty smart? Yes, she teaches MATH.
 - Main finding
 - Faster and more ‘making sense’ judgments when focus-to-accentuation mapping was appropriate in the answer sentences than when otherwise
- Processing of focus-to-accentuation mapping in Dutch 4- to 5-year-olds
 - Exp 1: active comprehension
 - Exp 2: passive comprehension

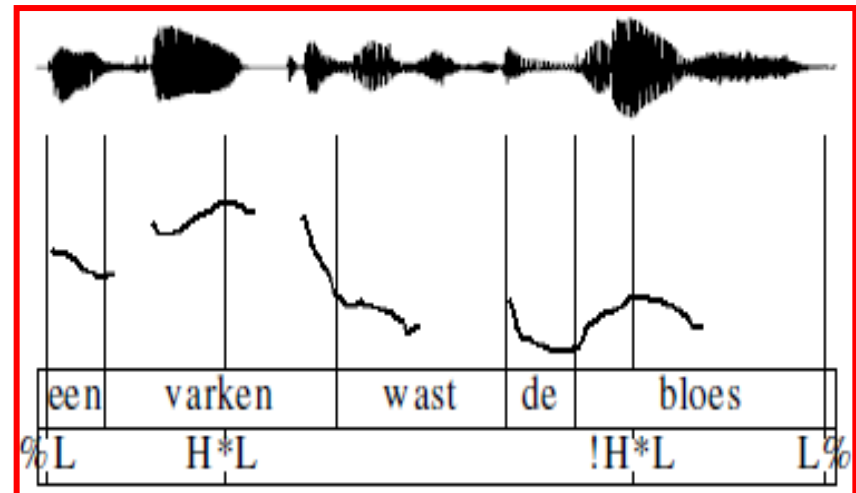
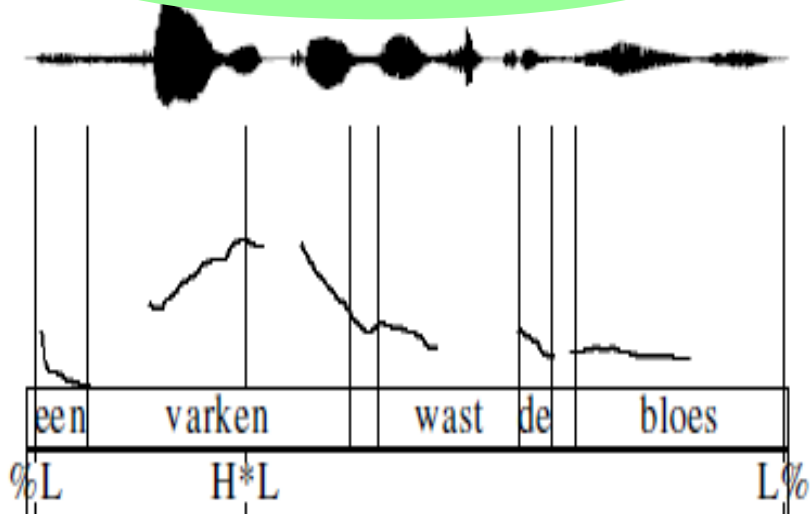
Experiment 1: method

- 'Correct-incorrect' judgment in question-answer dialogues
- Location of focus (subject vs. object) and accent placement were varied in answers in experimental dialogues
 - subject focus (N=12): as answers to WHO-questions
 - Accent placement and focus matched (N=6)
 - Accent placement and focus did not match (N = 6)
 - Object focus (N=12): as answers to WHAT-questions
 - Accent placement and focus matched (N=6))
 - Accent placement and focus did not match (N = 6)
- Fillers
 - With lexico-semantic errors: duck -> chicken
 - Location of focus and accent placement
 - With pronunciation errors: jongen 'boy'-> jangen
 - Location of focus and accent placement

What is the pig washing?

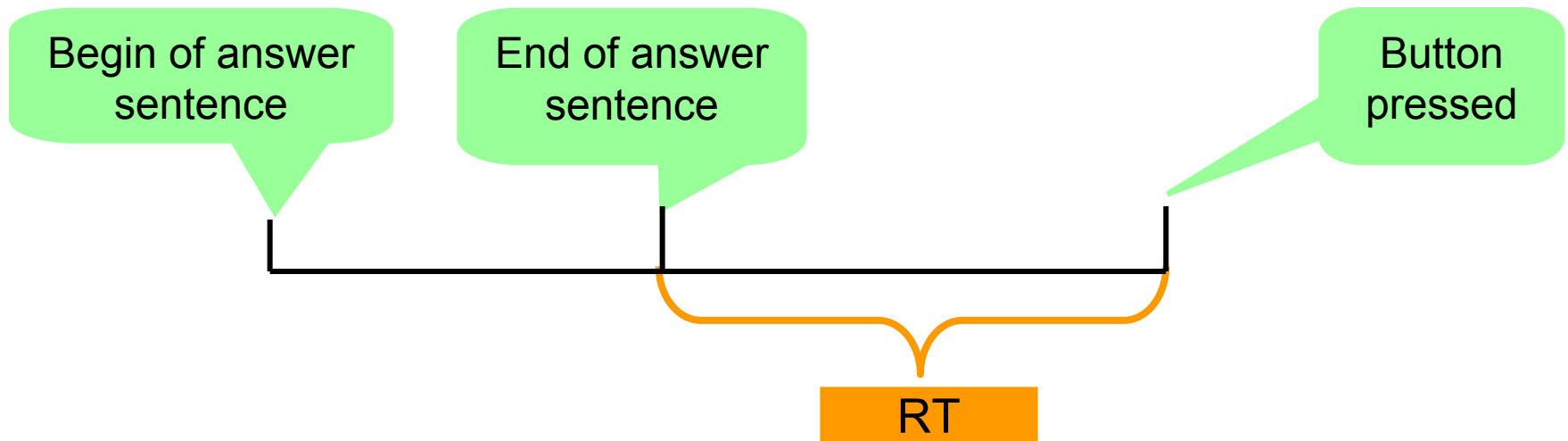


Who is washing the blouse?



Experiment 1: method (cont'd)

- Measurements
 - Correct-incorrect judgments
 - Reaction times

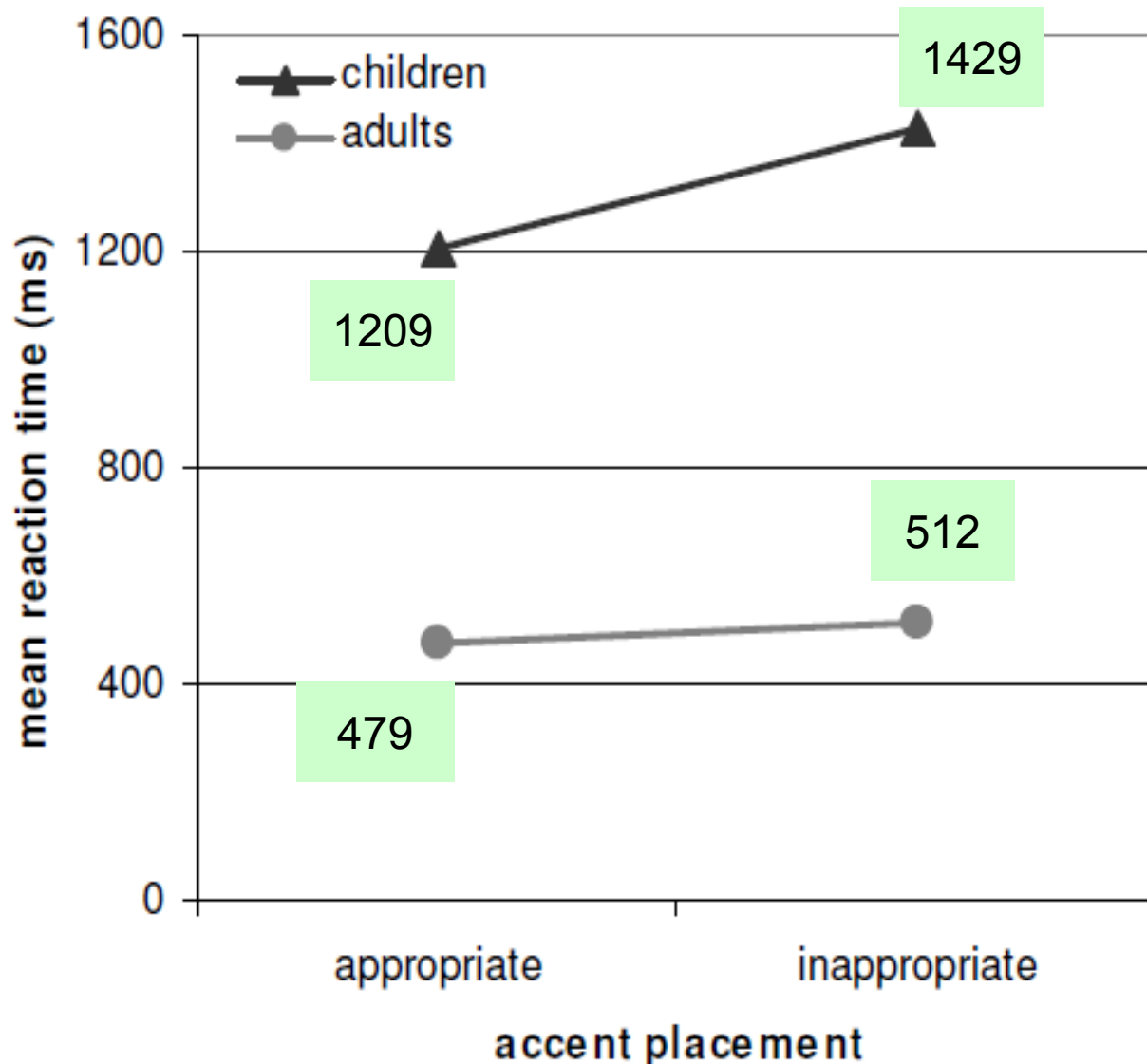


- Participants
 - 4- to 5-year-olds (N=20): 4;3 – 5;7, mean age 5;1
 - Adults (N=15)

Experiment 1: method (cont'd)



Experiment 1: Results - RT



Repeated measures ANOVA:

Age group *

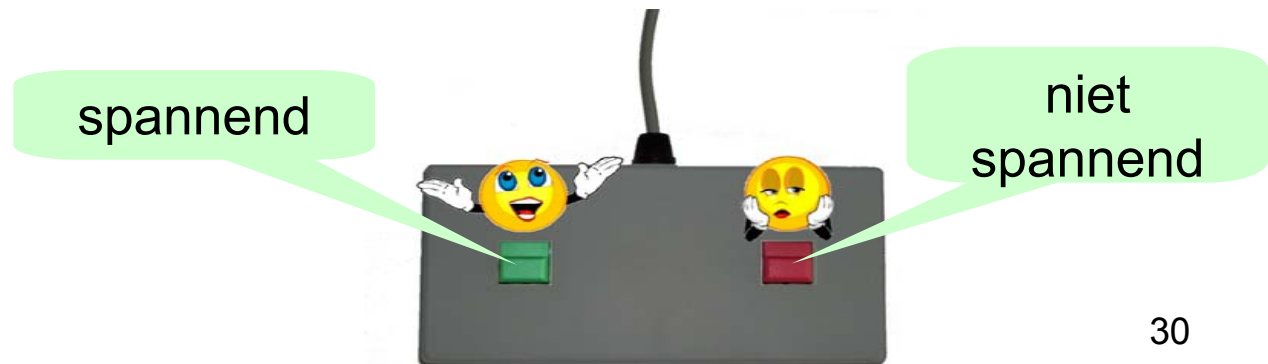
Focus location *

Accent placement *

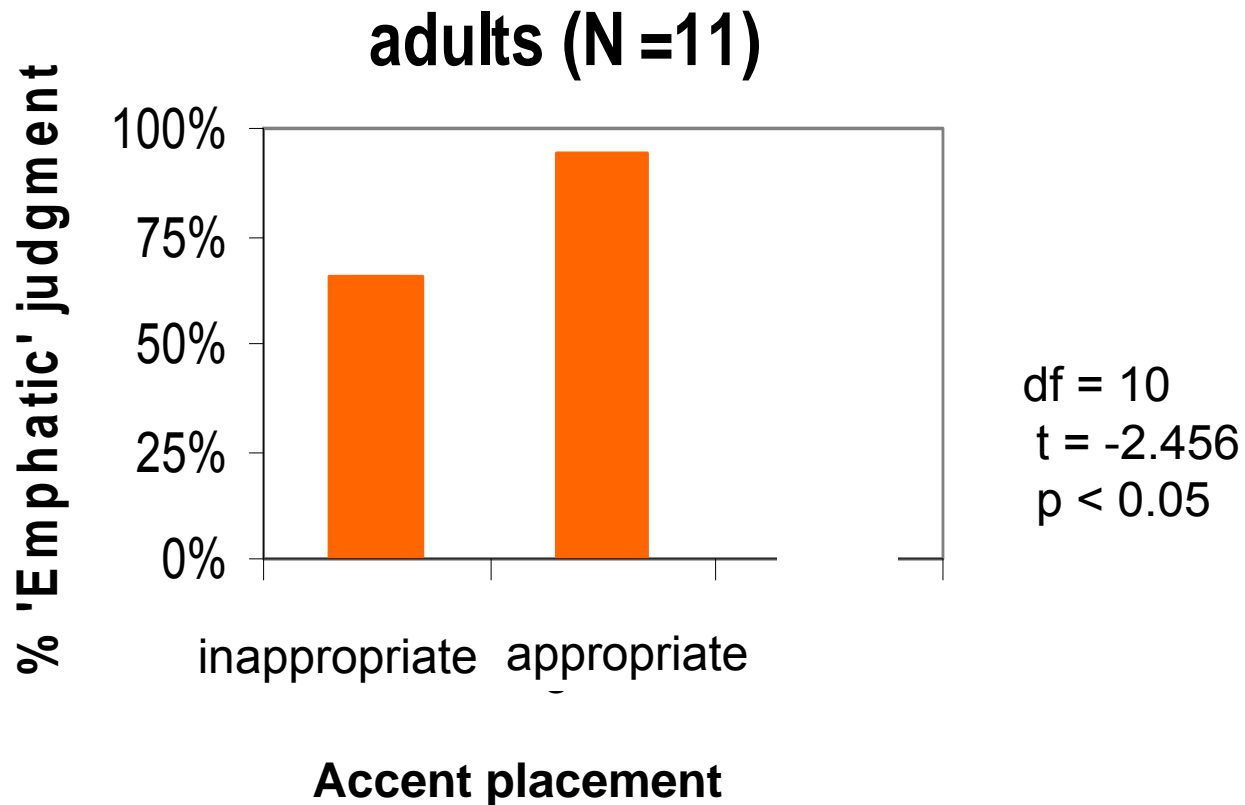
Age group x accent placement *

Experiment 2: method

- 'emphatic' judgment
 - Why?
 - 'emphatic' -> The speaker finds it exciting ('spannend') to answer the question.
 - 'not emphatic' -> The speaker finds it boring ('niet spannend') to answer the question.
- Question-answer dialogues
 - Fillers: no accent (flat intonation) (N = 16)

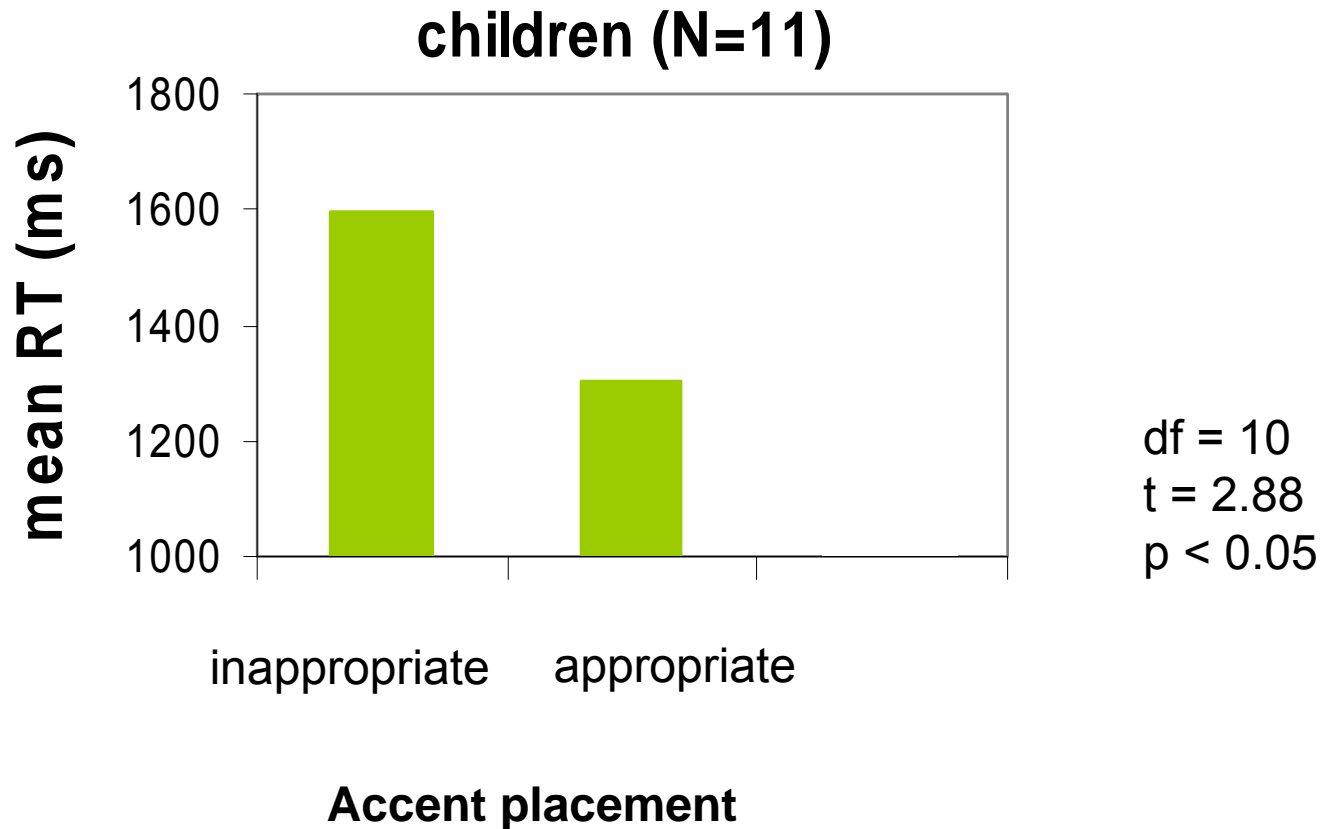


Experiment 2: Results – adults



- A significant effect of appropriateness of accent placement
 - More emphatic judgments when accent placement is appropriate.
- No effect of accent placement on RT: the task was too easy?

Experiment 2: Results – children



- A clear effect of appropriateness of accent placement on RT

Discussion

- Past work provides no conclusive evidence for children's inability to process the focus-to-accentuation mapping
- Current results show 4- and 5-year-olds can process the focus-to-accentuation mapping, which they also produce.
- Implication
 - Production is as good as comprehension: almost adult-like, with differences of a gradient nature
- Further studies
 - Focus-to-accentuation mapping in sentence constituents other than arguments of the verb
 - Accentuation in broad focus (e.g. VP focus)
 - Effects of accent type on processing of focus-to-accentuation mapping

Conclusions



≤2 yrs

- Frequent use of a small set of patterns
- Distinguish focus from topic intonationally but in a non-adultlike way

Physiologically constrained



3 yrs

- !H*L ≈ not accenting
- devoicing when not accented

Figuring out choice of accent type



5 yrs

- Adult-like in marking initial topic and focus & preferring accentuation over no accent in focus...
- No preference for H*L in final focus
- No use of phonetic variables to distinguish focus from topic

Later acquisition of phonetic marking



8 yrs

- Adult-like in marking focus and topic intonationally
- Use pitch but not yet duration to distinguish focus from topic phonetically

Course assignment

- A review article on a topic on acquisition of intonation that has not been discussed in the class
 - Review at least 3 papers (more is welcome)
 - Provide the state of art on the topic under review
 - Give your opinions on the drawbacks in the specific line of research
 - Speculate on research topics for further research
 - List relevant papers that are not included in the review in an appendix
- Single-spaced, font 12, doc file
- Finishing date: **15 May 2011**

