Interlocutor induced (non-)variability of prosodic cue production in coordinate structures

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BACKGROUND: coordinate name sequences, like *Name1 und Name2 und Name3,* are syntactically ambiguous with respect to their internal grouping

- in speech production, this ambiguity can be resolved by prosodic cues (Kentner & Féry 2013):
  - pause duration
  - final lengthening
  - f0 range

can be used for disambiguation

1. **without internal grouping**: Name1 und Name2 und Name3
2. **with internal grouping**: (Name1 und Name2) und Name3

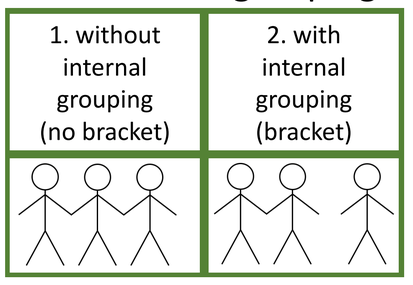

fig 1: Illustration of internal grouping

- the strength of prosodic cues and of potential cue combinations are influenced by the speakers themselves and by external factors, such as interlocutor and noise (Biersack et al. 2005, DePaulo & Coleman, 2010 Kempe et al. 2010, Petrone et al. 2017; Landgraf et al. 2017).
- for structures with internal grouping, the Proximity principle (Kentner & Féry 2013) predicts weakening of the prosodic cues at the end of name1 since name2 is its sister. Anti-Proximity predicts strengthening of the prosodic cue at the end of name2 since name3 is not its sister.

AIMS OF THE CURRENT STUDY

- investigate inter- and intra-individual variability in prosodic cues used for grouping of coordinate name sequences
- address the question of whether and how external factors (e.g., different interlocutors, noise) affect the production of prosodic cues

METHOD

Participants

- 16 monolingual speakers of German (13 female, 2 male, 1 other)
- 19–34 years of age (*M* = 25.8, *SD* = 4.6)

Material (stimuli taken from Holzgrefe-Lang et al., 2016)

- six sequences of three disyllabic, trochaic German names coordinated by *und* (“and”) in **two conditions**:
  1. **no bracket**: *Moni und Lilli und Manu* (without internal grouping)
  2. **bracket**: *(Moni und Lilli) und Manu* (with internal grouping)

Procedure

- referential communication task with **five different contexts** (fig. 2–3)

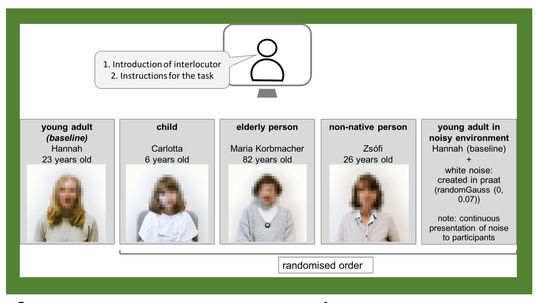

fig 2: Five experimental contexts

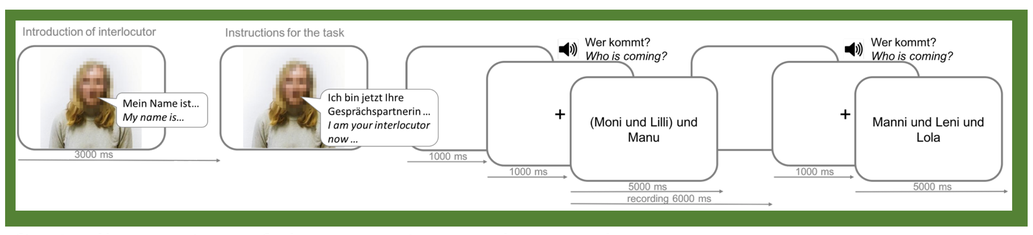

fig 3: Illustration of the experimental procedure

Data Analysis

768 productions analysed so far:
6 sequences * 2 conditions * 4 contexts * 16 speakers

production in no bracket condition | production in bracket condition

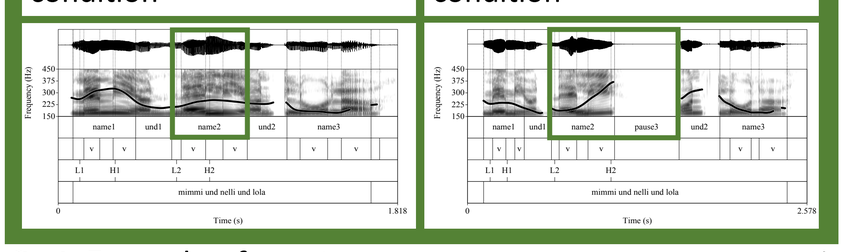

fig 4: Example of praat (Boersma & Weenink 1992-2017) annotations: waveforms, spectrograms, and smoothed f0 contours.

RESULTS: productions in four contexts analysed so far

- condition (no bracket vs. bracket): differences evident in all three prosodic cues (see fig. 5–7, 9)
- context (directed to adult vs. child vs. elderly vs. non-native): differences only evident on individual level (fig. 8)

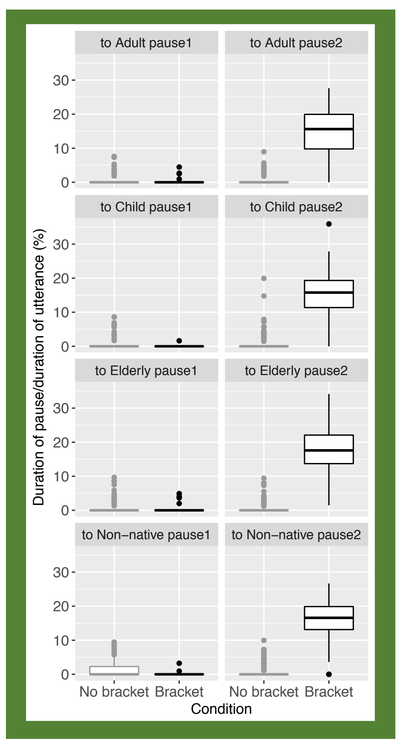

fig 5: Pause duration after name1 and name2 relative to utterance duration in two conditions split by name and context.

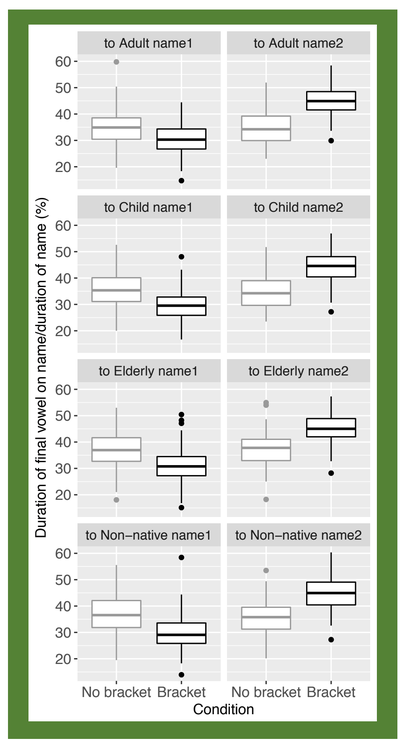

fig 6: Duration of final vowel in name1 and name2 relative to the duration of the respective name in two conditions split by name and context.

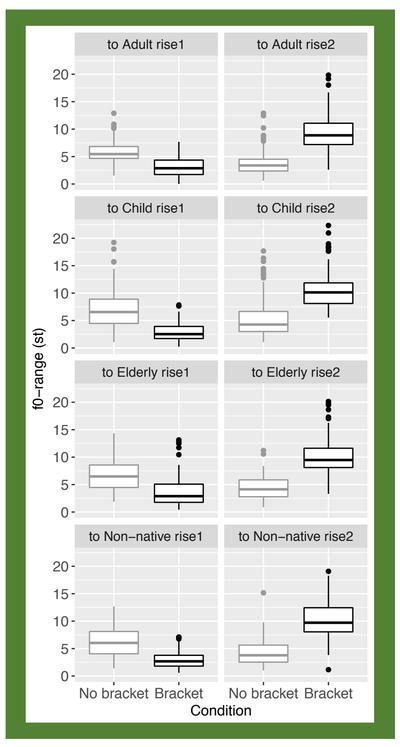

fig 7: f0 range of rise on name1 and name2 in two conditions split by name and context. 8 datapoints excluded due to glottalisation.

Individual boxplots per speaker (n = 16) and context (DA, DC, DE, DN), productions in bracket condition

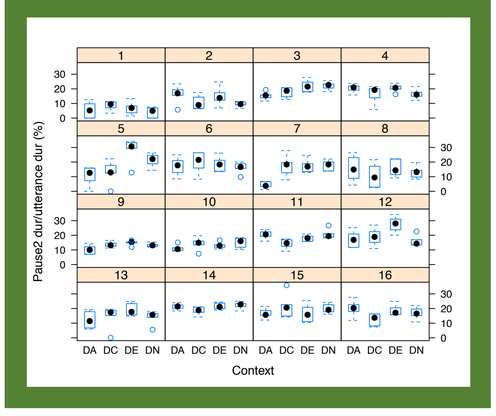

fig 8: Relative duration of pause after name2.

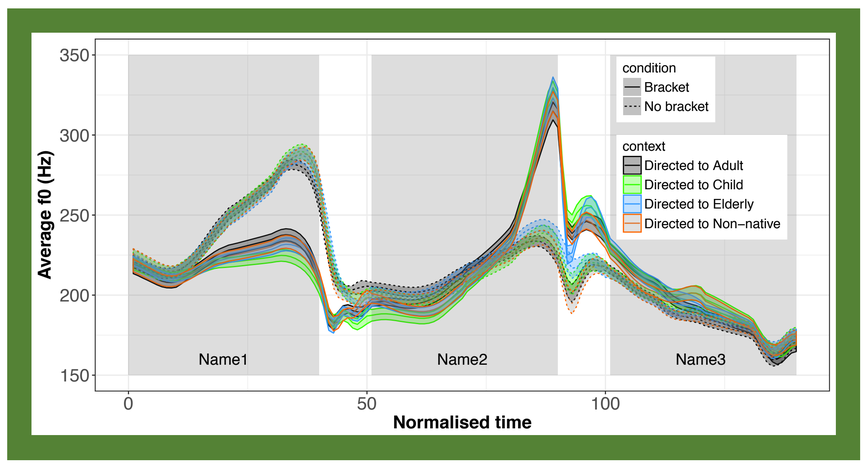

fig 9: Means of time normalised f0 contours in two conditions and four contexts. Data from 13 female speakers. Ribbons show SE.

DISCUSSION

- Speakers make use of pause duration, final vowel lengthening, and f0 range to indicate internal grouping of coordinate name sequences.
- Only some speakers of the current study used these cues to differentiate between varying interlocutors.
- The two conditions already differ on name1: In comparison to the no the bracket condition, all three cues are weakened on name1 and strengthened on name2 in the bracket condition. This is in line with the Proximity/Anti-Proximity principles proposed by Kentner and Féry (2013).

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