Individual (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

- 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 (Petrone et al. 2017; Biersack et al. 2005, Landgraf et al. 2017).

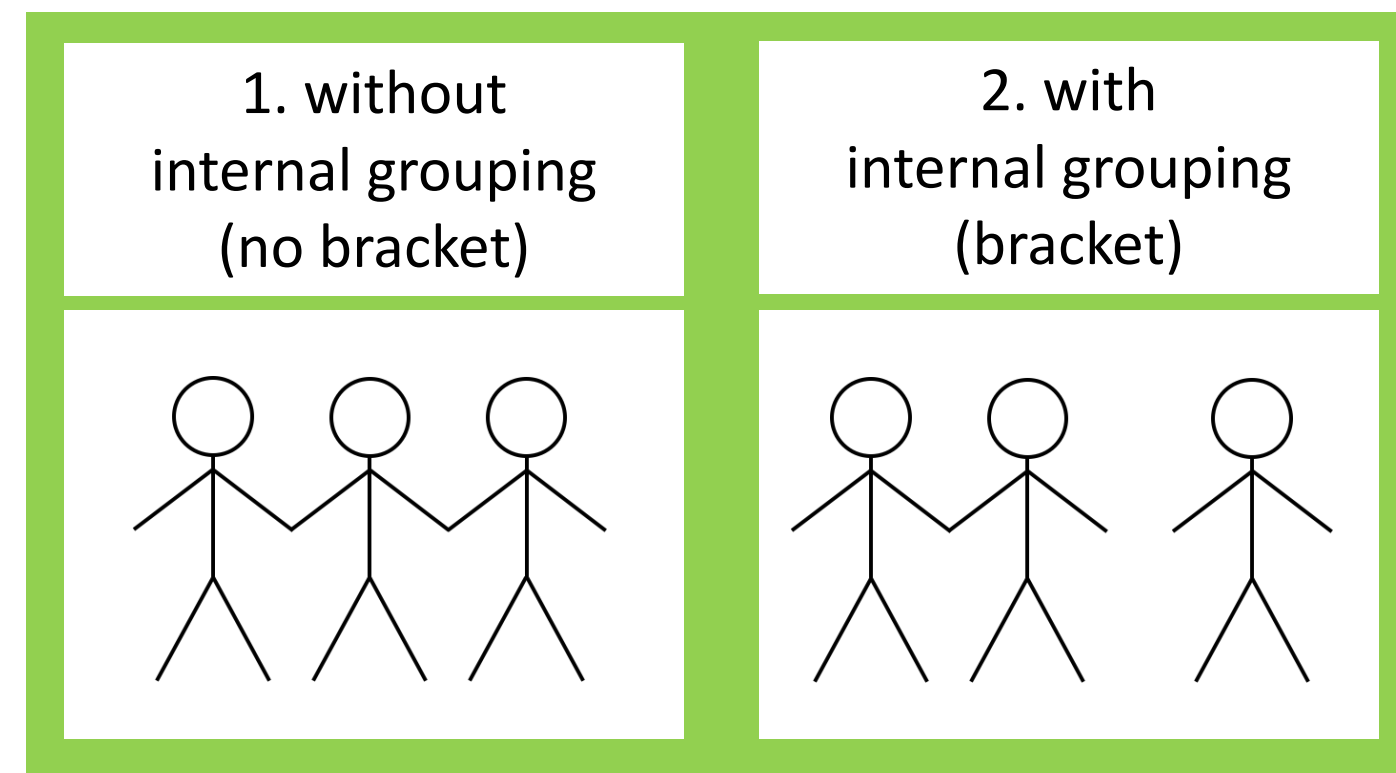| 1. without internal grouping (no bracket)	2. with internal grouping (bracket)

fig 1: Illustration of internal grouping

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)
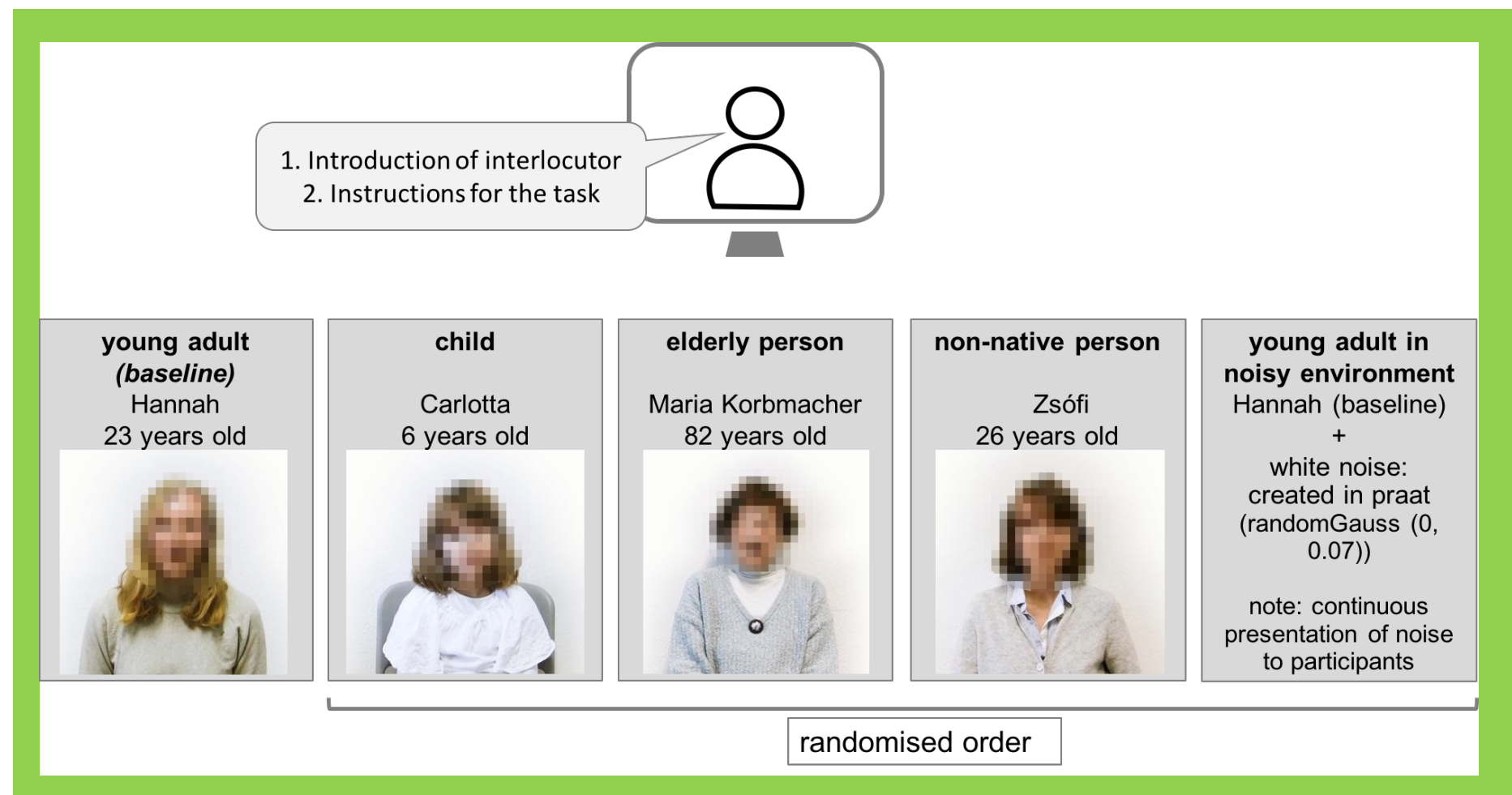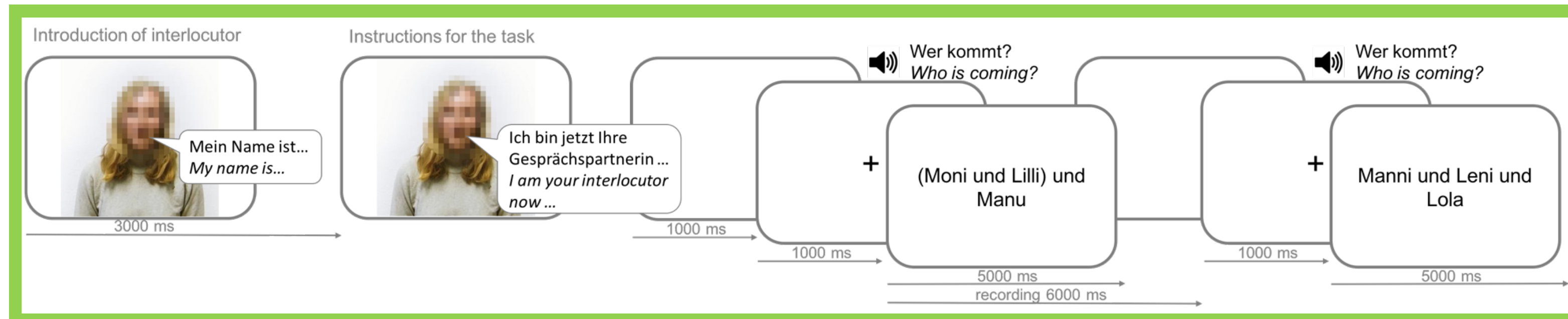

fig 2: Five experimental contexts

fig 3: Illustration of the experimental procedure

Data Analysis
576 productions analysed so far:
6 sequences * 2 conditions * 3 contexts * 16 speakers

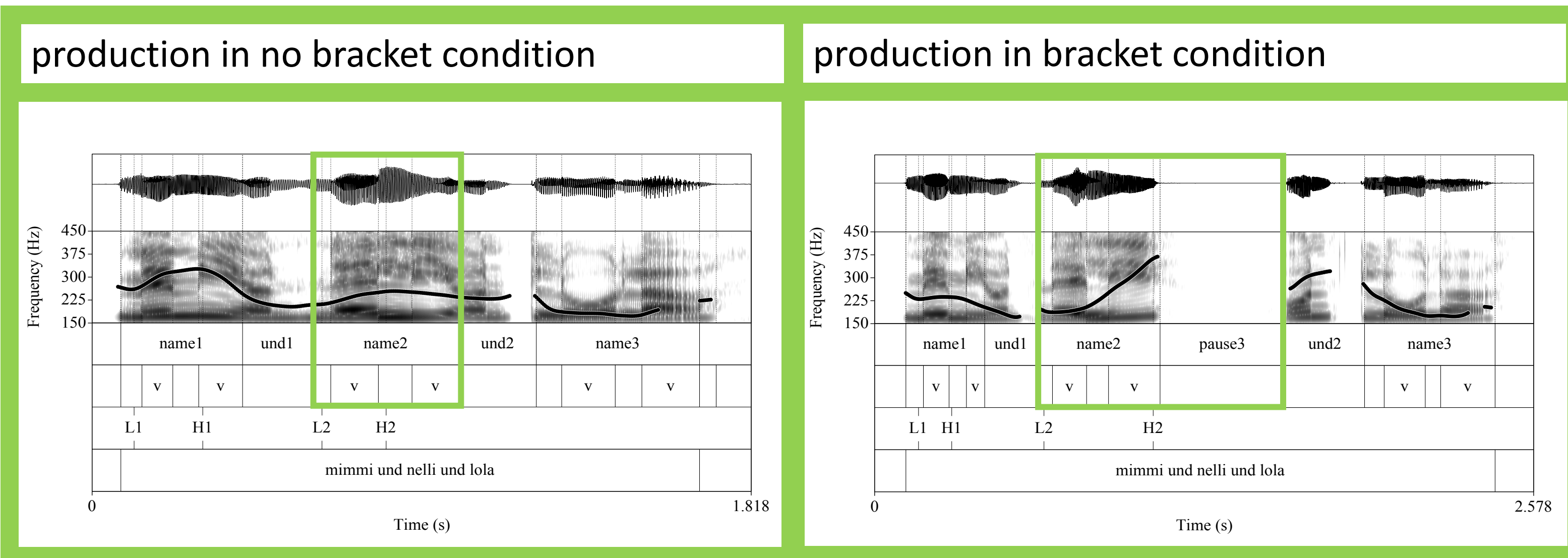| production in no bracket condition	production in bracket condition

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

RESULTS: productions in three contexts analysed so far

- condition (no bracket vs. bracket): differences evident in all three prosodic cues (see fig. 5-7, 10)
- context (directed to adult vs. child vs. elderly): differences only evident on individual level (fig. 8-9)

Individual boxplots per speaker (n = 16) and context (AD, CD, ED), productions in bracket condition
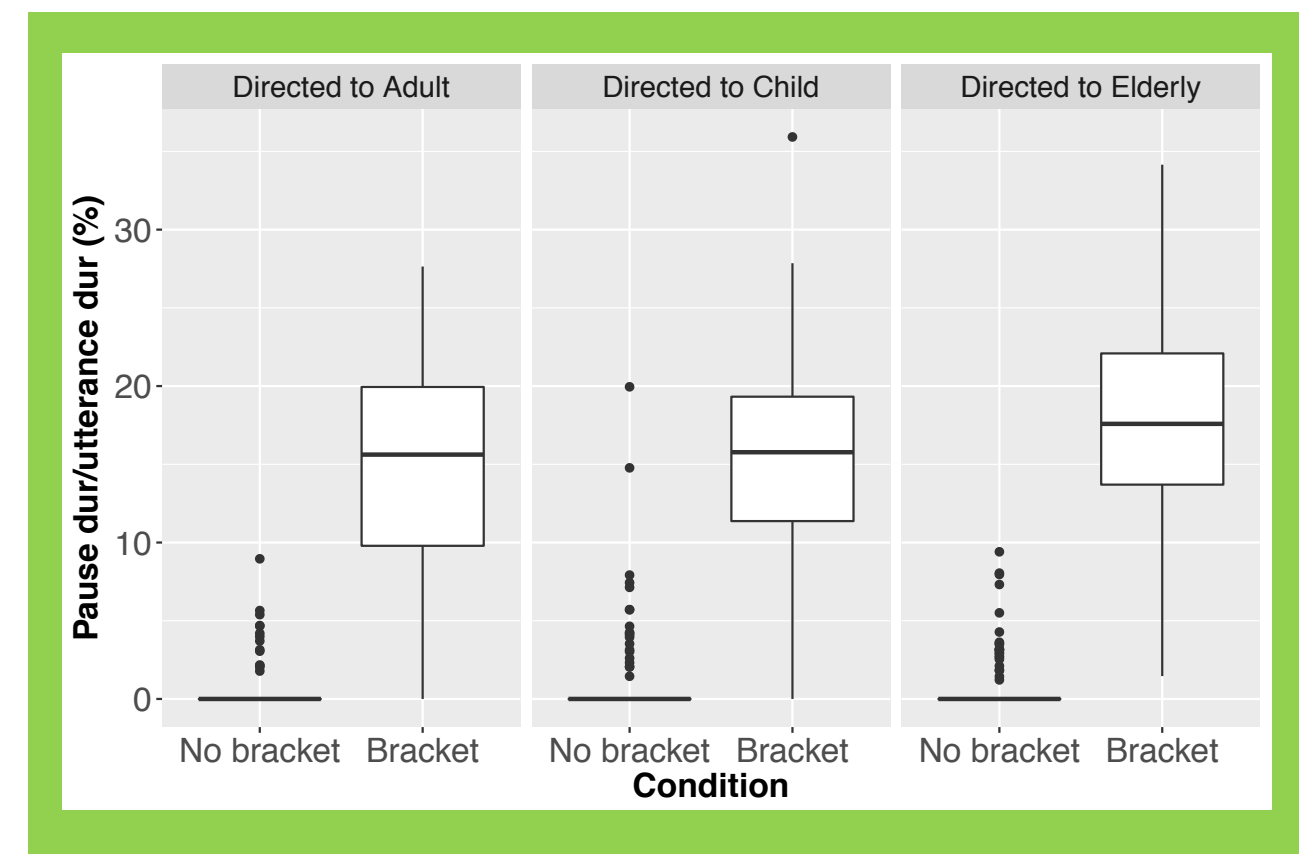

fig 5: Pause duration after name2 relative to utterance duration in two conditions split by context.
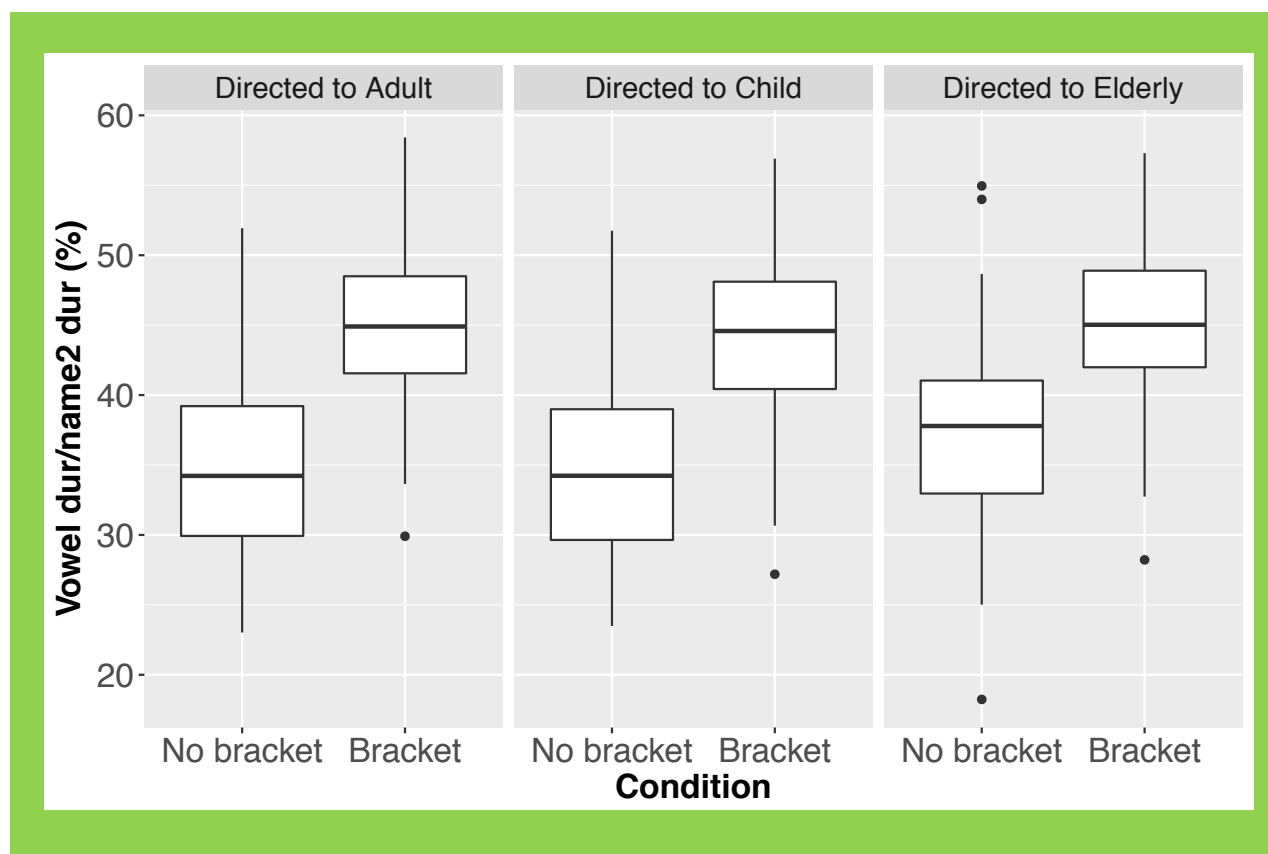

fig 6: Duration of final vowel in name2 relative to the duration of name2 in two conditions split by context.
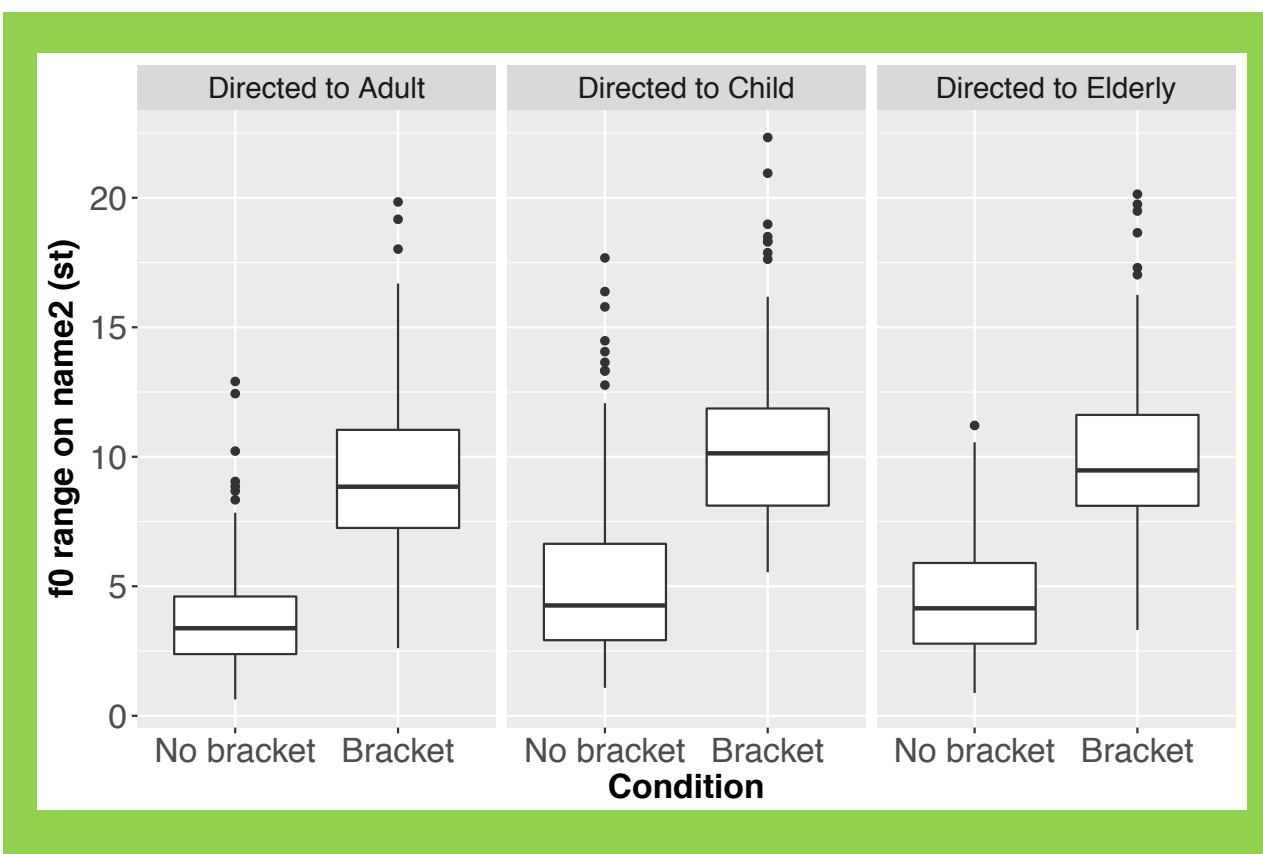

fig 7: f0 range on name2 in two conditions split by context.
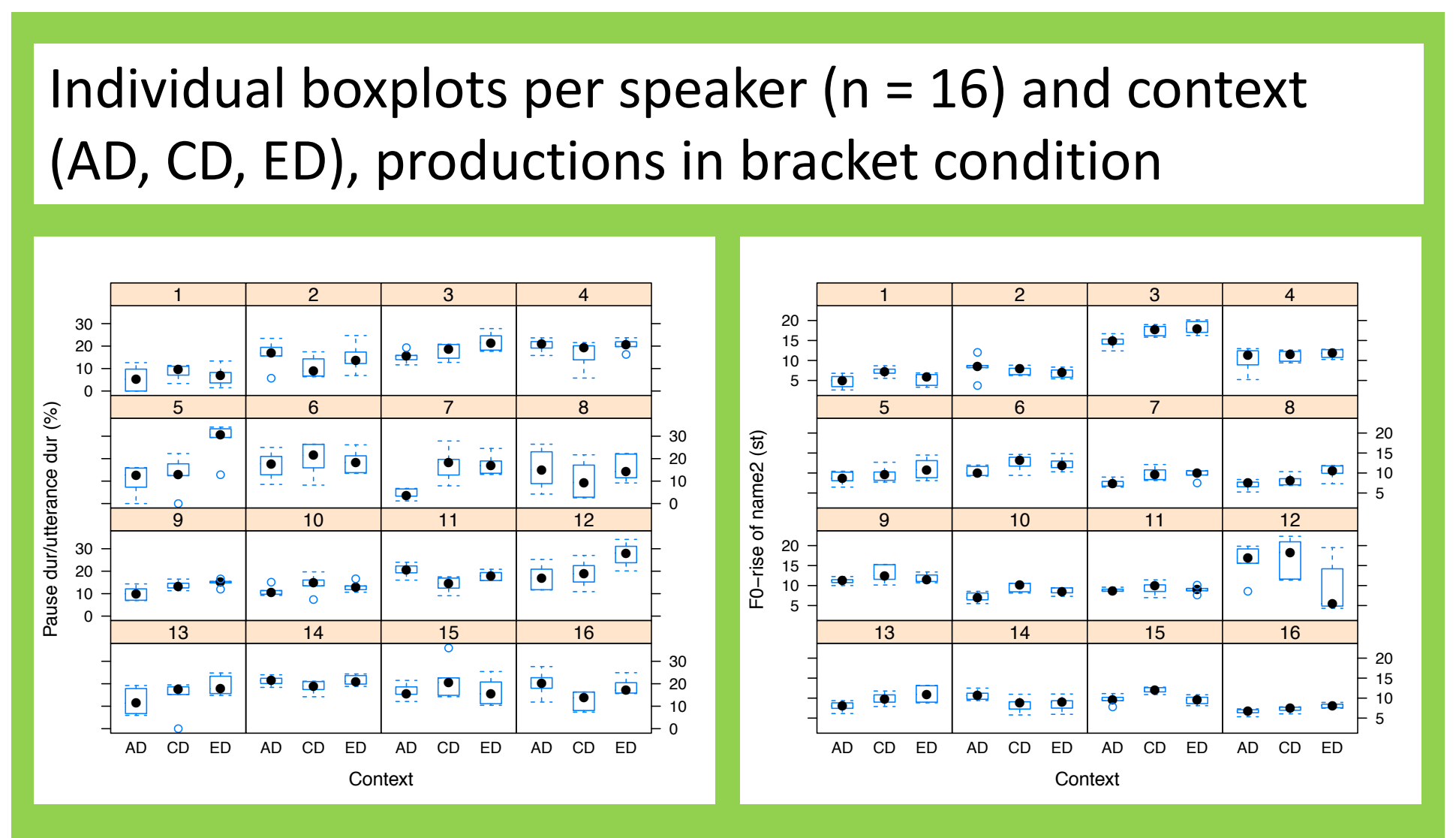

fig 8: Relative duration of pause after name2.
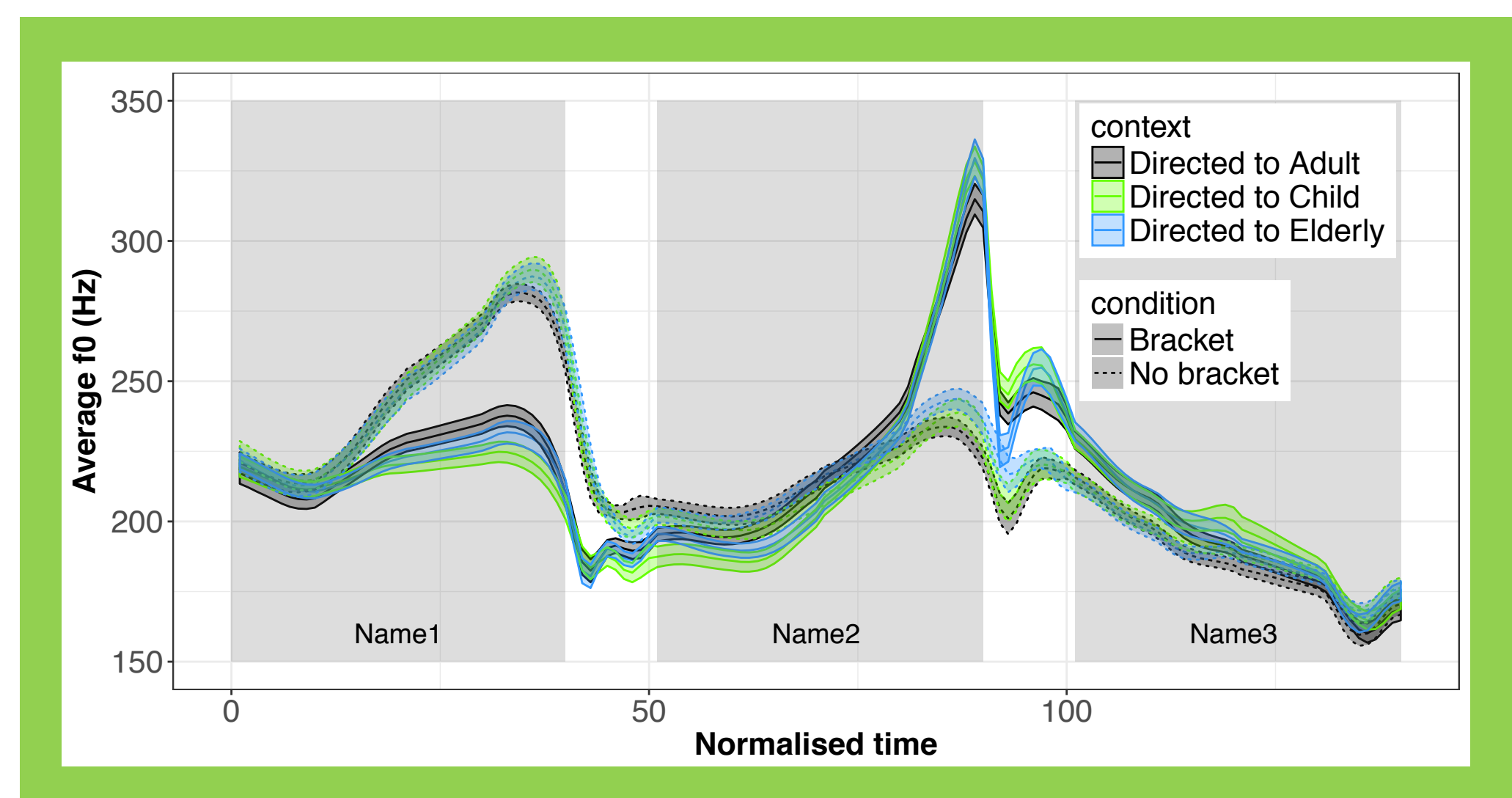

fig 9: f0 range on name2.

fig 10: Means of time normalised f0 contours in two conditions and three 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
- f0 contours of the no bracket and bracket condition already differ on name1 (see fig. 10). This is in line with the Proximity/Anti-Proximity approach by Kentner and Féry (2013).

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