The role of individual empathic skills on the online processing of intonational meaning

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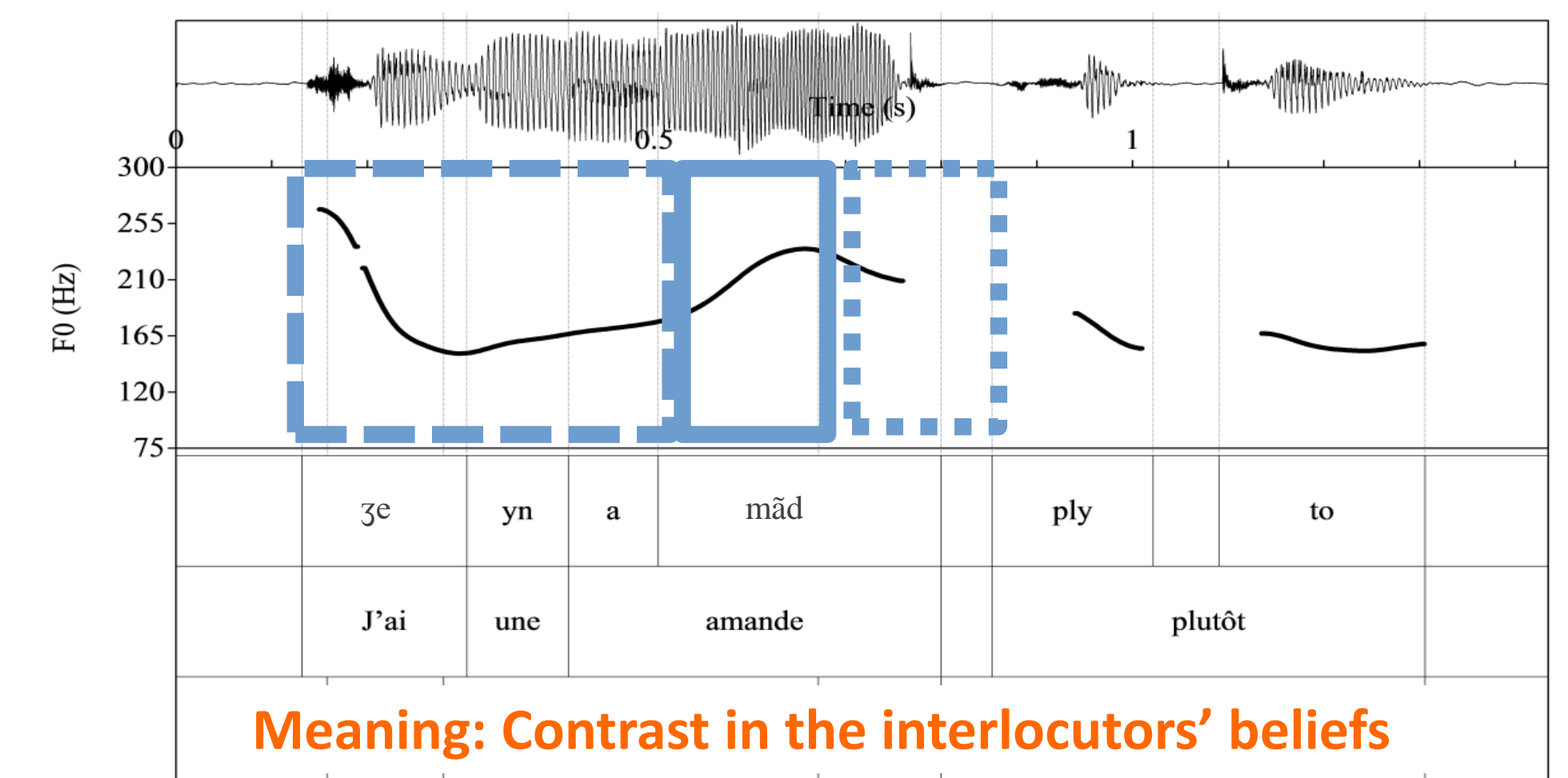# The role of individual empathic skills on the online processing of intonational meaning

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Background

- Intonation is processed online to help recover the pragmatic meaning and information structure intended by the speaker (e.g. Dahan et al 2002; Ito & Speer, 2008)
- Gaps in the literature:
  1. How much of the intonational contour is required, in different contexts, for listeners to generate an enriched meaning (Denison & Schafer, 2010; Kurumada et al 2014)
  2. Individual pragmatic skills impact on the processing of meaning in general (e.g. Degen & Tanenhaus, 2015; Jun & Bishop, 2014)

'Implication contour' (Delattre, 1966; Portes, 2004)
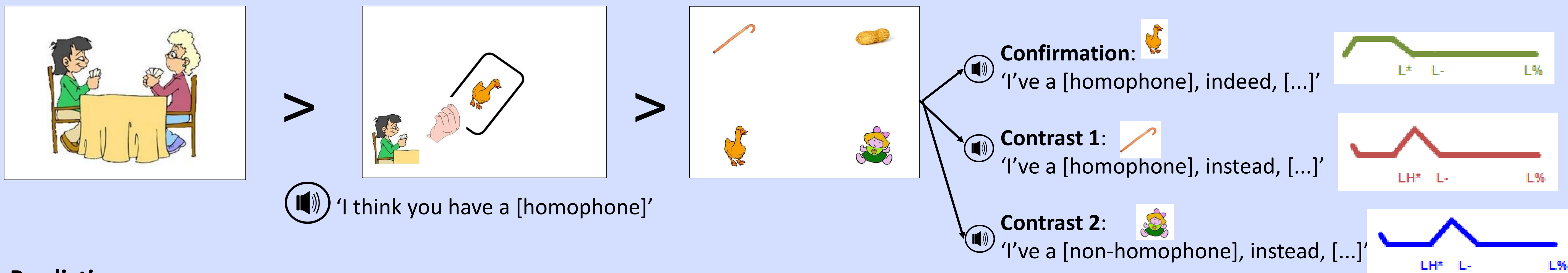

Meaning: Contrast in the interlocutors' beliefs

Aim

To investigate the role of individual emphatic skills on how fast an reliably listeners do the intonation-meaning association, and the role of pitch accents and edge tones

Methods

**Participants:** 29 French-speakers from the Paris region

Procedure: EQ questionnaire (Baron-Cohen & Wheelwright, 2004); Within-subjects; Latin-square design; 18 test trials (6 x condition) + 36 fillers

'I think you have a [homophone]'

Confirmation: 'I've a [homophone], indeed, [...]'
L* L- L%

Contrast 1: 'I've a [homophone], instead, [...]'
LH* L- L%

Contrast 2: 'I've a [non-homophone], instead, [...]'
LH* L- L%

Predictions:
1. All participants will look at the suggested homophone more with confirmation than with the contrast contour.
2. Looks to the suggested homophone will decline in the Contrast 2 condition during the CW, and in the Contrast 1 condition during the clarification phrase (if not already low because of an intonational effect).
3. High-empathy individuals will show greater use of pragmatic/intonational information."

Results
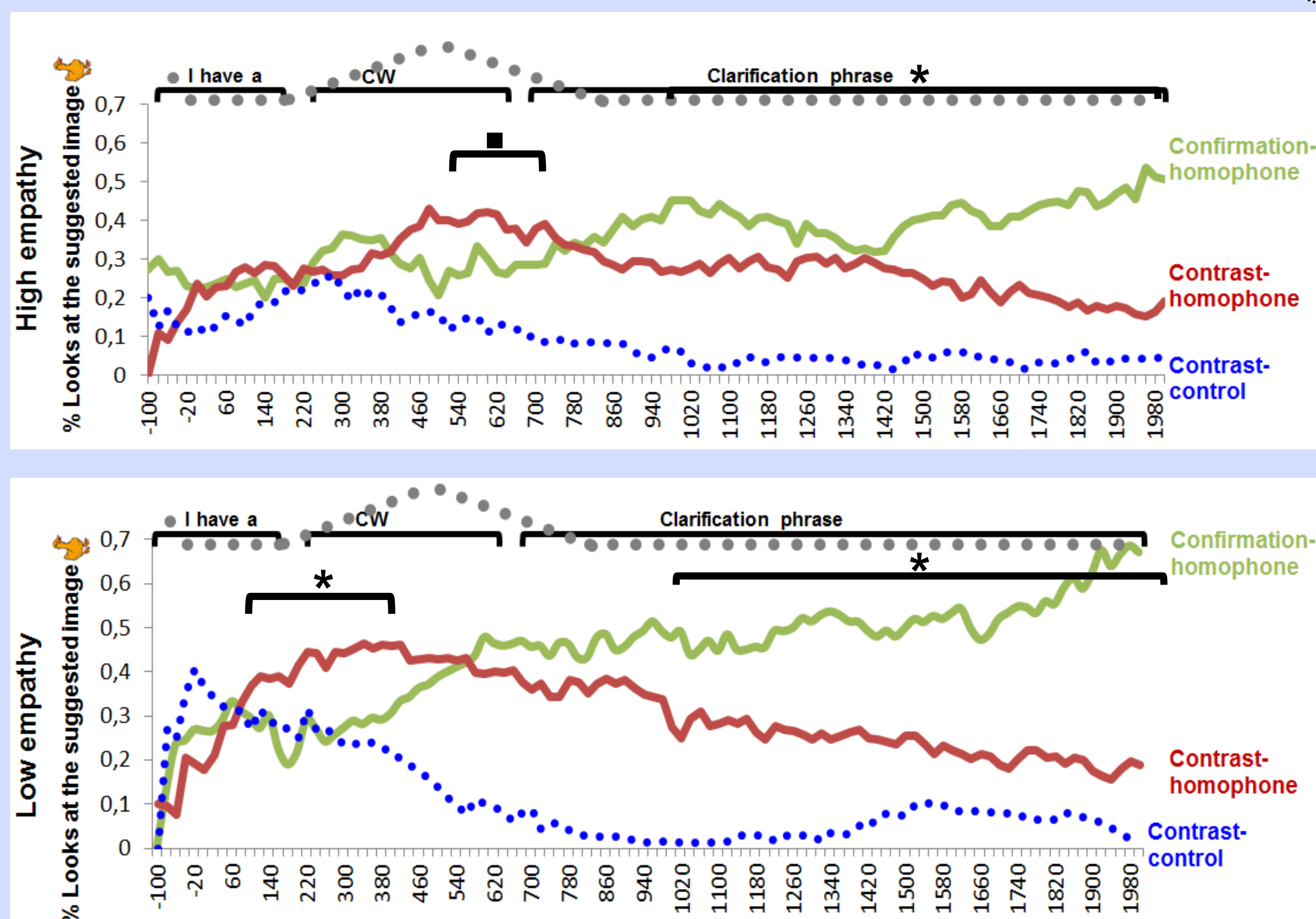
Stats (glmer in R)
DV: elog-odds of looks at suggested image vs looks at other images
IV1: intonation (confirmation-homoph. vs contrast-nonhomoph.)
IV2: empathy (HE vs LE)

- Intonation * empathy ($p < .05$), at the onset and middle of the rise
- Intonation · empathy ($p = .07$) , at the middle of the fall
- * Condition ($p < .001$), during the clarification phrase

Strength of the intonation-meaning mapping:
- Even after segmental disambiguation (i.e., in the clarification phrase), HE participants show less division in looks to the two homophones than LE participants.

Timing of the intonation-meaning mapping:
1. LE participants show an effect of pre-nuclear intonation, but it is the reverse of the predicted intonational effect.
2. Both empathy groups use intonation to increase looks to the intonationally-consistent homophone. The HE group is not straightforwardly better.
3. The intonational effect emerges as a result of detecting the intonational peak.

Conclusions

1) French speakers associate the implication contour with a contrast-of-beliefs meaning
2) Individual emphatic skills impact on:
   - the strength of the intonational meaning processing
   - the timing of the intonation-meaning association
3) F0 differences in the contour prior to the onset of the CW may guide early intonation-meaning mapping
4) The intonational peak is crucial for the intonational effect in processing contrast meaning

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