

# The Role of Pitch Contour Shape in Expressing Social Purpose in Infant Babbling



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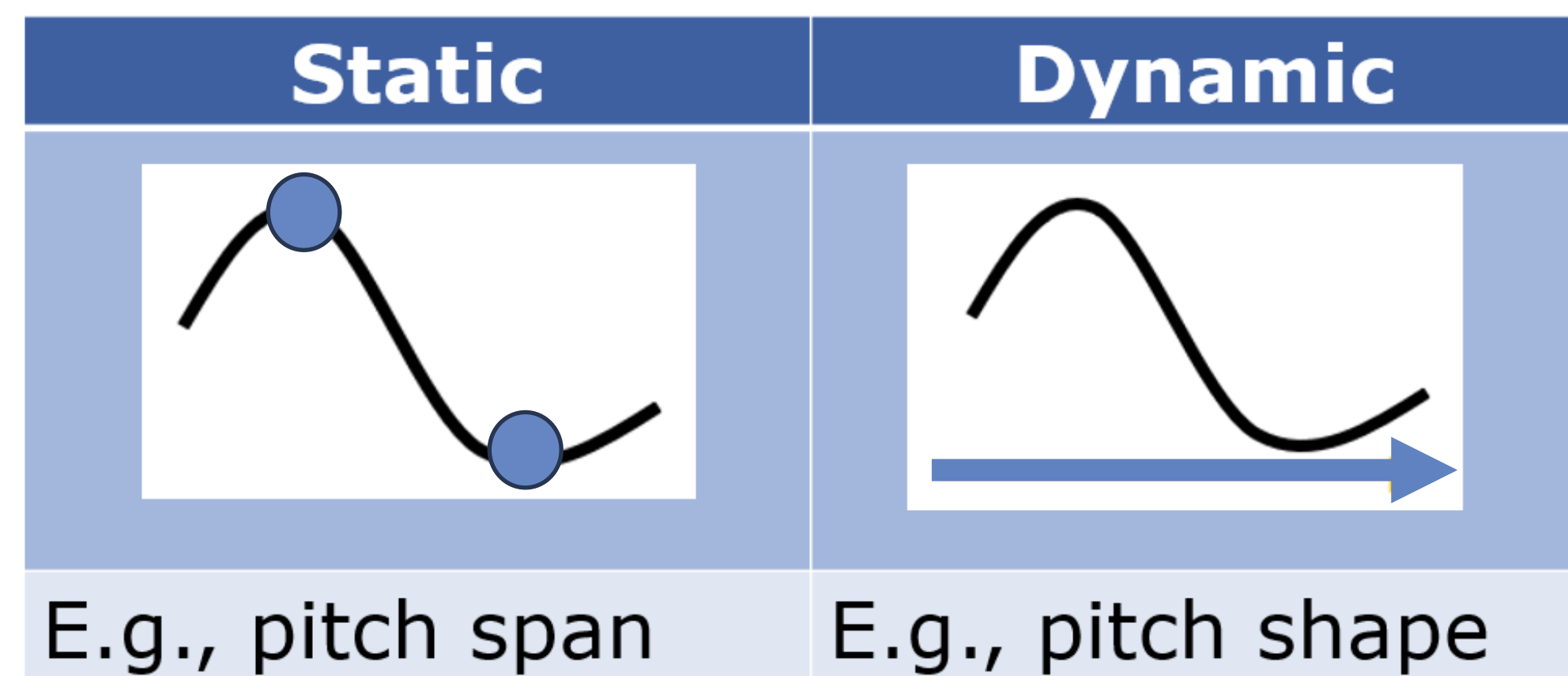
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## 1 INTRODUCTION

- Intonation is an early tool infants use to perceive/produce communicative meanings
- Evidence for preverbal infants' ability to systematically vary intonation patterns dependent on communicative context<sup>1,2</sup>



Majority of evidence



Do preverbal infants modulate pitch contour shape to express communicative versus investigative purposes in babbling in Catalan?

## 2 METHOD

### CORPUS

- Longitudinal corpus of Catalan-acquiring infants (n=4) aged 0;7-0;11 in weekly free-play caregiver-infant interactions at home<sup>2</sup>
- Annotated for social purpose:
  - Communicative
  - Investigative
  - Not clear
- 544 vocalisations representing 3 speakers (2 male, 1 female), 3 age groups (0;7, 0;9, 0;11), 2 social purposes (communicative, investigative)

### FUNCTIONAL DATA ANALYSIS

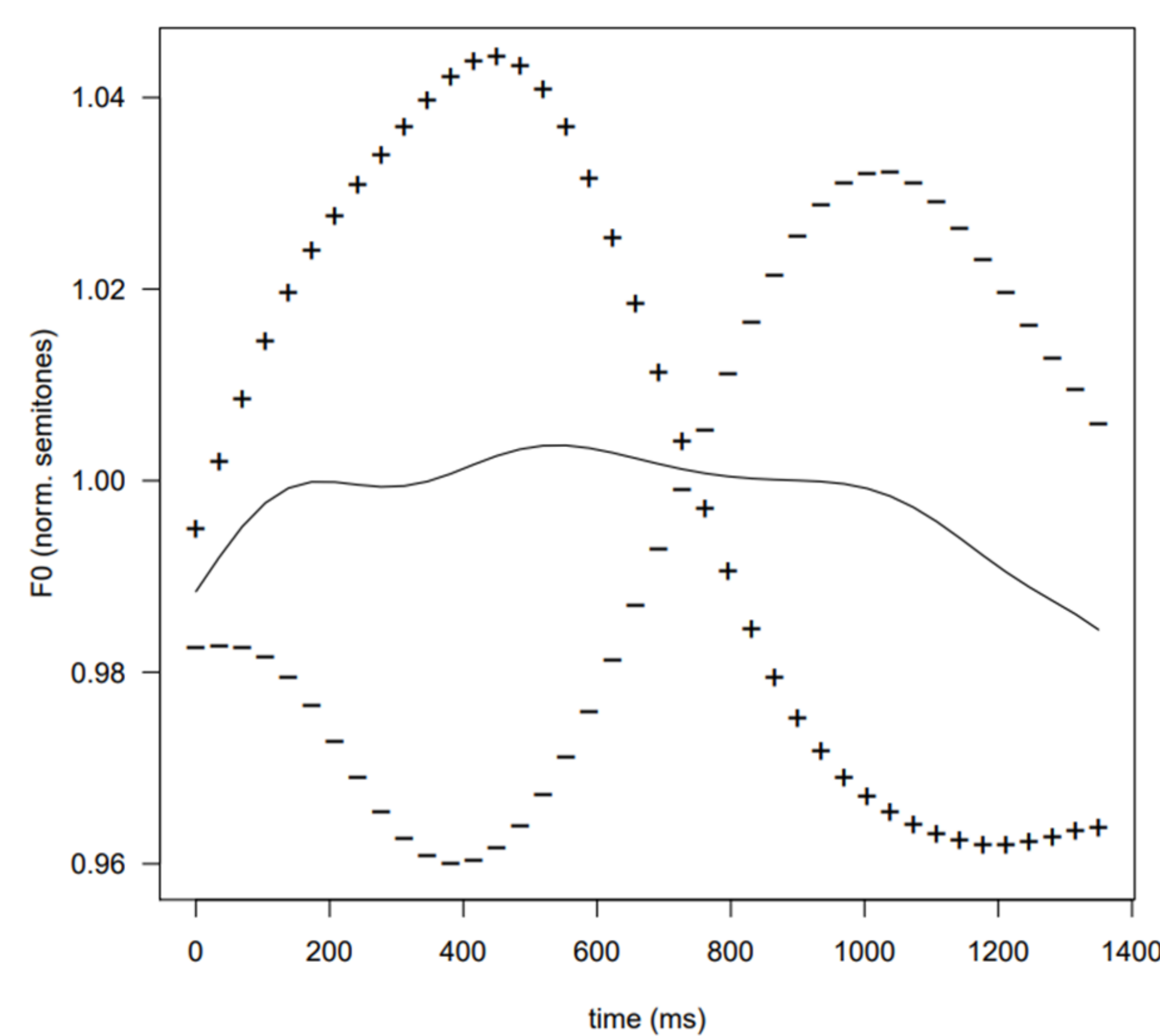
- Generates mathematical functions that capture changes in the configuration of the pitch contour<sup>3</sup>
- Automatic Annotation of Speech Prosody tool<sup>4</sup>
- Functional Principal Component Analysis module → numerical output → 2 Principle components<sup>5</sup>

### STATISTICAL ANALYSIS

Linear mixed effect modelling in R

## 3 RESULTS

### PC1: Alters timing of falling contour



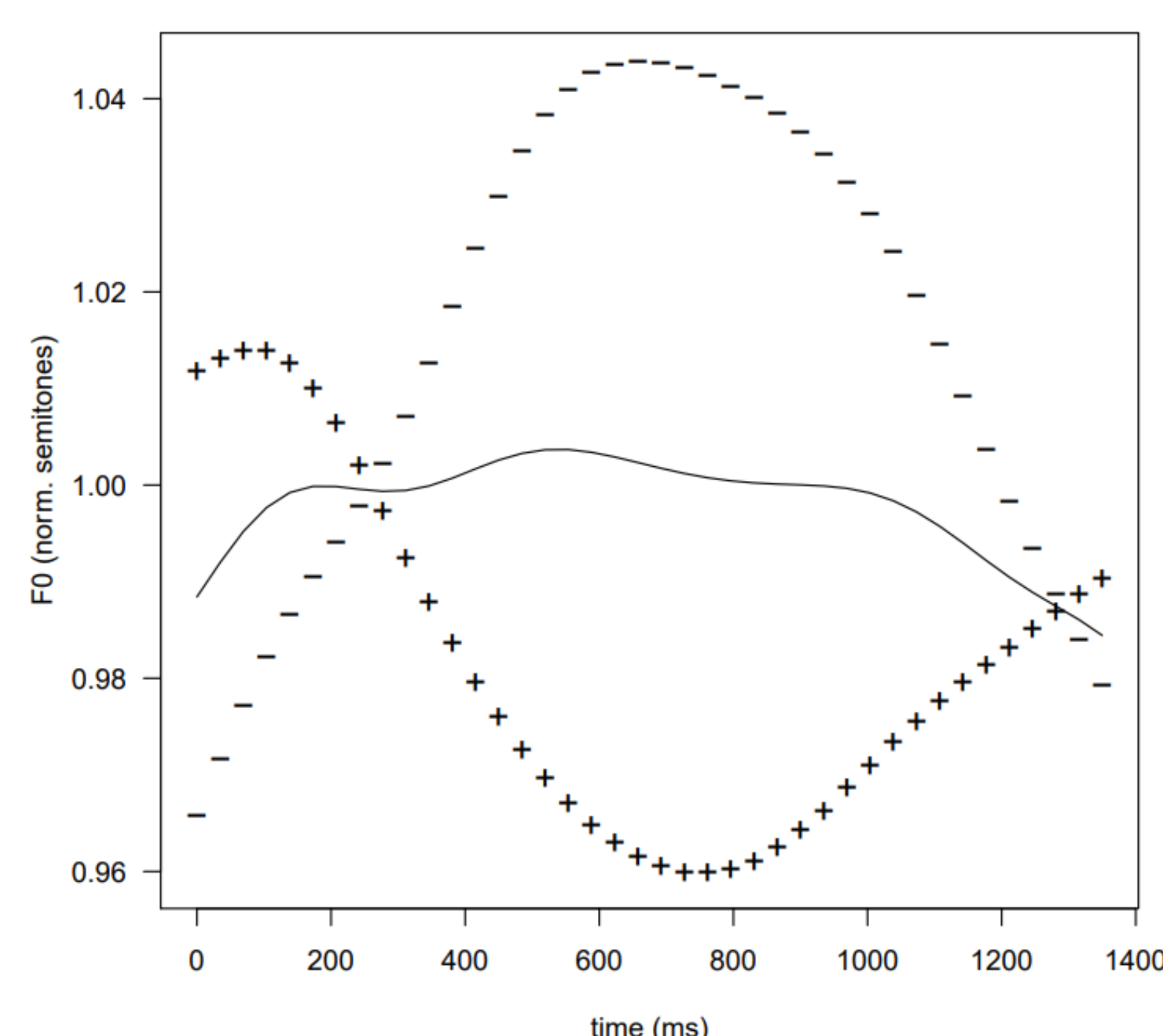
+ → earlier fall  
- → later fall

34, 8% of variance

No main effect of social purpose or age

Decrease in P1 weight with age

### PC2: Alters direction and steepness of contour



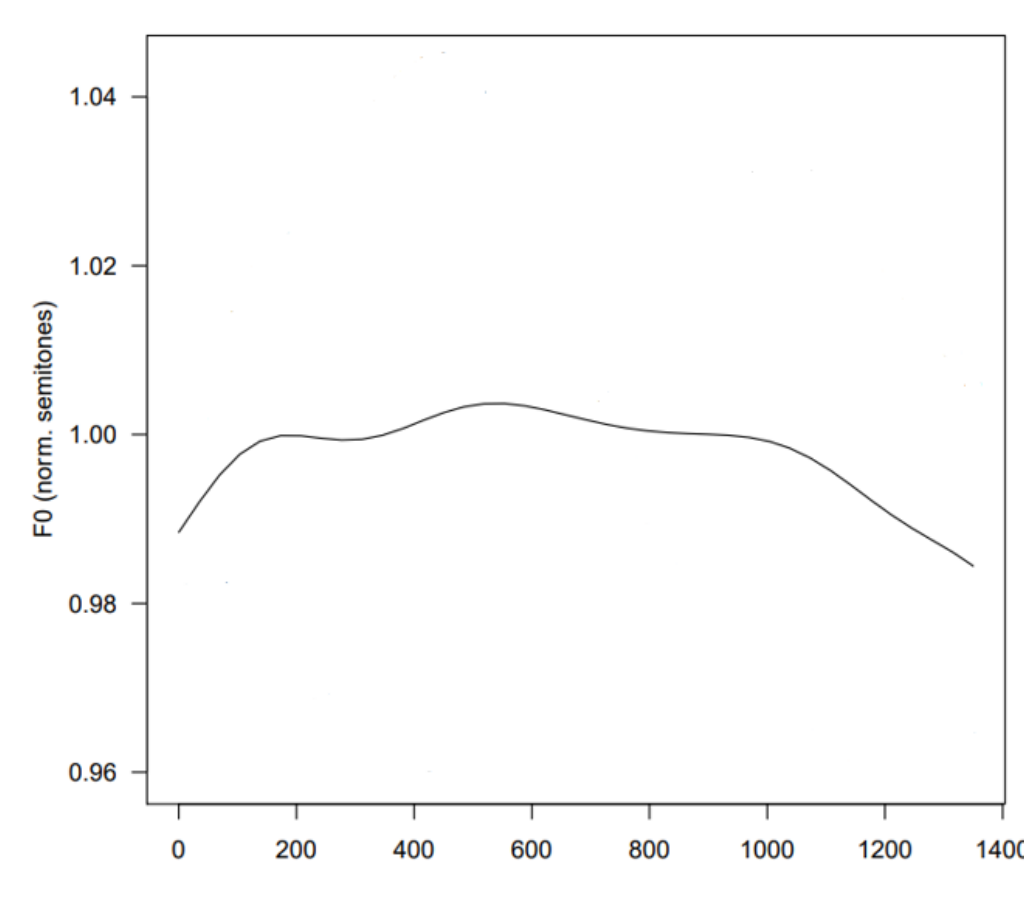
+ → valley-shaped, terminal rise  
- → steeper, terminal fall

32% of variance

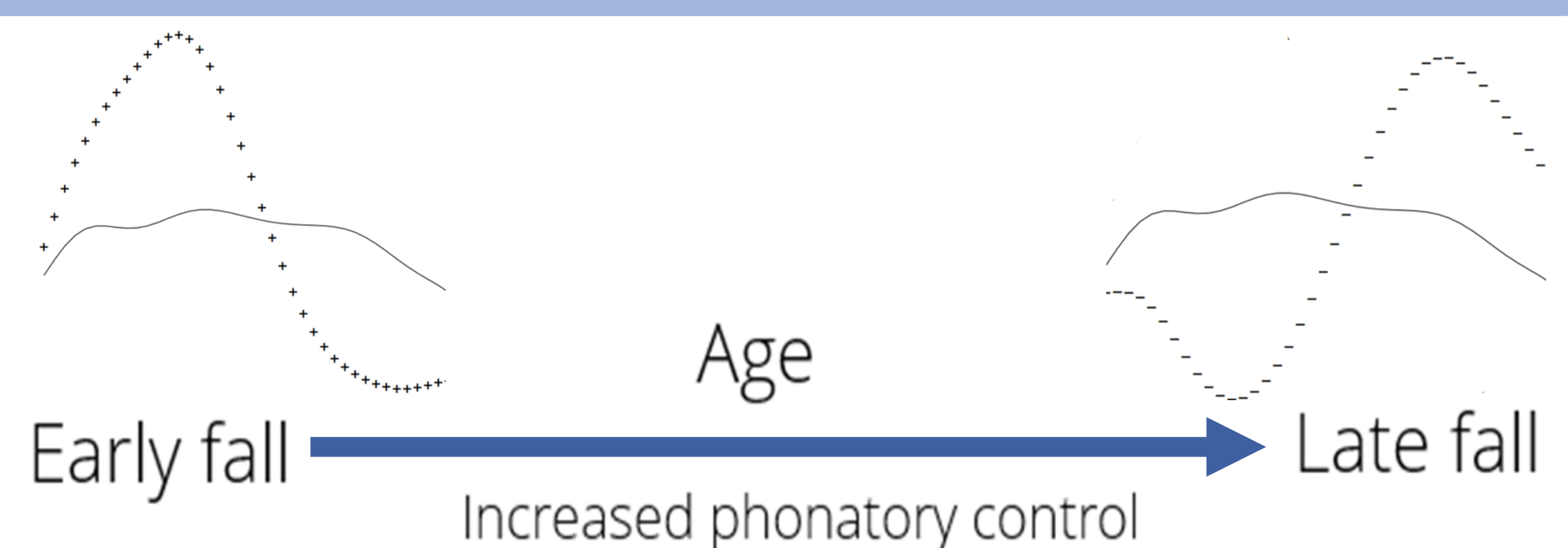
No main effect of social purpose or age

## 4 CONCLUSION

- Average contour of all vocalisations is a falling, hat shape



- Plausible developmental trend in timing of falling contours



- Infants did not produce different pitch contour shapes for the different social purposes



Future direction

Cross-linguistic perspective: Role of language independent vs language dependent mechanisms?