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DFG FOR 2253

# P6 Perceptual Narrowing in Speech and Face Recognition in Infants: Domain-general vs. Domain-specific mechanisms in Attunement and its Modification

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## Introduction:

### Perceptual Narrowing:

Fast attunement of perceptual abilities to specific properties of the sensory input during infancy. This process leads to a decrease in the discrimination of stimuli not present or not relevant in the environment of the infant. Perceptual Narrowing has mainly been studied in face and speech perception and indicated similar developmental trajectories across these two areas.

### Aim of the project:

So far, face and speech perception have been studied separately. Our project will investigate perceptual narrowing in face and speech perception in an interdisciplinary approach to unveil commonalities and interdependencies between this process in the visual and auditory modality.

### Research Questions:

**Q1:** Does perceptual narrowing in speech and face perception follow the same developmental patterns?

**Q2:** Are there differences in the potential of modifying perceptual narrowing in speech and face perception at an age in which perceptual narrowing seems to be set?

## Study plan:

- **Q1** → Parallels in the development of perceptual narrowing in speech and face processing



- At 6 and 9 months Perceptual Narrowing has been shown for speech with lexical tones, and for face with Caucasian, Asian, and African faces.

### ➤ Experiment 1:

Are individual differences in the time course of perceptual narrowing similar in both domains?

### ➤ Experiment 2:

Are neurophysiological correlates related to the developmental changes during perceptual narrowing?

## Method: Speech Perception

### Participants:

- 24 6-months-old and 30 9-months-old infants

### Stimuli and Procedure

- Same Stimuli and Procedure as in Yeung et al. (2013). They have shown perceptual narrowing for:
  - Cantonese lexical tones: High-rising (25) vs. mid level tone (33)
  - Stimulus-Alternating-Procedure-Paradigm (SAPP): Alternation of Alternating and Non-Alternating sequences

## First Results: Speech Perception

- Perception of Cantonese lexical tones by 6- and 9 months-old infants

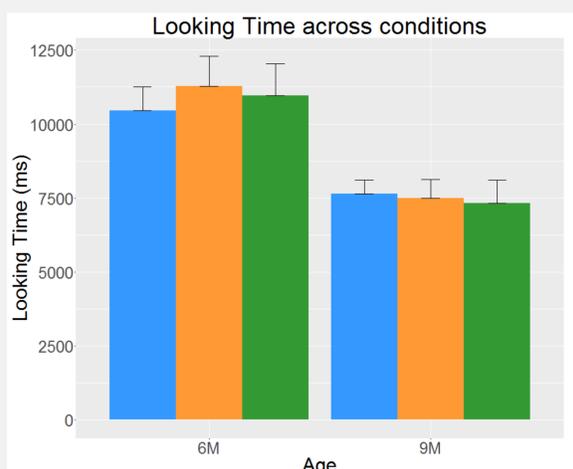
- **Alternating** = high rising and mid level tones

- **NonAlternating25** = only high rising tones

- **NonAlternating33** = only mid level tones

- No statistically significant differences across conditions

(Conditions  $F(2, 156)=0.076, p=0.927$ ; Age  $F(1, 156)=28.915, p<0.01$ )



## References:

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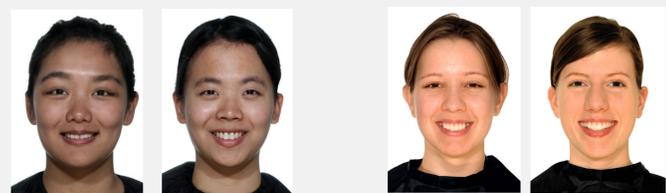
## Method: Face Perception

### Participants:

- Twenty-one 9-months-old Caucasian German infants (data collection ongoing)
- Nine infants (3 female) participated in Other-Race condition, and twelve infants (3 female) participated in Same-Race condition

### Stimuli:

- European and Asian females (3 Pairs of faces for each race)

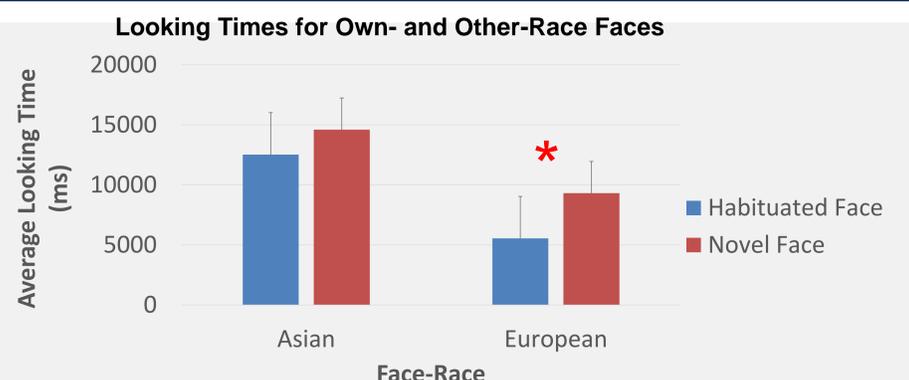


Examples of other-race (left) and own-race (right) stimuli pairs

### Procedure:

- Subj. related habituation-dishabituation procedure. Max. 18 habituation trials, 4 test trials (2 novel, 2 habituated, randomized alternating order)

## First Results: Face Perception



- Significant looking preference for novel over habituated faces detected in own-race condition  $t(11)=-2.29, p=.04$ , but not in other-race condition  $t(8)=-0.56, p=.59$  demonstrating the other-race effect in this age group.