Does listening to an emotional voice help facial expression recognition in 4-month olds?

Research on audio-visual transfer

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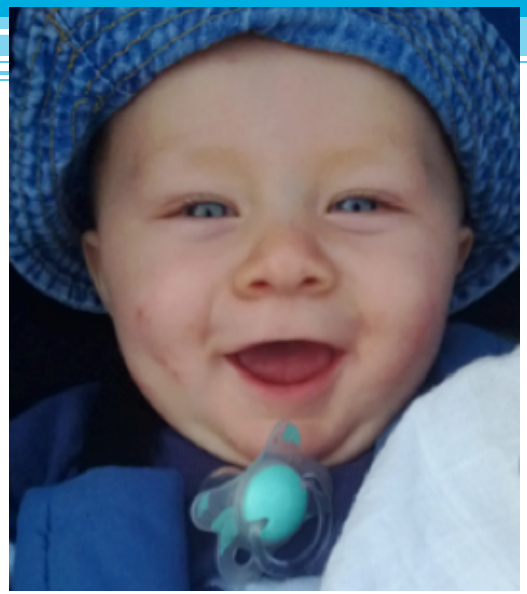
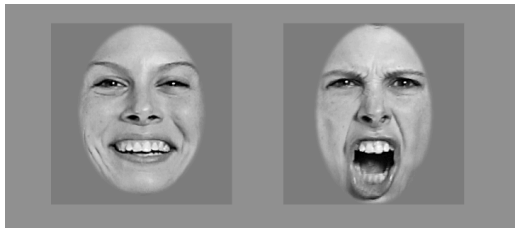


Theoretical context

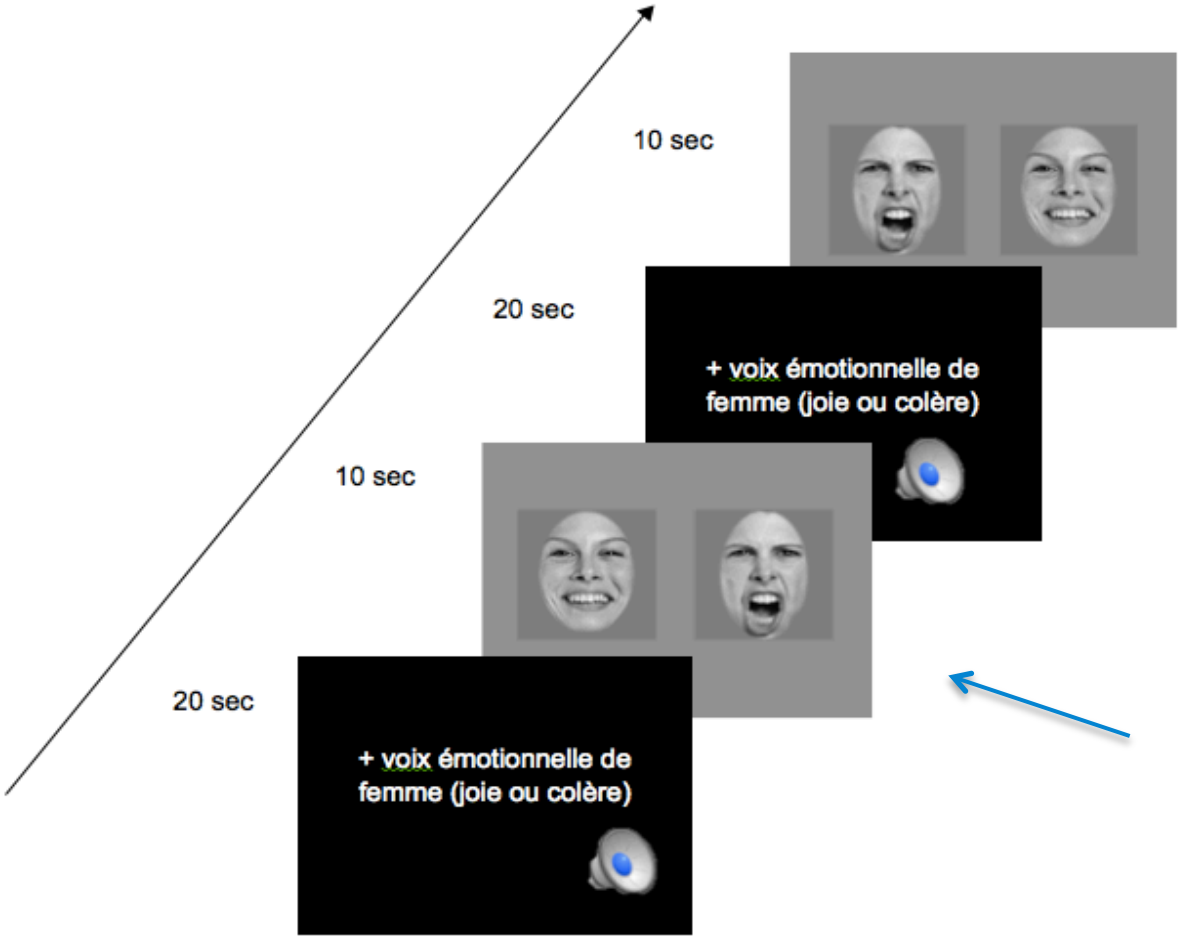
- The studies of Caron and al., (1988) and Flom & Bahrick, (2007) show that the discrimination of multimodal stimuli is possible from 4 or 5 months.
- The discrimination of unimodal auditory stimuli appear around 5 months, when the discrimination of unimodal visual stimuli appear later, around 7 months.
- However, the results vary a lot across the studies and there isn't a consensus between the authors about the results.
- In our study we tried to assess the intermodal transfert between visual and auditory modality. We thought that maybe this method could lead to a more early recognition of emotion expressions by babies.

Methods: stimuli

- Standard auditory emotional stimuli issued from the Montréal Affective Voice (Belin et al., 2008)
  - Happiness female:
  - Happiness male:
  - Anger female :
  - Anger male:
  - Neutral female :
  - Neutral male:
- Standard visual emotional stimuli showing male/female facial expressions, presented in pairs, issued from the Montréal Pain and Affective Face Clips (Belin et al., 2008).
  - Happiness – Anger



Methods: experimental trial



Hypotheses

- Upon listening to a neutral voice, 4-month olds will look more at a happy face than an angry face (Kuchuk et al., 1986; La Barbera et al., 1976; Rochat et al. 2002).

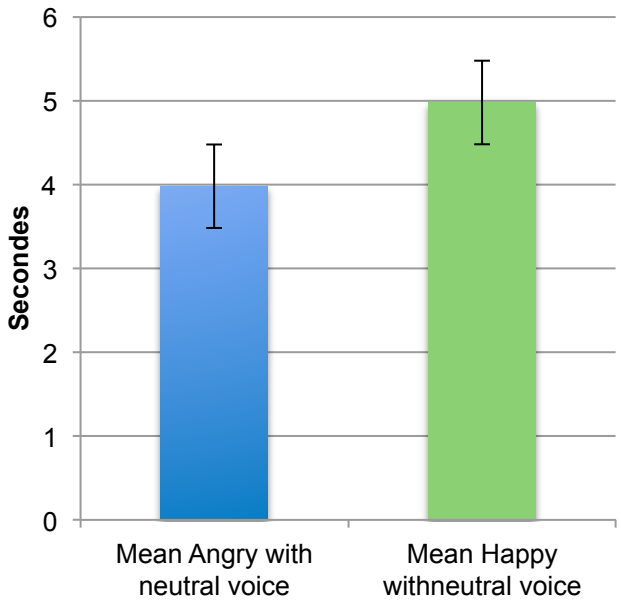
- Fixations time will tend to be longer for happy than for angry faces.

- Listening to an emotional (happy or angry) voice will facilitate the subsequent perception of a face expressing the same emotion, as inferred from fixation times. E.g. Babies will look more at an angry face when preceded by an angry voice

Baseline

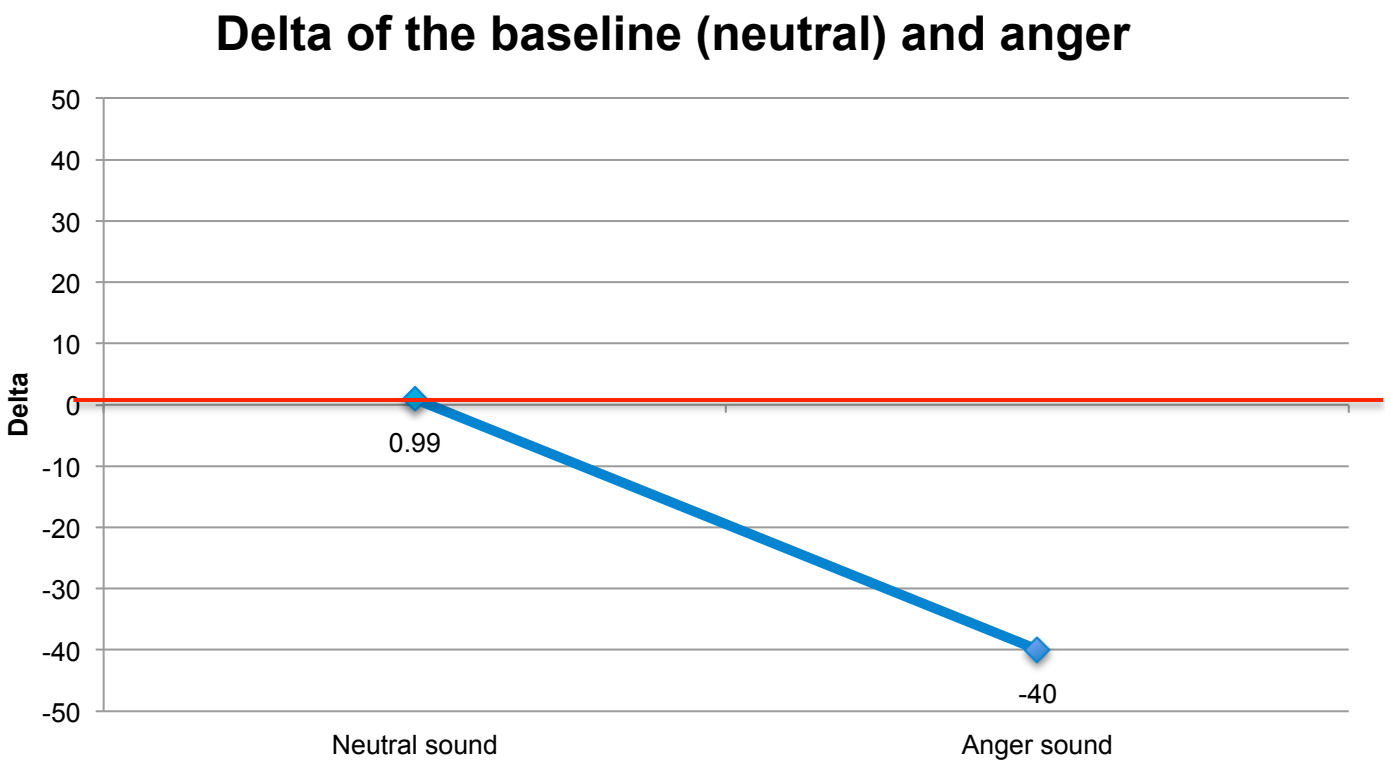
Behavioral Observation Research Interactive Software

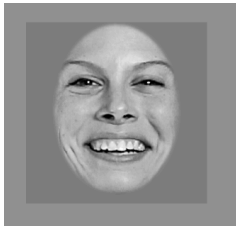
- Preliminary results on 13 subjects (M= 9, F= 4)
- Paradigm: One neutral voice (20 sec) followed by two emotional faces, angry and happy presented simultaneously side by side (10 sec)
- Following a neutral voice, babies tend to look more at a happy face (4.97sec) than at an angry one (3.98sec), p = 0.404.

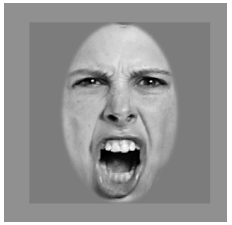


Results

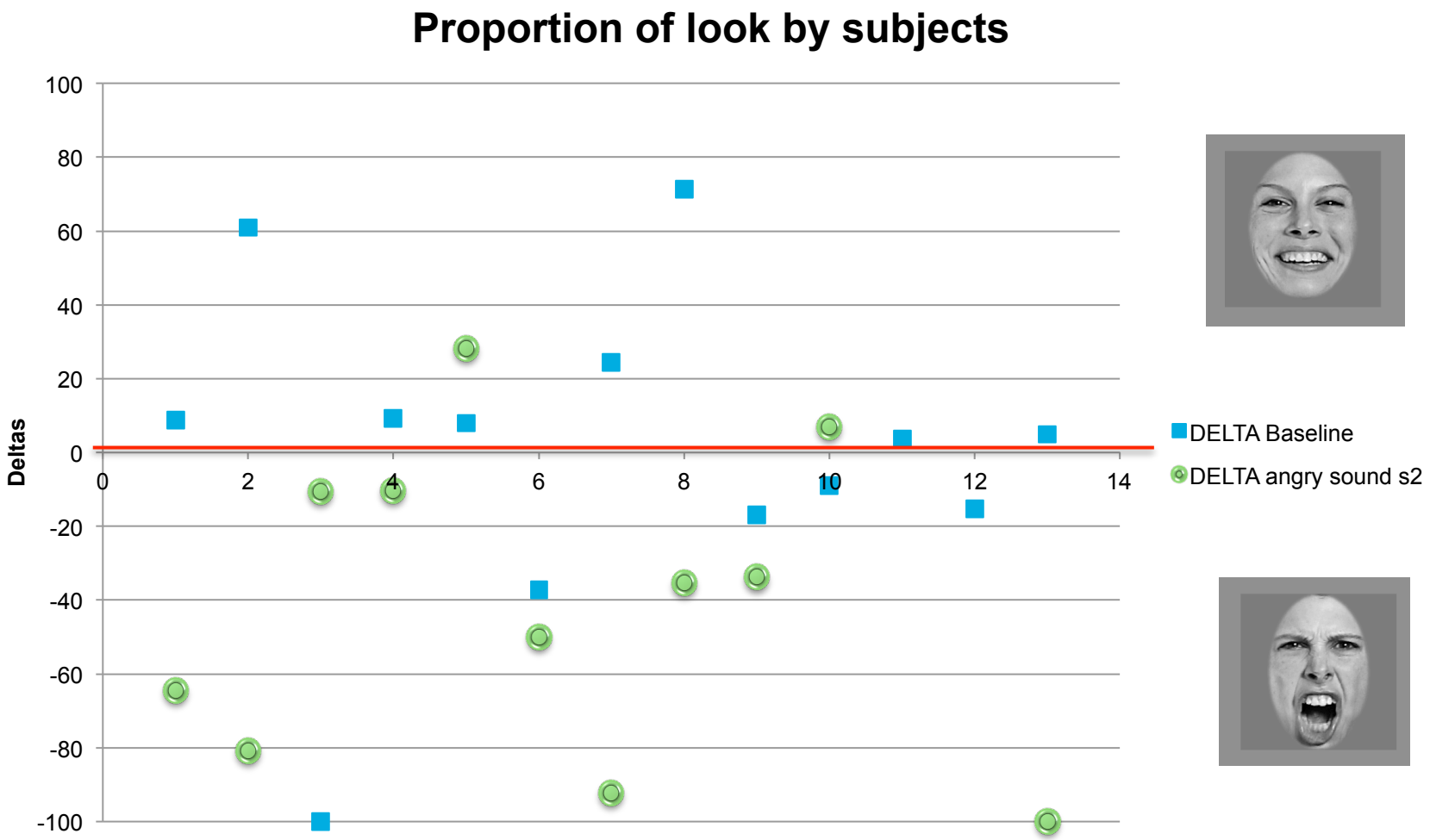
T (22) = 2.393, P=0.0256







Results

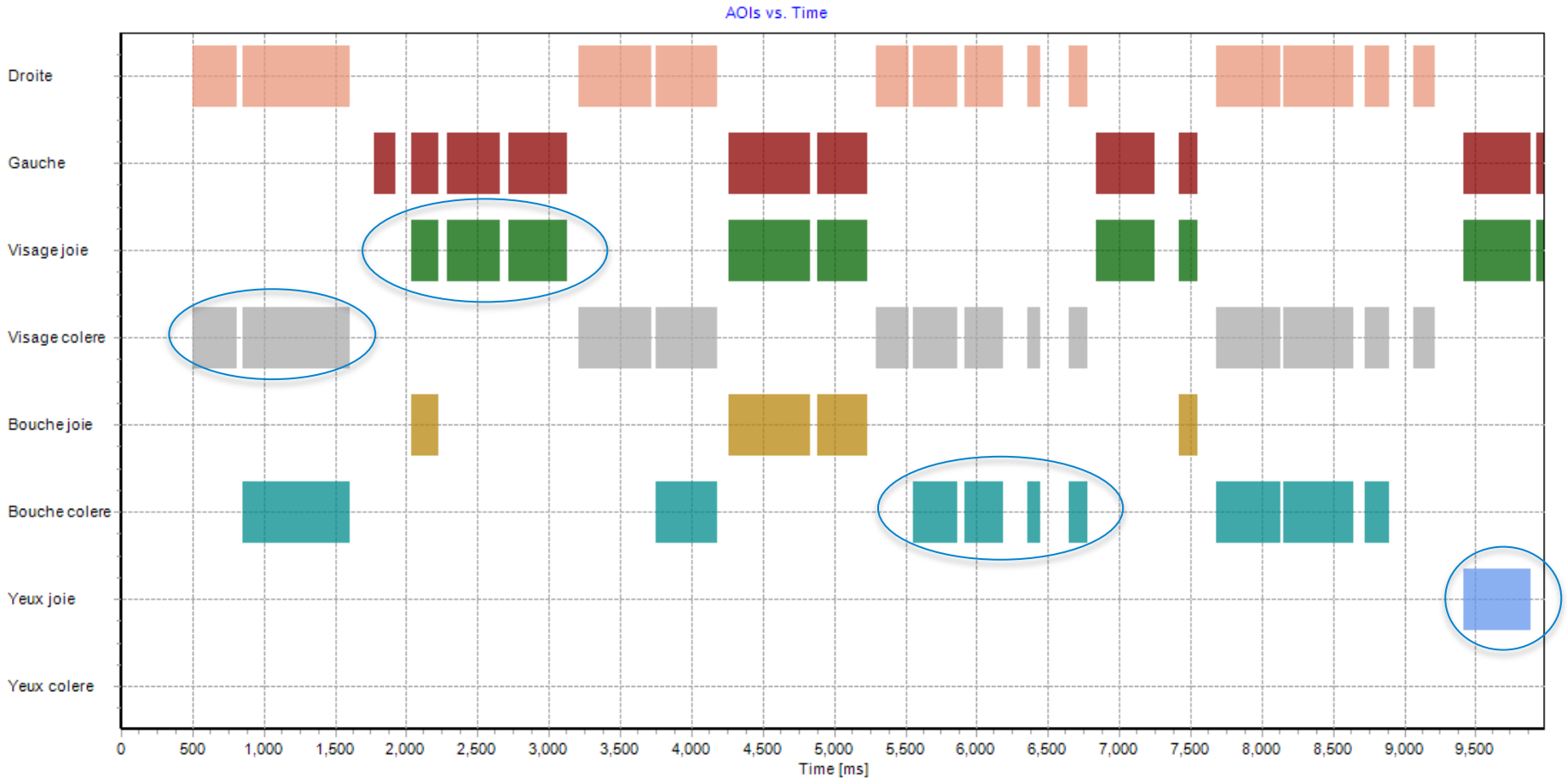

Proportion of look by subjects
Deltas
100
80
60
40
20
0
-20
-40
-60
-80
-100
0
2
4
6
8
10
12
14
DELTA Baseline
DELTA angry sound s2

Results

→ The preliminary results indicate that when the preceding sound is anger, babies look more at angry faces; when the sound is neutral, babies prefer happy faces.

Results for one subject

Results for one subject



To do…

- Double coding female's videos
- Coding and double coding male's paradigm with face and voice
- Analyze in details the results of the eye-tracker
- Analyze the effects of gender
- Finalize a second experiment about emotion of fear and anger.

Thanks for your attention!

Any questions?

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