

Impact of early bilingualism on infants' ability to process talking and non-talking faces: new data from 9-month-old infants

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Abstract

When watching a face talking in their native language, infants from 8 months onwards pay more attention to the mouth rather than to the eyes of the speaker [1]. During the same period, bilingual infants show a preference for the mouth region of the speaker earlier in their development (at 4-month-old) and this preference remains unchanged later on (at least until 12 month-old, [2]).

Here, we investigated whether this preference for the talker's mouth makes it more difficult for infants to detect and/or learn to anticipate the apparition of a visual event displayed in the talker's eyes region. In a previous study using the same paradigm, we showed that at 15-months of age, both monolingual and bilingual 15-month-olds could detect the apparition of a visual cue appearing in the eyes region but only 15-month-old monolinguals and 18-month-old bilinguals could learn to anticipate its appearance during the sentence phase [3]. One possible explanation for this result is that at 15 months of age, bilinguals, as compared to their monolingual peers, need to rely more on the cues provided by the mouth region of the speaker to cope for their challenging language environment.

Using the same paradigm, we tested whether at a younger age (10-month-olds), both monolingual and bilingual infants, who are less expert to process their native language (and may thus rely more on the mouth region of the talker), fail to anticipate the visual cue in the eyes region. We thus recorded Spanish/Catalan bilingual and Spanish and Catalan monolingual 9-month-olds' eye gazes while they watched and listened to a bilingual Spanish/Catalan female speaker producing short sentences (Speech Event). At the end of each sentence she produced a Non-Speech movement. For a first group of infants, she systematically raised her eyebrows (Eyebrow-raise condition: N=21, 12 bilinguals) while for the second group, she systematically protruded her lips (Lip-protrusion condition: N=18, 7 bilinguals).

The results show that during the presentation of the Speech Event (cf. Figure 1, left panel), no effect of the Non-speech movement was found, suggesting that neither bilinguals nor monolinguals could anticipate its apparition (both $p > .05$). Interestingly, during the presentation of the Non-Speech movement itself (cf. Figure 1, right panel), only bilinguals were able to change their pattern of exploration of the face of the speaker: they gazed at the eyes region of the speaker during the Eyebrow-raise movement while they paid more attention to the mouth area during the Lip-protrusion movement ($p < .05$). However, monolinguals were not able to do so ($p > .05$). Data collection is still underway but our results, taken together with previous findings [2-3] demonstrate the impact of language

specific experience (e.g., early bilingualism) on infant's ability to process from social entities they encounter on a daily-basis (i.e., audiovisual talking faces). We consider the respective roles of selective attention maturation and vocabulary acquisition to explain these different developmental trajectories.

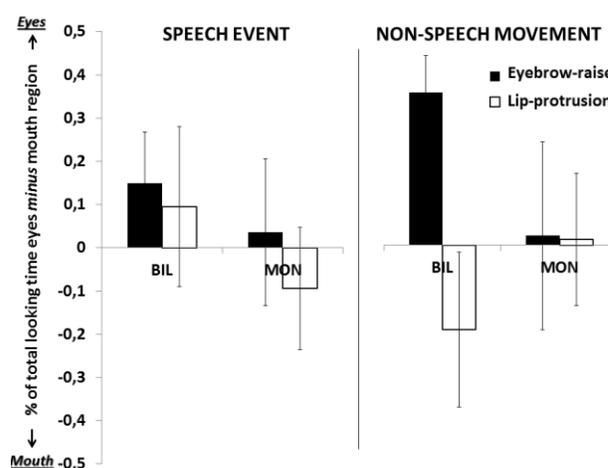


Figure 1. Mean percentage of total looking time difference between the eyes and the mouth region of the speaker as a function of the condition (Eyebrow-raise: black bars vs. Lip-Protrusion: white bars) for 10-month-old bilingual (BIL) and monolingual (MON) infants, during the Speech Event (left panel) and the Non-Speech movement (right panel). Positive scores indicate a preference for the eyes region over the mouth region. Error bars represent standard errors from the mean.

Index Terms: attention, eyes, mouth, talking faces, early language acquisition, bilingualism, infancy

References

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