

# Pairing of Vocalic Streams and Visual Non Speech Cues

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## BACKGROUND

Several works about audiovisual binding have been achieved using elementary stimuli, such as beeps and flashes (Andersen *et al.*, 2004; Bischoff *et al.*, 2006). For speech, it remains difficult to assess that binding occurs at a low level because the phonetic dimension is naturally present and plays a prominent role in audiovisual fusion. To test further the possible interaction between non speech visual material and auditory speech at a low level, we propose the following design.

## METHOD

Sequences composed of 6 vowels are simultaneously presented with visual animations of basic geometric shapes (bars, disk) varying in contrast or in movement. Visual cue modulations are synchronous with a vowel on two. In one condition, the pitch of the two groups of 3 vowels differs from 2.5 semitones and this leads to the clear perception of two segregated streams (Bregman, 1990). In the other condition, there is no difference, and the 6 vowels have the same fundamental frequency. After several presentations of the same sequence, the task is to select the 3 vowels synchronous with the visual cue modulation.

## RESULTS

Both types of visual cue were supposed to allow a pairing between simultaneous visual and auditory inputs. Surprisingly, only the movement condition leads to better performances of pairing. In the contrast condition, answers are randomly distributed. Perceptual multistability should be invoked here to explain the results. Otherwise, the pitch difference does not enhance the pairing of simultaneous inputs, despite the formation of one auditory stream which is in phase and another out of phase with the visual cue. Further studies are needed to conclude about the possible independence of auditory streaming and audiovisual binding mechanisms.