Temporal window of audiovisual integration in speech perception

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Audiovisual integration in speech was measured as a function of 1) audio-visual synchronicity and 2) the signal to noise ratio of the auditory stimuli. To measure audiovisual integration, McGurk stimuli were used. Auditory VCV's, /aba/ or /apa/, were dubbed on visual movies showing a speaking mouth pronouncing 'aga' or 'aka', respectively. Time delays between the auditory and visual stimuli ranged from –520 to +520 ms. Subjects were asked whether they heard /aba/, /ada/, /apa/ or /ata/. An increased number of /ada/ or /ata/ responses indicated audiovisual integration. Results showed a relatively wide window of audiovisual integration. The time lag at which audiovisual integration was maximal (point of maximal integration, PMI) was found at around +150 ms (video leads audio). The width of the time window and the finding that integration is maximal when the video signal leads the audio signal are comparable to results of psychophysical and electrophysiological experiments using non-speech stimuli. However, the time lag of around 150 ms for the PMI is large compared to results of other studies.

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