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Effect of lip movement cues on auditory streaming of concurrent speech

Aymeric Devergie^a, Nicolas Grimault^b, Frédéric Berthommier^c, Etienne Gaudrain^b and Eric Healy^d

^aUniversité Lyon 1, UMR 5020 CNRS, 50 av. T. Garnier, 69366 Lyon cedex 07, France

^bLaboratoire Neurosciences Sensorielles, Comportement, Cognition, UMR 5020, Université Lyon 1 - CNRS, 50 av. Tony Garnier, 69366 Lyon Cedex 07, France

^cGipsa-lab UMR 5216, 46 avenue Félix Viallet - INPG, F - 38031 Grenoble cedex, France

^dUniversity of South Carolina, Speech Psychoacoustics Laboratory, Department of Communication Sciences and Disorders, William Brice Bldg., 1621 Greene St., Columbia, SC 29208, USA

Lip reading is known to induce audio-visual integration processes that enhance speech-in-speech intelligibility. Recent work in auditory scene analysis [see Gaudrain et al., *Acoustic'08*] found correlations between sequential segregation performance and intelligibility of speech-in-speech. Our working hypothesis is that an audiovisual binding process is involved in speech understanding in multi-talker situations. However, the potential effect of audio-visual integration on auditory stream segregation remains unclear. A single previous study [Gaudrain et al., *J. Acoust. Soc. Am.* 122, 3065 (2007)] found that lip movements congruent with the presentation of vowels may enhance segregation. In this paradigm, audio-visual sequences of vowels with alternating low and high fundamental frequencies have been generated, in which the lip movements are paired with the second ones. The current experiment is built to test further the potential effect of visual cues on segregation. As in the previous study, lips movements were either steady (control condition), open-closed (rhythm condition) or congruent with each particular vowel. Moreover, a congruent but asynchronous audio-visual condition has been introduced as a new control. This is expected to disrupt the audiovisual binding process. Results are interpreted as an evaluation of the contribution of visual cues in Cocktail Party situations.