

Lateralization of pure tones ITD vs. IPD salience

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Former psychoacoustic experiment of William Yost (Yost, 1981, JASA, 70(2):397-409) suggested that human subjects localize lateral displacement of pure tones based on interaural phase differences (IPD) rather than interaural time differences (ITD). Four listeners took part in the experiment. In 2006 Zhang and Hartmann organized an experiment (Zhang and Hartmann, 2006, JASA, 120(6): 3471-3474) which addressed possible bias in Yost experiment, in which the subjects analyze only one frequency of pure tone during the test trial. They used a mixture of pure tones of different frequencies during one trial instead. Five listeners took a part in the experiment. Zhang and Hartmann have a hypothesis that the more salient cue should have less variation and be better approximated by linear function rather than the less salient cue, ITD was overall more linear.

Due to a small number of subjects in both experiments and their contradictory results, we decided to reopen the question of ITD and IPD saliency. Both Yost, and Zhang and Hartmann used different stimuli lengths and the presentation of the stimuli to the subject, however the form of evaluation was akin. Therefore, in the pretest on 7 experienced listeners we tried to determine, whether the differences of the results weren't caused by different methodology. Neither length, nor the type of presentation of the stimuli had statistically significant effect. Yost method of stimuli presentation was quoted by listeners as easier to understand consequently we used it in the main experiment. In the poster, we present preliminary results from over 50 subjects of the first round of the experiment.