Spectral Weighting of Binaural Cues: Effect of Bandwidth and Stream Segregation

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Hypothesis

It is hypothesized that binaural information is integrated over frequencies in the binaural system to lateralize other sound sources by forming auditory objects. This is commonly referred to as thecock-tail party effect. It is known that listeners use, among others, interaural disparities in time and intensity to determine the location of a sound source.

Introduction

Spectral weighting of binaural cues can be hypothesized to depend on a number of properties such as the bandwidth and the content of the signals. It is hypothesized that this weighting is not fixed but can vary depending on the signal properties and on the acoustical context of the sound.

Method and Stimuli

Stimuli were presented via equalized headphones (HDA200) and were 200 ms in duration. The intervals between two stimuli were either 200 or 500 ms.

Results

A spectral weighting function was previously derived using inverted sensitivity thresholds of narrowband stimuli (Stern et al., 1988). The weighting functions were previously derived using inverted sensitivity thresholds of narrowband stimuli (Stern et al., 1988). The weighting functions were previously derived using inverted sensitivity thresholds of narrowband stimuli (Stern et al., 1988).

Discussion and conclusions

Results described different to weights obtained by Stern et al. (1988B).

Streaming leads to an increase in weights.

- Release from interference?

- Increase in weight only when binaural information available

- At low frequencies for ITD

- At all frequencies for ILD

Spectral most outer bands play a special role.

- Weighting of frequency bands depends on spectrally near content.

- Content on only one spectral side leads to high weight (condition 1b).

- Uncorrelated noise on the other side does not change the weight (comparing condition 1a to 1c).

- Listeners' judgement of lateral location of sound is biased by binaural cues on the most outer frequency bands.

Literature


