

# The role of spatiotemporal and spectral cues in segregating short sound events: evidence from auditory Ternus display

Qingcui Wang · Ming Bao · Lihan Chen

## Abstract

Sound segregation is a process of auditory perception that allows us to identify individual sounds in a complex mixture. Previous studies have shown that spatiotemporal and spectral cues play important roles in sound segregation. In this study, we used an auditory Ternus display to investigate the relative contribution of spatiotemporal and spectral cues in segregating short sound events. The results showed that the participants could segregate the target sound from the background in a Ternus display. The performance was better when the target sound was presented at the center position than at the peripheral positions. The results also indicated that the participants could segregate the target sound from the background in a Ternus display. The performance was better when the target sound was presented at the center position than at the peripheral positions. The results also indicated that the participants could segregate the target sound from the background in a Ternus display. The performance was better when the target sound was presented at the center position than at the peripheral positions.

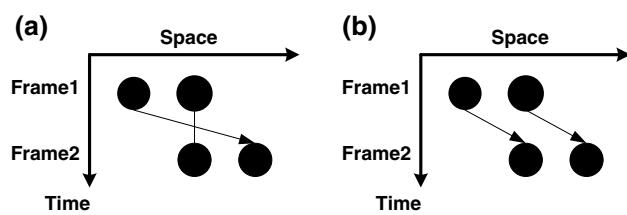
## Keywords

## Introduction



**E****K****K****E**

Fig. 1 *Diagram illustrating the movement of particles in two frames.*

**Fig. 1***middle disk**outer disk***b****aE**

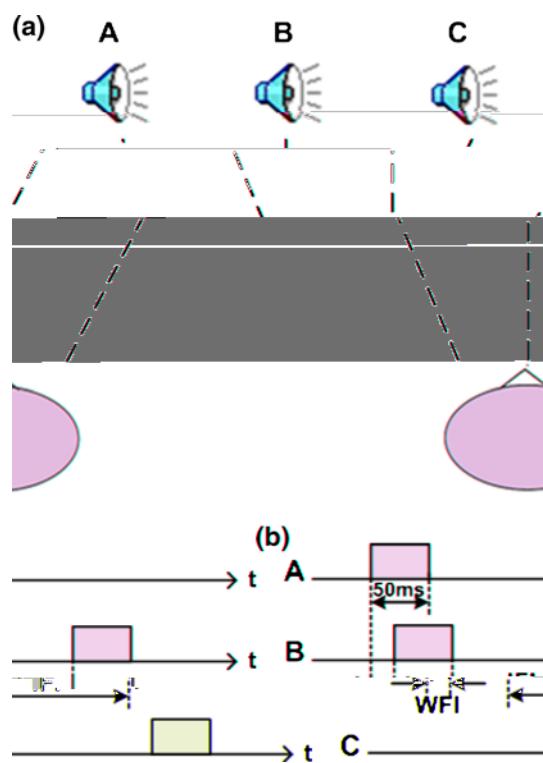
## Experiment 1

E E E

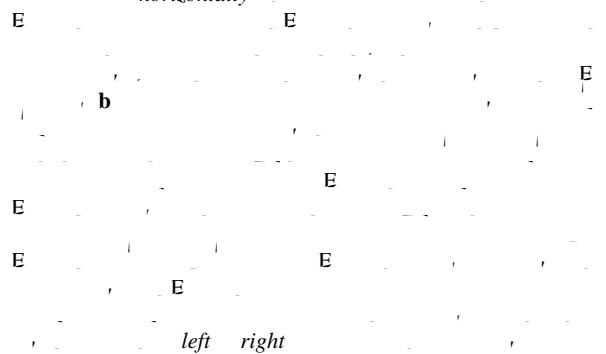
E E E

E

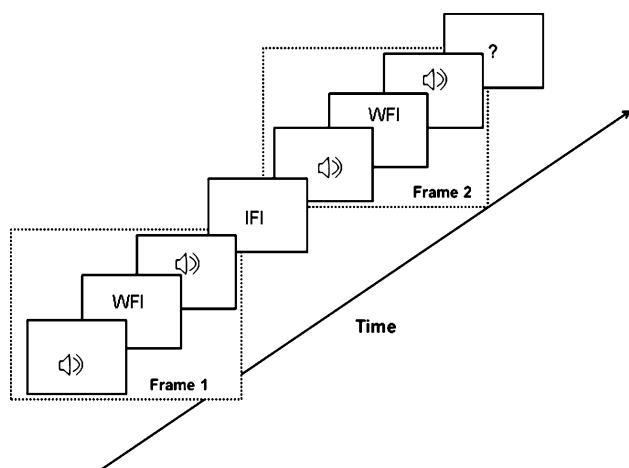
## Methods

**Fig. 2**

E horizontally  
a



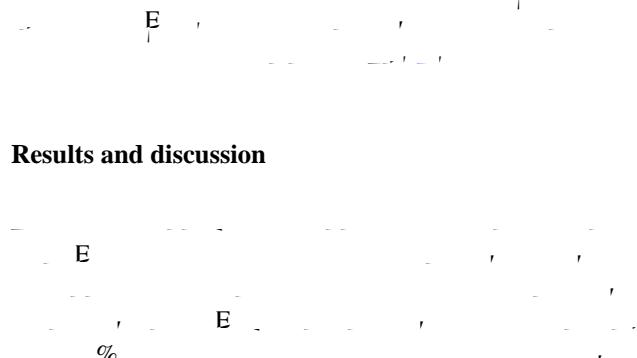
E

**Fig. 3**

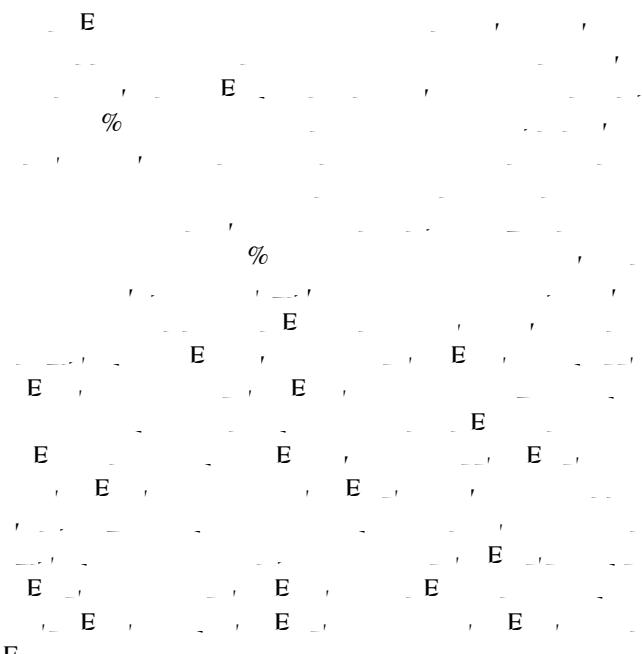
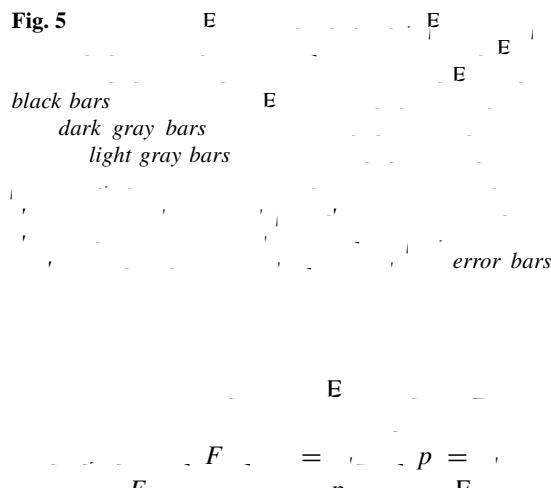
E E

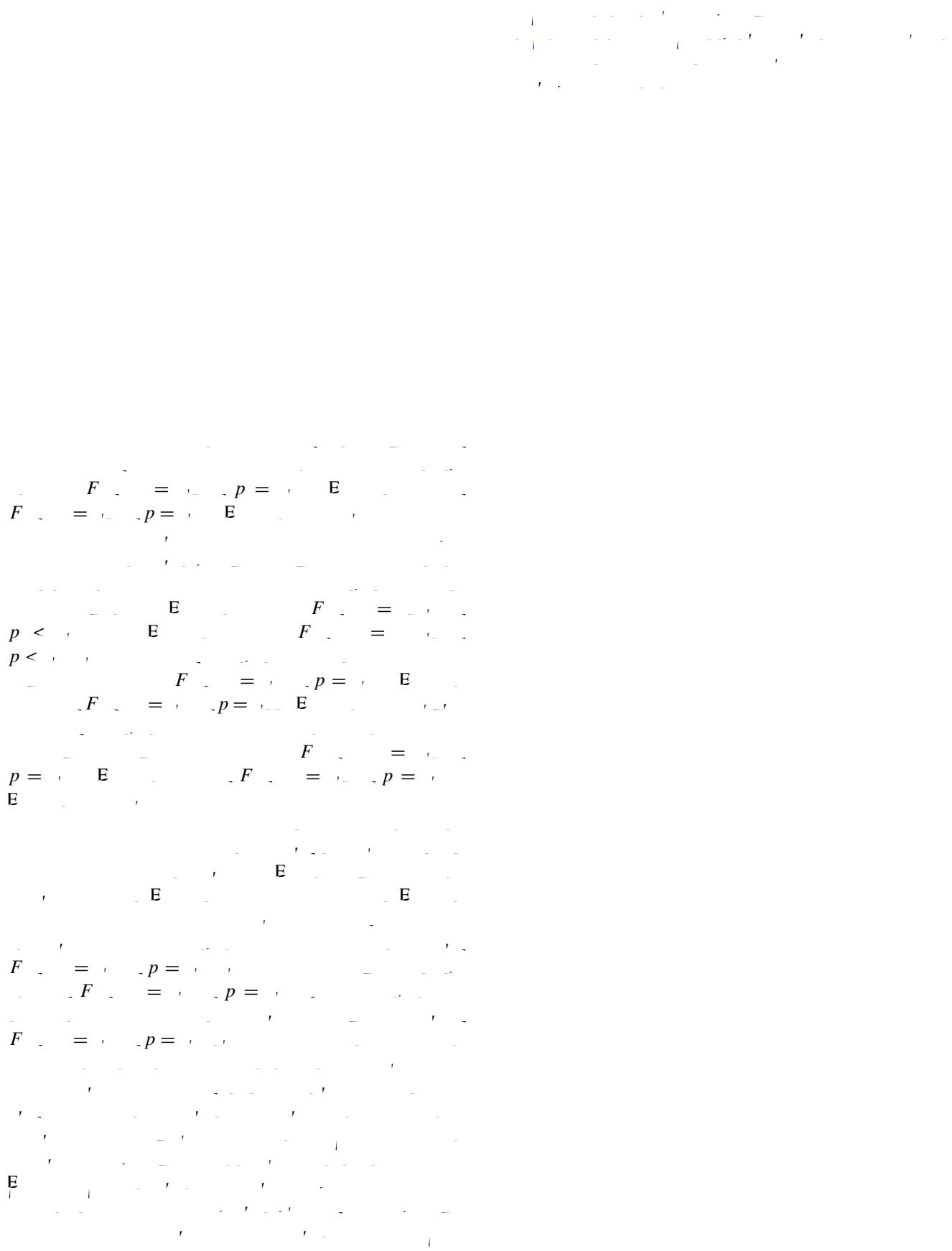
E E

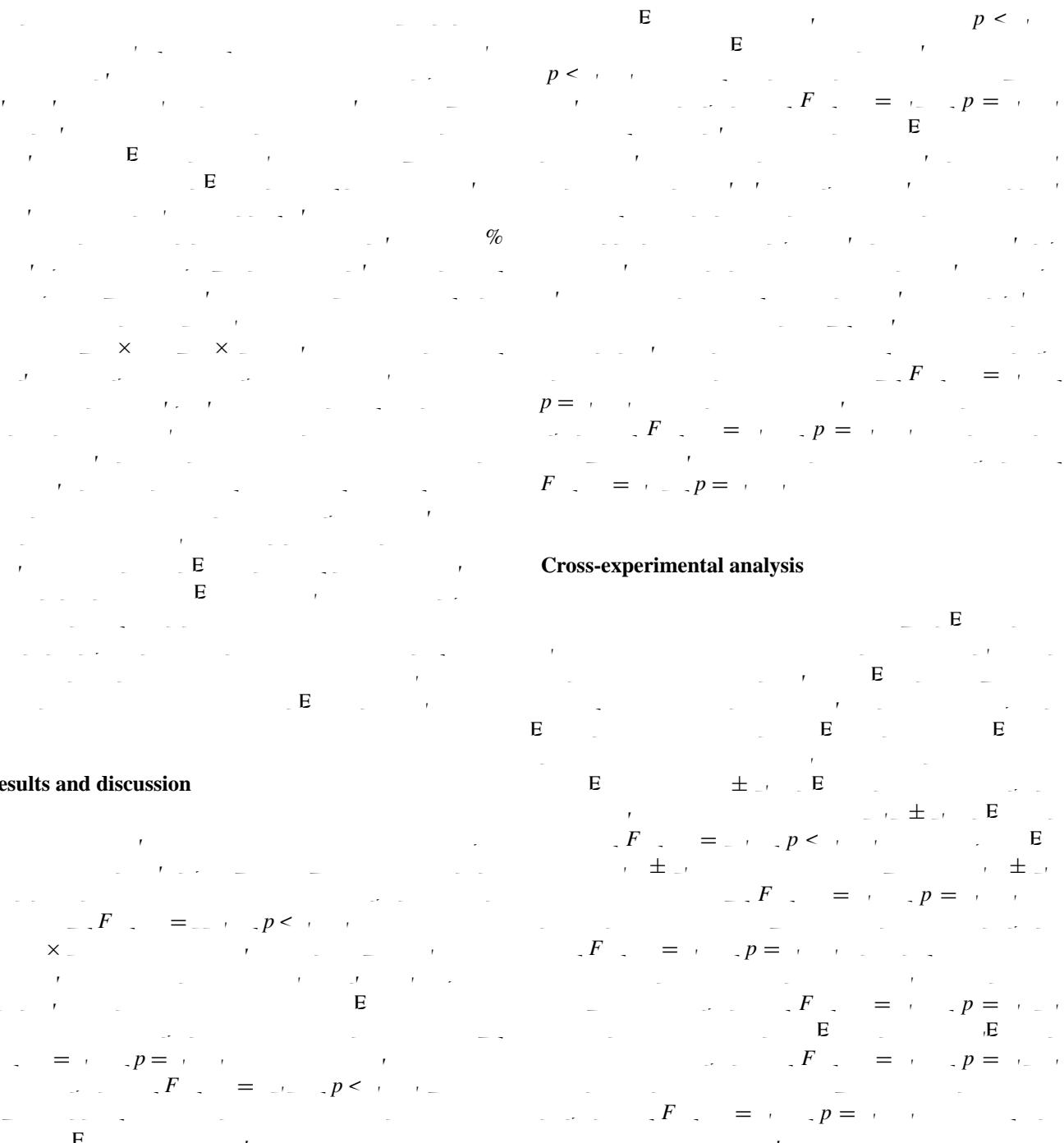
left right

**Fig. 4**

## Results and discussion

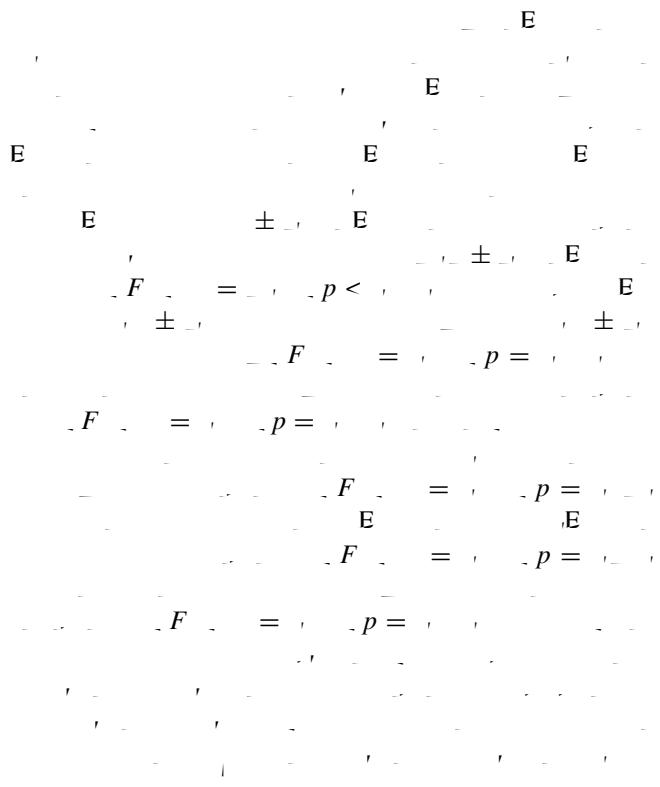
**Fig. 5**





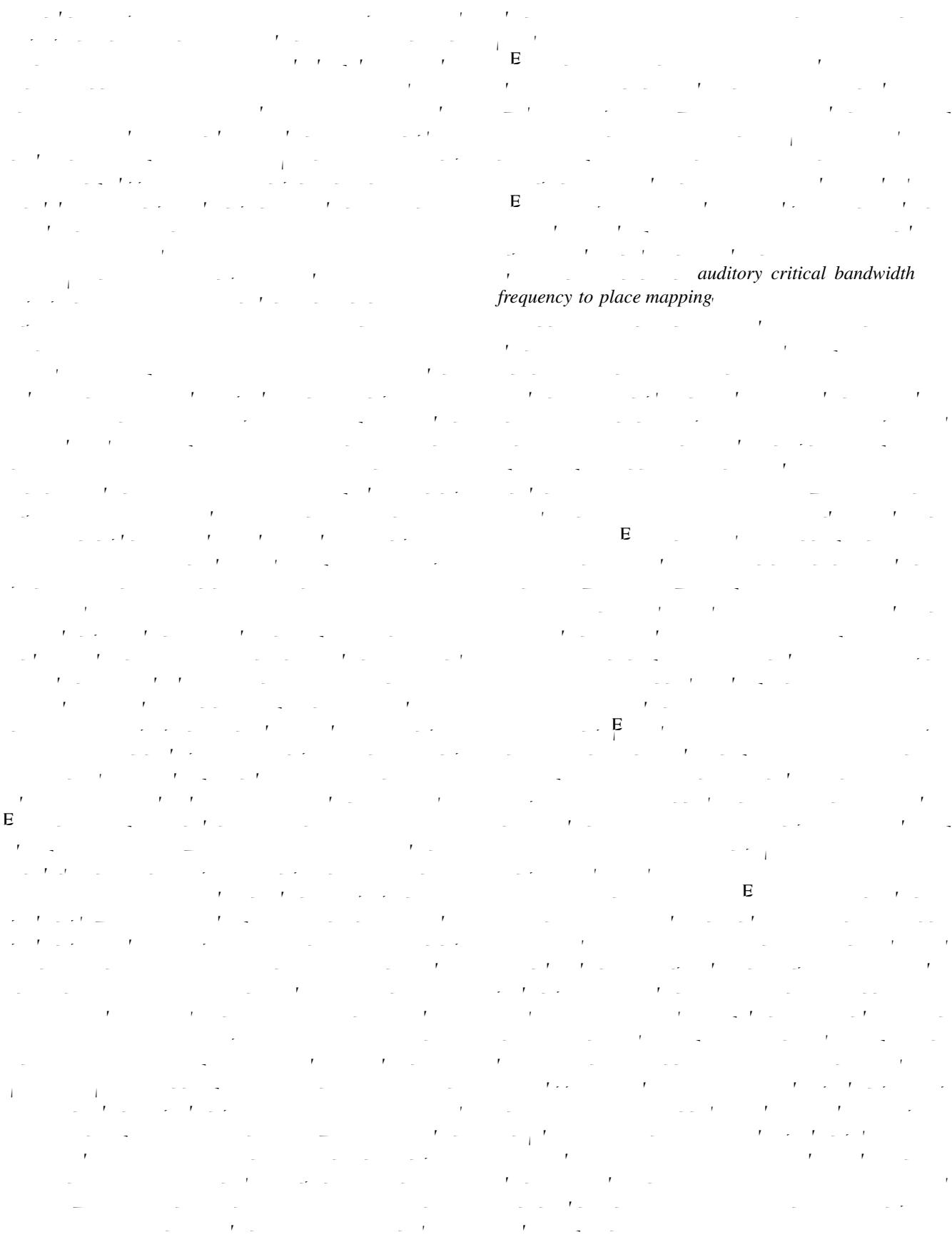
## Results and discussion

### Cross-experimental analysis



## General discussion





auditory critical bandwidth  
frequency to place mapping



