

# CATEGORICAL AND LINGUISTIC ASPECTS OF MUSICAL PITCH SPACE

*Richard Ashley*

School of Music, Northwestern University, Evanston, USA

## Background

Recent years have seen significant amounts of research into the relationship between spatial cognition and language describing spatial phenomena. The relationship of linguistic to nonlinguistic representations of space has been shown to be interesting in both cognitive and developmental ways. These results suggest that similar phenomena may exist in the relationship between music and the spatial language used to describe it.

## Aims

This study investigates the way in which musicians perceive and categorize musical pitch space. It seeks to understand the relationship between more intrinsically musical understandings of pitch height and the linguistic terms and categories used to refer to these musical understandings. Further, it assesses whether musicians' perception of pitch height bears the same relationship to language about music found in the relationship between spatial cognition and language about space.

## Method

Musically trained subjects heard 11 pitches, equally spaced over approximately five octaves, in three different timbres. They categorized each pitch as low, medium low, medium, medium high, or high, and represented the height of the pitch on a line on a computer screen.

## Results

Statistical analysis of the results give several clear results with many implications. Musical pitch space is readily perceived as ordinal, less readily as metric. Ordinal judgments of pitch space are relatively insensitive to changes in timbre. Subjects readily form categories for grouping pitches together into registers. Within categories, subjects' judgments show systematic biases and no ready relationship to a priori linguistic categories for musical register.

## Conclusion

Musicians use language easily to describe musical pitch, but their musical perceptions and the language used to describe them seem to be structured differently.