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Authors

Hong, You Jeong

Choi, Ahyeon

Lee, Chae-Eun

et al.

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Musical Pitch Affects Brightness Judgment of a Concurrent Visual Object

You Jeong Hong

Seoul National University, Seoul, Korea, Republic of

Ahyeon Choi

Seoul National University, Seoul, Korea, Republic of

Chae-Eun Lee

Seoul National University, Seoul, Korea, Republic of

Kyogu Lee

Seoul National University, Seoul, Korea, Republic of

Abstract

Given an apparent prevalence of audio-visual information in everyday lives, understanding how humans perceive this information has gained considerable attention in cognitive science. Previous research has demonstrated that lower (vs. higher) auditory pitch and visual darkness (vs. brightness) are conceptually associated. However, little is known whether pitch level can affect brightness judgment of a concurrent visual object. To examine this, we presented 27 participants with a random sequence composed of both higher- and lower-pitched versions of 40 musical excerpts, during each of which a grey square appeared on a white background screen. At the end of every excerpt, participants judged the brightness of each square on a 7-point scale (I think this square is __; 1= dark, 7= bright). Although participants were told beforehand that the square brightness could be varied across questions, an identical square appeared constantly. A wilcoxon signed-rank test showed that the same grey square was judged darker (vs. brighter) when it was presented with lower-pitched (vs. higher-pitched) music ($Z=-2.931$, $p<0.005$).