Perceptual selection of a musical score during binocular rivalry reported by a relevant action with or without auditory feedback. (284/300 words)

Jiyoung Oh & Chai-Youn Kim
School of Psychology, Korea University, Seoul, Korea

Visual ambiguity might be resolved by an information of other sensory modalities (Deroy et al., 2014). Previously, our group has shown audio-visual interactions when a score was accompanied by a matching melody during binocular rivalry (BR, Lee et al., 2015; Kim et al., 2017). In the present study, we investigated whether perceptual selection of a score during BR is influenced by a relevant action with/without auditory feedback. A musical score scrolling to the left and a vertical grating drifting to the right were presented dichoptically. Participants reported their visual dominance of a score by playing the midi keyboard (piano task) or by indicating the direction of each note stem using a computer key (control task). For the piano task, there were three auditory-feedback conditions: congruent, incongruent, and no-feedback. In the congruent condition, participants heard the sound as they played score dominance. In the incongruent condition, participants heard the 'wrong' sound since a random tone was paired with each key press. In the no-feedback condition and the control task, no auditory-feedback was presented. To normalize each score dominance/suppression duration of the three auditory-feedback conditions during the piano task, we divided it with the individual mean score dominance/suppression duration during the control task. Results showed that the normalized score-dominance durations in the incongruent and no-feedback conditions were shorter than those in the congruent condition ($p<.01$). There was no difference between the incongruent and the no-feedback conditions. For the normalized score-suppression durations, there were no differences across the three auditory-feedback conditions. These results suggest that perceptual selection during BR is influenced by a relevant action in that visual dominance of a musical score decreased when it is reported by piano playing with incorrect or no auditory feedback.

Supported by NRF-2020R1F1A1076336

Primary Topic: Binocular vision – Rivalry and bistability
Secondary Topic: Multisensory processing – Visual-auditory interactions
Methodology/Approach: Behavior Psychophysics
Presentation type: Poster Only
Keywords: music, piano performance, multisensory interaction, visual awareness