

## Processing load in pitch and rhythm notation reflected the discriminatory eye responses

Hyun Ji Kim & Chai-Youn Kim

School of Psychology, Korea University

Reading musical notation requires the process of pitch and rhythmic information simultaneously. Although musical notation, pitch and rhythm, have the dissimilar processing load in terms of their difficulties (Daniele Schön and Mireille Besson., 2001), it has not been explored about the distinction between low and high processing load. The present study examined whether musical score reading modulate eye responses according to the levels of processing load in pitch and rhythm. The processing load were composed by four conditions – tonality-simple-rhythm (tonality SR), tonality-complex-rhythm (tonality CR), atonality-simple-rhythm (atonality SR), and atonality-complex-rhythm (atonality CR). Specifically, high processing load in pitch was composed with *accidentals(atonality)*, and low processing load was composed with no *accidental(tonality)*. For high processing load in rhythm was composed with *16<sup>th</sup> note, syncopation* and *triplet* and were allocated for CR condition. Low processing load in rhythm was composed with *half* and *quarter note* and were allocated for SR condition. All participants(N=35) maintained a fixation cross where the treble clef would appear in the monitor with their heads fixed on a chin rest. After 2000ms, four measures of either tonality-SR, tonality-CR, atonality-SR or atonality-CR score was presented in randomized order and participants were asked to read the score according to the metronome while their eye responses were recorded by the eye tracker (Eyelink-1000, SR Research). We found statistically greater differences in fixation count for pitch and rhythm. However, fixation duration showed no statistically significant difference. Thus, we further scoped specific AOI (area of interest) of fixation count and fixation duration. We found the statistically significant differences of AOI fixation count and fixation duration in rhythm and their interaction. Our results showed that high processing load arouse a greater fixation count and duration in eye responses. These results suggest that the processing load in music can be reflected on the eye responses.