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Sorting excerpts of Western classical music based on perceived similarity.

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Sorting tasks can reveal the underlying intuitive structure of a collection of items, in this case musical excerpts. Sorting tasks can be used to compare experts and non-experts without relying on specialized vocabulary, and they tend not to fatigue participants (Chollet, Valentin, & Abdi, 2014). Here, we used the sorting technique with excerpts from the piano music of Bach, Mozart, and Beethoven. Experiment 1 involved sorting 21 MIDI-generated stimuli. Experiment 2 utilized 36 excerpts from recorded performances of four pianists (Arrau, Barenboim, Pirès, and Richter). Each experiment involved two parts: In Part 1, participants sorted excerpts freely into any number of clusters. In Part 2, participants sorted excerpts into three clusters according to whether a single composer could have written the pieces in the group. We divided participants into three groups based on music training. We investigated the effects of composer, pianist, and music training on sorting. To analyze the data, we applied DiSTATIS (Abdi, Williams, Valentin, & Bennani-Dosse, 2012), a recent adaptation of multi-dimensional scaling specifically adapted to reveal the perceived dissimilarity among items, as well as to investigate group differences. The results showed an effect of composer in both experiments; participants were able to strongly differentiate Mozart's excerpts from Beethoven's, with Bach falling in between those two. In Experiment 2, participants' sorting decisions were strongly influenced by pianists. Richter's performances of the three composers were clustered relatively close to the Mozart region of the solution, indicating their clarity and balance; in contrast, those of Barenboim were clustered in the Beethoven region, indicating their sumptuousness and passion. Experience effects were not strong and the highest and lowest expertise groups were differentiated only in the free sorting task of Experiment 2.