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Synopsis and Response Report of A Microcosm of Musical Expression. I. Quantitative Analysis of Pianists' Timing in the Initial Measures of Chopin's Etude in E Major by Bruno H. Repp

This is the first part of Repp's paper regarding a quantitative analysis of piano performance focusing on timing dynamics. In the introduction, Repp provides a general overview about performance – the numerous parameters and their combinations lead to various possible performances, but only a subset of them that satisfying certain constraints are regarded as actual performance. Repp also discusses judgments of similar/different performance, the choice of timing dynamics, as well as the effect of socio-cultural characteristics. The timing dynamics of 115 piano recordings on Chopin Etude op. 10 No. 3 in E Major are used for the quantitative analysis. Each onset time was retrieved manually, and the onset time of the melody note is counted if asynchronization occurs in the chord. Repp generates a timing profile for each performance as the “finger print” for that performance, which consists of the Inter-Onset-Interval (IOI) between notes. Then, he applies principle component analysis to extract the information about the most typical mixture of timing strategies, and the single most common timing strategy. Repp's four independent strategies are: (1) major ritards at the end of melodic gestures; (2) acceleration within some gestures, without final ritard; (3) extreme lengthening of the initial downbeat; and (4) ritards between, as well as within, melodic gestures. Some interesting and noteworthy discussions are presented in the statistical analysis of the results. For instances, the tempo defined by the IOIs is generally slower than the tempo indication in most Chopin editions; the lengthening of notes at boundaries tendencies clearly articulate the musical structure, consisting mostly of melodic segmentation, and the alternation of melody and accompaniment. Whether independent timing strategies are used simultaneously remains unknown, and individual timing patterns for the same music can change quite significantly over a number of years.

This paper is very well written, arguments are well articulated, and the analysis processes and discussions are clearly presented. The statistical methods are used copiously. Repp simplifies the problem by studying the dynamics of IOIs in the same excerpt from more than one hundred performances, and including other possible variables such as socio-cultural characteristics in discussion. It seems to me that in this paper, Repp focuses on finding the patterns of similar/different performances, as well as the reasons behind the patterns, by measuring the timing dynamics. Some of the four suggested timing strategies also appear in other works. Using principal component analysis (PCA) is a good way to extract the salient types of performances, but I doubt its suitability for explaining performance in terms of the generative components. After reading this paper, I am looking forward to reading its second part.