Some Observations on the Analysis of Four Performances of the Allemande from J.S. Bach's Partita for Solo Flute (BWV 1013) in Terms of Zipf's Law

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Abstract : The Allemande from J. S. Bach's Partita for solo flute (BWV 1013) presents many unique challenges for any flautist, especially in terms of segmentation analysis required to select breathing places in the first half. Without claiming to identify a 'correct' solution to this problem, this paper analyzes the section in terms of a set of techniques based around a statistical property commonly (if not ubiquitously) found in music, namely Zipf's law. Specifically, the paper considers violations of this expected profile at various levels of analysis, an approach which has yielded interesting insights in previous studies. The investigation is then grounded by considering four actual solutions to the problem found in recordings made by different flautists, which opens up the possibility of expanding Zipfian analysis to include a consideration of inter-onset-intervals (IOIs). It is found that significant deviations from the expected Zipfian distributions can reveal and highlight stylistic choices made by different performers.

Keywords : inter-onset-interval, Partita for solo flute, BWV 1013, segmentation analysis, Zipf's law
Conference Title : ICIM 2018 : International Conference on Interdisciplinary Musicology
Conference Location : Montreal, Canada
Conference Dates : May 24-25, 2018