

THE DYNAMIC MODEL OF INTONATION: A STUDY OF MICROTONAL INTONATION IN PERFORMANCES OF THE SONATA *HORA LUNGĂ* FOR VIOLA SOLO BY GEORGY LIGETI

Karlina Īvāne

Summary

Intonation is one of the most important aspects of performance for singers and instrumentalists who play non-fixed pitch instruments. There are different mathematical systems of tunings – Pythagorean, just and equally tempered (which is now also a standard tuning). None of these systems are perfect, but all of them could be used, as some teachers and instrumentalists are suggesting, for different musical purposes.

At the end of the 19th century, it became possible to measure the precision of intonation in performances, using an appropriate apparatus. Since then we have gained much knowledge about the tendencies of intonation in performance. Now it is clear that no one plays or sings precisely in some mathematical system. There are always deviations from the target. It is, for instance, common to stretch larger intervals and contract intervals smaller than a fourth. Additionally, performers normally play higher than the equally tempered standard (but only after 3–4 years of musical training), however, the actual intonation seems to be more similar to equally tempered tuning than other systems.

Polish researcher Janina Fyk regarded these deviations from equal temperament and modifications in interval sizes as proof of creative intonation and as an important element of music expression and concluded that:

“This dynamic model of intonation explodes the beautiful myth about the unchanging, universal model of intonational correctness, the myth of ideal intonation” (Fyk 1995: 223).

Most intonation studies have been performed on music written for an equally tempered standard. Very little research has addressed microtonal intonation, and the results cannot give a definite answer regarding tendencies. However, it seems to be virtually clear that microtonal intonation has dynamics as well.

With the aim to confirm the fact of dynamics of microtonal intonation in performance and to gain deeper insights into its tendencies, I conducted a study. For my analysis, I chose Georgy Ligeti's *Hora lungă* for viola solo because there was a sufficient number of recordings in CD format and available on *YouTube* – a total of 16 recordings.

I analysed every B3↓ pitch (which means the pitch is lowered by 49 cents or approximately one quartertone) in each of the sixteen

performances, or twenty two pitches in each performance. I used the *Praat* software for frequency analysis.

The results confirmed that there are dynamics of intonation in the performance of microtonal music and that the range of deviation is quite large, also within one performance. It was possible to see the tendency to play higher than the target, like in standard equally tempered music. However, often within the same performance, including studio recordings, there were also pitches which were performed lower than the standard, thus it can be concluded that the acceptable range of variation of microtone is quite large for musicians. In my next study I plan to investigate whether the large variation of microtonal pitches in one performance is casual or is due to musical context, melody direction or tempo.

Literatūra un citi avoti

1. Literatūra un interneta resursi

Blums, David (1977). *Casals and the Art of Interpretation*. London: Heinemann

Brown, Rebekah Ann (1996). *Dynamics of Intonation in Performances by Artist Violinists*. Doctoral dissertation. Indiana University

Cummings, Cristopher Paul (2007). *The Effects of Instrument Type, Stimulus Timbre, and Harmonic Context on Tuning Accuracy*. Doctoral dissertation. University of Oregon

Duke, Robert A. (1985). Wind instrumentalists' intonational performance of selected musical intervals. *Journal of Research in Music Education* 33, pp. 101–111

Duffin, Ross W. (2007). *How Equal Temperament Ruined Harmony (and Why You Should Care)*. New York: W.W. Norton & Company

Fyk, Janina (1995). *Melodic Intonation: Psychoacoustics, and the Violin*. Zielona Gora: Organon

Garbuzov, Nikolai (1948) = Николай Гарбузов (1948). *Зонная природа звуковысотного слуха* [Skaņaugstumu dzirdes zonālais raksturs]. Москва-Ленинград: Издательство Академии наук СССР

Geller, Doris (1997). *Praktische Intonationslehre für Instrumentalisten und Sänger*. Kassel u. a.: Bärenreiter

Greene, Paul C. (1937). Violin intonation. *Journal of the Acoustic Society of America* 9, pp. 43–44

Ivane, Karlina (2014). Study of performance and perception of microintervals in Gyorgy Ligeti's *Hora lunga*. In: *Conference*