

Intervallic Ratios as Keys for the Harmonic Texture Development in György Ligeti's *Melodien*

Annotation

The subject of this article falls within my musicological research on the contemporary period and is focused on the exploration of micropolyphonic methods which György Ligeti applied to a number of his orchestral works to generate various, previously unheard, interactive harmonic textures.

Although the aesthetic trajectory Ligeti follows is differentiated from those of 'pure' sonoristic composers such as Penderecki, Lachenmann, Sciarrino, his micropolyphonically constructed textures often create sonoristic environments based not on timbral, but mostly on pitch material. Various pitch series and intervallic ratios are often used as starting points for the generation of multi-layer canonic textures and imitative passages. Both the horizontal (melodic) and the vertical (harmonic) organisation of the pitch material form structures, which consist of linear sonic events, which in turn consist of multiple interactive, polyrhythmic gestures.

The orchestral work *Melodien* is not an exception from the above aesthetic direction. This article will attempt to present the principles applied by Ligeti in order to explore the sonoristic perspective of "Ligetiian" micropolyphonic sound clouds.

In particular, through *Melodien*, this article will focus on:

- how Ligeti's micropolyphonic techniques result in a variety of sonoristic textures;
- why Ligeti is usually placed among other sonoristic composers, even without using many instrument extended techniques;
- how the above techniques are applied to the orchestral work *Melodien*, the interaction between various types of Ligeti's harmonic surfaces, based on the juxtaposition and the densities of horizontal and vertical intervallic sonorities;
- a structural, textural and timbral synopsis of the above work.

Keywords: Ligeti, *Melodien*, micropolyphony, sonoristic harmony, harmonic texture, contemporary orchestral music.

1. The sonoristic element in Ligeti's language – micropolyphony

Previous literature on sonorism shows a variety of approaches to texture development, with timbre to be the centre of many composers' artistic interests.¹ Researcher Dr. Danuta Mirka describes sonorism as the exploration of pure sound values of the music material and characterises Krzysztof Penderecki's music as the earliest and most important manifestation.² From Penderecki and his contemporaries to the most recent generation such as Salvatore Sciarrino and Helmut Lachenmann, the exploration of timbre dominates almost every other parameter regarding the organisation of the music material. Looking back at the works by composers who set the foundation of what we currently call "sonorism", and taking into consideration that Ligeti uses extended instrumental techniques only occasionally (such as the "breath-tone passage" at his *Atmospheres*), one would reasonably wonder "what is the relation of Ligeti's compositional language and the one developed by the above group of composers?" The most possible key answer to the argument set above lies within the fact that Ligeti applied during the late 1950s and 1960s his unique, revolutionary and conventional approach to texture, based more on the timbral approach of harmony and less on the timbre itself. Jonathan Bernard, in his article "Inaudible Structures, Audible Music: Ligeti's Problem and its Solution", cites the composer's own words on the vertical thought for the works *Atmospheres* and *Lontano*:

"Technically speaking, I have always approached musical texture through part-writing. Both *Atmospheres* and *Lontano* have a dense canonic structure. But you cannot actually hear the polyphony, the canon. You hear kind of impenetrable texture, something like a very densely woven cobweb... The polyphonic structure does not come through, you cannot hear it, it remains hidden in a microscopic, underwater world, to us inaudible."³

During the second half of the last century, not only Ligeti but also an important number of European composers chose not to follow the integral serial thought and the aleatorism, but to establish a previously unheard style based on harmonic sonorities and the fluctuation of their densities. Penderecki, Lutoslawski, Xenakis and Ligeti, each of them following different principles, attempted the most significant approaches to the above aesthetic direction. Ligeti, opposed John Cage's aesthetic of "happening", moves toward a sense of

¹ *Sonoristics, sonorism* [Online]. Available: <http://www.oxfordmusiconline.com/subscriber/article/grove/music/2061689>.

² Mirka, Danuta (1997). *The Sonoristic Structuralism of Krzysztof Penderecki*. Katowice, Poland, Music Academy, p. 7–16.

³ Bernard, Jonathan (1987). Inaudible Structures, Audible Music: Ligeti's Problem, and His Solution. *Music Analysis*, Vol. 6, 207–236, p. 208–210.

flexibility in pitch and rhythm. Ligeti evolves his technique based on interwoven chromatic masses which often result in the obscuration of sound components.⁴ Undoubtedly, micropolyphony has been the most powerful tool for Ligeti to achieve a balance between timbre and the function of harmony. The form organisation often consists of successions of sonoristic events.⁵ Most of Ligeti's micropolyphonic textures consist of two levels: the outer-audible and the inner-inaudible. More specifically, the orchestral works *Apparitions* (1958–1959), *Atmospheres* (1961), *Lontano* (1967), *Melodien* (1971) and San Francisco Polyphony (1973–1974) explore the form of “moving clusters”⁶, which, because of their micropolyphonic structure, give a sense of internal motion.⁷ Hence, Ligeti chose not to destroy the Harmony but to cultivate a new style which sounds more as a sonority and less as a functional chord-sequence.⁸

1.1. The role of intervals

A few years after the creation of the major works which deal with what contributors describe as “sound masses”, Ligeti seems to aim to the rebirth of the intervals, which ten years earlier was abandoned. According to Ligeti:

“I disrupted the intervals: that is to say, I inserted so many minor seconds that even the minor seconds or the chromaticism disappeared in the harmonic sense.”⁹

Both Elliot Antokoletz and Paul Griffiths indicate that both static and canonic rules, which dominate Ligeti's major micropolyphonic works, result in the obscuration of the individual sound components¹⁰ and create several types of textures based on harmonies which do not change suddenly or successively, but they merge into one another.¹¹ Here, the specific, predominant arrangement of melodic and harmonic intervals play a fundamental role to determine the course of the music and the development of the form.¹²

2. *Melodien* – a structural and textural synopsis of the work

Melodien was composed in 1971, a few years later than *Lontano*, and three years before San Francisco Polyphony, the composer's last orchestral work. At this point one should underline that the orchestral works composed between 1958 and 1974 are some of the most representative examples which established Ligeti's micropolyphonic compositional language worldwide. According to Mike Searby and his article “Ligeti, the postmodernist?”, *Melodien* and *Chamber Concerto* are representative examples of the shift the composer gave towards melodic writing. While the traditional compositional means are almost destroyed by the majority of the composers during the 1960's, Ligeti dares to touch the “forbidden fruit” of modern music, which is the melodic shaping.¹³ Hence, forty-five years later, Ligeti's compositional methodology may answer to the composer George Dyson's concern regarding the melodic element in modern music's texture development.¹⁴ *Melodien* can be characterised as the composer's “pivot work”, which gradually change from the harmonic mass anonymity the individualism of multiple melodies¹⁵, to conclude a few years later setting the micropolyphonic thought on a triadic base.

The overall structure of *Melodien* can be described as a simple three-part form, not very distant from the sonata form of the classic era. The work consists of an Exposition part with two basic ideas (the modal gestures and the unfolding melodic lines respectively), an Elaboration part (compressions-expansions of harmonic material), a Recapitulation part and a Coda.

⁴ Antokoletz, Elliot (1992). *Twentieth-century music*, Englewood Cliffs, N.J., Prentice Hall, p. 490–497.

⁵ As mentioned by Bernard (1987: 208–210).

⁶ Morgan, Robert (1991). *Twentieth-century music: a history of musical style in modern Europe and America*, New York, Norton, p. 389.

⁷ As mentioned by Morgan (1991: 389).

⁸ Plaistow, Stephen (1974). Ligeti's Recent Music. *The Musical Times*, Vol. 115, 379–381, p. 379–380.

⁹ Bernard, Jonathan (1999). Ligeti's Restoration of Interval and Its Significance for His Later Works. *Music Theory Spectrum*, Vol. 21, 1–31, p. 379–380.

¹⁰ As mentioned by Antokoletz (1992: 490–497).

¹¹ Griffiths, Paul (2010). *Modern music and after* [Online]. New York: Oxford University Press. Available: <http://public.eblib.com/EBLPublic/PublicView.do?ptiID=716676>.

¹² *Ibid.*

¹³ Searby, Mike (1997). Ligeti the Postmodernist? *Tempo*, Vol. 119, 9–14, p. 9–11.

¹⁴ Dyson, George (1923). The Texture of Modern Music. *Music & Letters*, 4, 107–118, p. 108.

¹⁵ Steinz, Richard (2003). *György Ligeti: Music of the Imagination*. Boston, Northeastern University Press, p. 179–180.

2.1. Exposition part

The expressive opening of *Melodien* (bars 1–10) is based on a moving cluster, formed by upward, quasi-modal melodic gestures, which are performed by all instruments except Violoncello and Contrabass. These gestures, described as superimposed waves¹⁶, do not form an audible counterpoint, but they do generate a complex interweaving texture, which consists of a solid amalgamation of horizontal and vertical major and minor seconds.¹⁷ Macro-structurally, a sequence of pitches was used as starting points for each of the gestures. Those pitches also form a modal, ascending background and control the whole cluster's direction. Here, one could agree with composer Bruce Reiprich who underlines that each of Ligeti's layers are not totally independent but often merge with the preceding and the succeeding ones to sound like "organic continuations."¹⁸ Figure 1 illustrates the pitches used as starting points for each of the layers of *Melodien*. This skeleton consists of small intervals, which cover a range from a minor second to a perfect fourth. At this point, it should be underlined that Ligeti uses traditional and conventional ways (i.e. part writing) which are almost inaudible. On the contrary, what reach the audience's ears are sequences of pure sonorities.

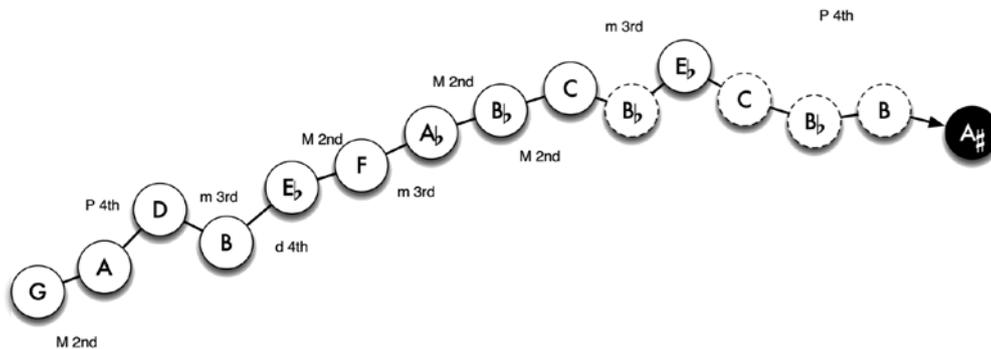


Fig. 1. Table of pitches

The second main idea of the work is set at bars 11–45. Contrary to the first part, here, Ligeti applies a technique which can be found in most of his major micropolyphonic works, the gradual unfolding of a single or various melodic lines. In particular, during the second part of *Melodien* (bars 14–29), a melody is gradually unfolded by the flute, the celesta, the xylophone and the violin. Figure 2 shows the first 4 (out of 57) steps of the expansion of the melodic material:



Fig. 2. Unfolding melody

Each instrument enters irregularly and each written part consists of different rhythmical sub-divisions.¹⁹ More specifically, the main melody unfolded by the flute is based on quintuplets. Similarly, the celesta, the xylophone and the violin parts are rhythmically based on septuplets, hexuplets and upbeat quavers respectively. The remarkable point of the above passage is the rhythmical asymmetries and irregularities Ligeti used to place vertically the four forms of the above melodies. The overlapping tuplets generate a micropolyphonic rhythmical effect during which the gradually unfolded material produces every possible harmonic interval. The parameter of rhythm always played an important role to the sonoristic development of Ligetian harmonic surfaces and *Melodien* is an important work based on the balance between the melodic line and the rhythmical

¹⁶ As mentioned in Steintz (2003: 179–180).

¹⁷ As mentioned in Searby (1997: 9–11).

¹⁸ Reiprich, Bruce (1978). Transformation of Coloration and Density in György Ligeti's *Lontano*. *Perspectives of New Music*, Vol. 16, 167–180, p. 167–168.

¹⁹ See also Bernard (1999: 379–380).

movement. Most of the micropolyphonic/polyrhythmic textures results in non static sonorities characterised by an inner motion which consists of multiple melodic and harmonic layers. Hence, the outcome of the above procedures often results in complicated harmonic, melodic and rhythmical sonorities. At this point, it should be mentioned that the opening of the third movement of the *Chamber Concerto* (1969–1970) can be considered as one more of the most representative examples regarding the poly-rhythmical element in Ligeti’s micropolyphonic style.

2.2. Elaboration part

Bars 46–112 can be characterised as the main Elaboration part of the work. The music material is organised in three and four part chords, which were developed through various gradual intervallic compressions and expansions. Structurally, the middle part of *Melodien* consists of three developmental sections which are linked with two contrasting episodes. In particular, the first chord expansion takes place from bar 46 to 56. There, an arpeggiated chord (initially performed by the vibraphone, the piano and the violoncello) covers a range of an augmented fourth (pitches F–B). Gradually, as it is expanded to a compound minor third (reaching the extreme ends of the orchestral range), it is performed by almost the whole ensemble. The second expansion of the chordal material covers bars 70 to 95. During this section, Ligeti compresses the even more the initial range to a major second (vibraphone: pitches B–C#) to reach again the whole orchestral range in Bar 90). The third and last chordal passage lies between bars 107–112. Contrary to the two previous sections, during the above particular bars, there is no gradual opening of the range. The music material is directly presented in its fully expanded version and covers most of the strings’ range (interval of a compound minor third). At this point, it is necessary to highlight that the two episodes, which link the three distinct developmental sections described above, appear totally incorporated to the Elaboration part. Although these sections are distinct, they provide a smooth textural passing from the one developmental core to the other.

2.3. Recapitulation and coda

Bar 113 marks the beginning of the Recapitulation part, where the modal upward gestures return. All the instruments of the orchestra re-perform quasi-modal scales, constructed by various sequences of major and minor thirds. Hence, likewise the very beginning, the “moving cluster” texture is regenerated, bringing back the initial idea of the “superimposed waves”.

Finally, bars 136 to the end can be titled as the “Coda” of the work, where a complete dematerialisation of the texture is achieved. Both the melodic and the harmonic canvases (Exposition/Recapitulation and Elaboration parts respectively) fade into a harmonic surface which is gradually dissipated by removing instruments, until only the two violins and the contrabass remain at bars 149–150 to perform a compound minor second interval. At this point, it should be noted that, by making the interval of minor second compound and by placing it to the two extreme ends of the orchestral range, Ligeti dematerialises maybe the most important interval which form his clusteroid textures. Figure 3 illustrates the overall structural plan of the work:

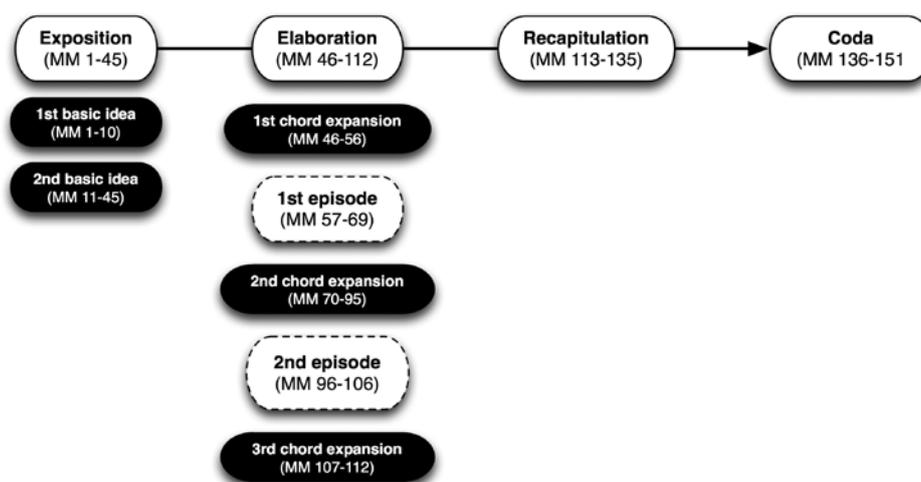


Fig. 3. Structural plan

In summary, this article aims to offer an alternative view of the sonoristic style, which has been developing from the 1950s until the present. In contrast with his contemporaries, Ligeti's artistic research does not involve timbre exploration of individual instruments, but focuses on generating harmonic surfaces which results in massive sonoristic effects. By using harmony more as unified timbre and less as tonal relationships between chords, Ligeti employs the traditional orchestral sound to raise his artistic voice in a period, where, the use of the majority of traditional sounds has been discouraged. In terms of the culmination of his micropolyphonic personal style, *Melodien* is undoubtedly one of Ligeti's orchestral masterpieces. It would not be unreasonable to consider *Melodien* as an opening to the composer's last artistic period, focused on the triadic organisation of his main music material.²⁰

Bibliography

- Sonoristics, sonorism [Online]. Available: <http://www.oxfordmusiconline.com/subscriber/article/grove/music/2061689>.
- Antokoletz, Elliot (1992). *Twentieth-century music*. Englewood Cliffs, N.J., Prentice Hall.
- Bernard, Jonathan (1987). Inaudible Structures, Audible Music: Ligeti's Problem and His Solution. *Music Analysis*, Vol. 6, 207–236.
- Bernard, Jonathan (1999). Ligeti's Restoration of Interval and Its Significance for His Later Works. *Music Theory Spectrum*, Vol. 21, 1–31.
- Drott, Eric (2003). The Role of Triadic Harmony in Ligeti's Recent Music. *Music Analysis*, Vol. 22, 283–314.
- Dyson, George (1923). The Texture of Modern Music. *Music & Letters*, 4, 107–118.
- Griffiths, Paul (2010). Modern music and after [Online]. New York: Oxford University Press. Available: <http://public.eblib.com/EBLPublic/PublicView.do?ptiID=716676>.
- Mirka, Danuta (1997). *The Sonoristic structuralism of Krzysztof Penderecki*. Katowice, Poland, Music Academy.
- Morgan, Robert (1991). *Twentieth-Century Music: A History of Musical Style in Modern Europe and America*. New York, Norton.
- Plaistow, Stephen (1974). Ligeti's Recent Music. *The Musical Times*, Vol. 115, 379–381.
- Reiprich, Bruce (1978). Transformation of Coloration and Density in György Ligeti's Lontano. *Perspectives of New Music*, Vol. 16, 167–180.
- Searby, Mike (1997). Ligeti the Postmodernist? *Tempo*, Vol. 119, 9–14.
- Steinz, Richard (2003). *György Ligeti: Music of the Imagination*. Boston, Northeastern University Press.

Intervaliniai santykiai kaip raktas į harmoninės faktūros plėtotę György Ligeti kūrinys „Melodien“

Santrauka

Šio straipsnio tema tiesiogiai susijusi su mano muzikologinio tyrimo sritimi ir jo pagrindiniu objektu – šiuolaikinės muzikos epocha ir konkrečiai György Ligeti mikropolifoniniais metodais, kuriuos jis taikė savo kūriniuose orkestrui, mėgindamas išgauti įvairias, negirdėtas, interaktyvias harmonines faktūras.

Nors G. Ligeti estetinė trajektorija skiriasi nuo „grynąją“ sonoristinę muziką kūrusių kompozitorių, tokių kaip Krzysztof Penderecki, Helmutas Lachenmannas ar Salvatore Sciarrino, jo mikropolifoniškai sukonstruotos faktūros neretai virsta sonoristinėmis terpėmis, kuriose vyrauja ne tembrinė, bet daugiausia garso aukščių santykiais grįsta medžiaga. Įvairios garsų serijos ir santykiai tarp garso aukščių (intervalai) čia dažnai tampa išieities tašku generuojant kanono technika ir imitacijomis grįstas daugiasluoksnes faktūras. Tiek horizontalus (melodinis), tiek vertikalus (harmoninis) garsų organizavimas gimdo struktūras, sudarytas iš linijinių garsinių įvykių, kuriuos savo ruožtu sudaro daugybė interaktyvių poliritminių judesių.

Kompozicija „Melodien“ orkestrui kaip tik ir yra tokios estetiškos krypties pavyzdys. Straipsnyje aptariami Ligeti taikomi principai, atskleidžiamas „ligetiškų“ mikropolifoninių garso debesų sonoristinis pobūdis.

Straipsnyje iškeliamas alternatyvus požiūris į sonoristinių stilių, kuris formavosi nuo XX a. 6-ojo dešimtmečio iki šių dienų. Kitaip negu jo amžininkai, Ligeti savo kūriniuose neeksperimentavo su skirtingų instrumentų tembrais, bet dėmesį telkė į harmoninių paviršių generavimą, sukurtą didžiulių sonoristinių masių efektą. Harmoniją traktuodamas labiau kaip unifikotą tembrą nei tonaciniais ryšiais susijusių akordų visumą, savo kūrybinių sumanymų išraiškai Ligeti pasitelkė tradicinį orkestro skambesį tuo laikotarpiu, kai dauguma tradicinių tembrų ir garso išgavimo būdų tapo nebepopuliari. Kalbant apie Ligeti mikropolifoninio stiliaus apogėjų, „Melodien“ neabejotinai gali būti laikomas vienu iš jo orkestrinės muzikos šedevrų. Nesuklystume šį kūrinių pavadinami ir etapiniu, atveriančiu paskutinį jo kūrybos laikotarpį, kuriame kompozitorius gilinosi į muzikinę medžiagos formavimą iš trigarsių.

Reikšminiai žodžiai: Ligeti, „Melodien“, mikropolifonija, sonoristinė harmonija, harmoninė faktūra, šiuolaikinė orkestrinė muzika.

²⁰ See also: Drott, Eric (2003). The Role of Triadic Harmony in Ligeti's Recent Music. *Music Analysis*, Vol. 22, 283–314.