


# **Microtonal Music in Central and Eastern Europe**

**Historical Outlines and Current Practices**

Edited by  
Leon Stefanija and Rūta Stanevičiūtė

# Microtonal Music in Central and Eastern Europe Historical Outlines and Current Practices

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## Preface

Western art is accustomed to novelties. New musical styles must cope with the expectations of the different, the unheard, the unexpected, the unimagined or unimaginable, of the inexperienced, the unique, the different, the authentic, even of the incommensurable. The novelty-oriented culture is somehow “self-evident” in spite of the voices that question it. The novelty—the production of an other—is a “must” of our everyday life even in the arts.

However, strong attachment to tradition, pragmatic links to different “futures pasts,” to paraphrase Koselleck’s idea of conceptual histor(iograph)y, tend to take our attention away from the fact that there are but a number of re-evaluations of certain values that fill up the history of Western music and that the ideas of revolution, avant-garde, progressivism, modernism and the like are but handy, pragmatic tricks. The notorious difference between revolution and evolution in which Arnold Schoenberg found the difference very handy is not a difference of opposing substantial concepts but of cultural complementarity: the Expressionism of the *fin de siècle* grew into a variegated, heterogeneous and heteronomous set of phenomena by the 1930s—there is hardly any doubt about its colorful existence in the era of the video and gaming-loving culture. Moreover, if Expressionism was a “deepening” of the artistic endeavors fundamental to Impressionism, we should differentiate the pragmatic breaks between the “knuckles” of the long historical tail connecting different modernisms throughout music history with mimetic theory.

Leaving the historical perspective aside for a moment, we would like to emphasize five fundamental joints or “waves” as crucial for today’s music culture: 1) Impressionism paved the way for folk-music-oriented imagery, 2) Expressionism elevated the “freedom of expression,” 3) electroacoustic music offered amplification of expression of different kinds, 4) Neoclassicism stimulated “New Age” realism as well as the rituals of the middle-class, while 5) popular music (in its widest sense) encouraged heterogeneous musical idioms empowering the DIY (do-it-yourself) culture. The five indicated phenomena may be understood as the musical analogy to what Matei Calinescu epitomized as the faces of modernity in twentieth-century literature: these concepts coexist today on different levels of different musical practices. Microtonality is certainly one of them.

Microtonality is usually addressed as one of the “technical” aspects of modern musical production and reproduction, although it has a fairly longer history within modern-age music theory as well as ethnomusicological research practices. We believe that microtonality is one of the fundamental change-indicating concepts in Western music history. The search for the new brought about a break in the tonal system, and microtonality is the central aesthetic, theoretical, and perceptual concept: it has been advocated as being the further differentiation of the tonal system that may offer highly elaborated—highly differentiated—poetic idea(l)s. Besides, microtonality is a common issue in folk music, Expressionism, electro-acoustic music, and the contemporary DIY music culture as well as in the New Age culture, music in the world of smart technologies, and sound art. All these “waves” of modern music practices include microtonality as common topic.

This collective monograph focuses on the development of microtonal music in Eastern and Central Europe from World War I to the present. The authors examine how diverse concepts of microtonality have given way to new composition theories and practices. These scholars hold the view that even between WWI and WWII, microtonal music and its theoretical reflection was the outstanding contribution of Eastern and East-Central European composers to the contemporary discourse of avant-garde music. That provoked radical changes in the composition and performance practice of new music and affected several generations, sustaining and transforming early avant-garde insights.

The volume is organized into four section topics. Throughout the book, our contributors explore the interactions of Central/Eastern European and Western music and musicians as creative forces that illuminated cross-cultural exchange. The first two sections address the issue of current microtonal trends in both composition and performance, presenting analytical studies and composers’ reflections on their practice. The section “Microtonality Versus Microchromatics: Concepts and Contexts” begins with the chapter by Lidia Ader that encompasses a broad interdisciplinary context from which early twentieth-century microtonal music evolved. The overview of the contemporary microtonal composition practices in Slovenia, Lithuania, Serbia, and Latvia is continued in the chapters of this section by Leon Stefanija, Rima Povilionienė, Miloš Zatkalik, and Simas Sapiega, combining historical and philosophical approaches with analytical study. The second section, “Contemporary Practice of Composing and Performing of Music with Microintervals,” provides composers’ own reflections on aesthetic orientations and microtonal compositional techniques presented in the chapters by Agustín Castilla-Ávila (Austria), Zoran Šćekić (Croatia), Rytis Mažulis (Lithuania), and Tomaž Svete (Slovenia).

The third and fourth sections focus on a historical exploration of early microtonality in Central and Eastern Europe: the ekmelic movement and Alois Hába's microtonal music school and its international reception. In the section "The History of Microtonal Music in Central and Eastern Europe: Alois Hába and His School" Vlasta Reittererová and Lubomír Spurný discuss the historical role of Alois Hába as a leading protagonist of the Central European interwar avant-garde that moved between Vienna, Berlin, and Prague. The following chapter of the third section by Rūta Stanevičiūtė examines Hába's creative impulses that laid the foundations for the modernization of music beyond the great centers of new music in Europe by exploring the beginnings of microtonal music in Lithuania. The fourth section ("Ekmelic Music") offers two articles by Franz Richter Herf—the founder of the concept of ekmelic music—and his co-authors, presenting an important source of knowledge on the twentieth-century transformation of microtonality.

This volume is a testimony to a watershed in research on the history of the microtonal music of East-Central and Eastern European countries. Taken together, the collection presents new research as well as some testimonies on a rich and varied theories and practices of microtonal music in Czechia, Slovenia, Croatia, Serbia, Russia, Lithuania, Latvia, and Austria. A wide-ranging collection of studies is a nice opportunity to share information on microtonality from the involved countries with the international scholarly community. Namely, the contributors explore the interactions of Central/Eastern European and Western music and musicians as creative forces that illuminated cross-cultural exchange. Viewed as a whole, this volume is neither a comprehensive nor an exhaustive account on microtonality within the discussed musical cultures. However, individual contributions as well as the whole volume—and this was exactly what the editors were after—encourage further interest and discussion about history and contemporary musical practices involving microtonality, hopefully not only in Central and Eastern Europe.

The editors feel deeply indebted to all the contributors to this volume. We also express our appreciation to Dušan Bavdek and Jānis Kudiņš, the scientific reviewers of the volume. Not least, we would like to thank Rima Povilionienė for editorial assistance and Kerry Kubilius for proof-reading. Partial financial sponsorship for this publication was gratefully received from the Lithuanian Academy of Music and Theatre.

Leon Stefanija and Rūta Stanevičiūtė



**I.**

**MICROTONALITY VERSUS  
MICROCHROMATICS:  
CONCEPTS AND CONTEXTS**





**Lidia Ader**

## **Introduction to Microtonal Music**

Microtonal music is one of the key components of the contemporary composer's language. The history of microtonal music is old and young at the same time. Some may dare to use this term when referring to the non-tempered system epoch of the sixteenth and seventeenth centuries, while others will say it begins in the twentieth century. Microtonal music was widely discussed in the last century in terms of theory, practice, composition, and performance. This paper raises numerous questions, focusing on the microtonal music pathway in the beginning of the twentieth century. What is microtonal music? What defines it? How did it originate and what were its influences during the century?

Microtonal music has always been a counterpoint to musical history. This phenomenon has never disappeared from the point of view of Western European music, but its role and mode of existence in the global context are subject to reassessment. Strengthening and domination of equal temperament in the eighteenth century was historically predetermined (Reinhard 2009). Although at all historical stages of the evolution of European music the formal equalization of tones in the octave did not correspond to the acoustic nature of sound, the relative "purity" of intervals over three centuries began to be perceived as the only representation of what was true and accurate. Within the equally tempered system, subsystems based on the form of subordination of sounds and their hierarchy appeared. *Microtonality* was formed first as the multiplication of twelve sounds in the octave by two, three, four and more, and later as a phenomenon of a new order, canceling out the equality of halftones. Thus, we face *metatonicity*, a term coined by Claude Ballif (1924–2004), which combines the features of tonality with serialism and contains fixed and free sounds ("invariants *harmoniques*" and "variants *mélodiques*" as the composer described them) (Ballif and Galliari 1992, 30).

The idea of microtonal music attracted the attention of musicians, physicists, and acousticians from the second half of the nineteenth century. In an effort to expand the twelve-tone equal temperament, a fundamentally new approach to sound emerged. If in the pre-Bach epoch the plurality of temperaments was a natural phenomenon, then with the acquisition of a system in which each octave is divided into twelve mathematically equal intervals

(halftones), a new axis of coordinates was established. This division was absorbed and confirmed for centuries in creative practice. Microtonal music appeared as an alternative to the mainstream soundscape at a time of satiety. As a result of the historical disposition of the principles of sound organization in Western tradition, microtonal music was understood as a pitch system rather than a system of twelve-tone equal division. Further, in connection with the extensive practice of dividing a tone into parts, the term “microtone” appeared as contrary to “semitone.”

In the last century, the twelve-tone equal temperament began to experience a crisis that continues to this day. Many composers agree that the system has almost exhausted its resources and today cannot be a creative tool, because the boundaries of this temperament have always been quite arbitrary. The interest in other temperaments in the middle of the nineteenth century was natural and was the result of scientific and technological progress in the fields of physics and acoustics. By this time, extensive works studying the features of musical sound were originated by Jean le Rond D’Alembert, Daniel Bernoulli, Joseph Fourier, Hermann von Helmholtz, etc. Parallel to experiments conducted in scientific laboratories, there was a music laboratory for elaboration of sound perspectives. As a result of growing dissatisfaction in the composer’s environment with existing temperamental constraints, timid attempts appeared to split the tone into parts, introducing sounds into the music that are not included in the twelve-tone equal temperament system. At the same time, musical theorists focused on the notion of “temperament” and began to substantiate the principles of calculating the true height of sounds. By the beginning of the twentieth century, favorable conditions developed for the emergence of composers and theoreticians who transformed timid experiments into more convincing level. Some results were hidden, and some were in the shadow of more vivid mainstream phenomena and were thus marginal.

Regarding microtonal music, it is difficult to talk about an organized group of composers, physicists, or acousticians who would purposefully develop this phenomenon. Microtonal music has been created by composers, who acted alone. Examples of such composers include Ivan Wyschnegradsky in Paris, Alois Hába in the Czech Republic, Jörg Mager, Richard Stein and Willi Möllendorf in Germany, Georgy Rimsky-Korsakov, Arthur Lourie, and Arseny Avraamov in Russia.

Microtonal music has no clear historic beginning or end. It has always existed, hiding behind different concepts or terms, or having no definition at all. It is impossible to find the reference point for its emergence. Rather, it is

possible and it is necessary to talk about the new understanding and perception of this phenomenon that emerged at the beginning of the twentieth century. Microtonal music has become part of a phenomenon that the Spanish philosopher Miguel de Unamuno y Jugo calls “intrahistoria.” History is a collection of transient and vanishing events and is the face of life, whereas there is always a parallel intrahistoria – an inconspicuous life with deep layers of memory. I suggest that microtonal music is submerged in such layers.

Microtonal music has never been at the forefront. Being parallel to the main artistic trends of the music of the twentieth century, it could not adhere to them, nor to new composition techniques. Microtonal music focused on the development of the primary element of sound as such.

## 1 Terminology

In recent years musicians and scientists have not arrived at a single definition for microtonal music. Surprisingly, the term is not discussed even in the most authoritative encyclopedic source, *The New Grove Dictionary of Music and Musicians*, which includes an article on “microtone” but not on “microtonal music.” *Microtonal, microchromatic, microdimension, ultrachromatic, infrachromatic, ekmelic, and xenharmonic* music, among others, are all variants of the same phenomenon. Let us turn to each of these concepts.

The term *ekmelic music* has its origins in ancient musical theory. In Greek, *ekmelos* means “beyond the series,” that is, those pitches that were not in Greek modes. When two professors, Franz Richter Herf and Rolf Maedel, started to systematize microtonal music within the framework of the Institute for Basic Music Research at the Mozarteum in Salzburg in 1970, they decided to name the results of their work *Ekmelic Music (Ekmelische Musik)* (Maedel and Herf 1972). Thus, at present the term is associated with works in which the composer uses new sounds compared to the twelve-tone temperament. One could also find a seventy-two-tone system under this definition, where each step is equal to  $16^2/3$  cents whereas a semitone is equal to 100 cents. As their research has shown, our hearing is capable of perceiving a difference of, at minimum, five cents. Furthermore, the originators of this term insist that it unites 24, 36 and 72-tone temperaments, as well as other musical modes, including Arabian or Indian music, and the non-equal temperament.

The term *ultrachromatic music* arose in the works of Russian composer and theorist Arseny Avraamov and was supported by the writings of Ivan

Wyschnegradsky. Ultrachromatism, as Avraamov (after Leonid Sabaneev) stated, signifies a break with the modern system of tones, and a deviation from it towards more subtle, diverse (and, undoubtedly, more harmonious) chords, as if materializing or concretizing the natural row of numbers in their relations. The system of equal temperament negation turns into two points (Avraamov 1916, 157):

- a) the restoration of exact tone relations (return to the natural tuning) at the base of the tone-row and
- b) the expansion of its 'effective' limits by inclusion of tones corresponding to higher-order prime numbers (seven, eleven, thirteen, etc.).

Thanks to Ivan Wyschnegradsky, who lived in Paris from 1920 and often visited Germany, this term was used even outside Russian-language literature and is still in use with regards to "super-chromatic" scales. Wyschnegradsky proposed that ultrachromatics and infrachromatics be distinguished, dividing them according to the following principle: ultrachromatics contained systems in which the shortest distance between adjacent steps was less than a semitone, and infrachromatics denoted an interval larger than a semitone.

In 1963 American composer, inventor and theorist Ivor Darreg proposed the term *xenharmony* for music that sounds different from the music written in a twelve-tone temperament. This word comes from the Greek *xenia* (open, hospitable) and *xenos* (stranger). The xenharmonic system includes five-, seven- and eleven-tone temperaments (and further higher-numbered divisions) and expanded natural tuning. This term arose in contrast to "microtonal music," according to the creator, and was often associated with quarter-tone music and equal temperaments.

The term *microdimensional music* (from the English word dimension, applicable in mathematics and physics) is used by most researchers to denote not only the smallest distance between tones but also to describe substructures that extend to all the parameters of the organization of musical texture.

Finally, we have come to two categories that have become the most commonly used in research literature lately.

*Microchromatic music* is a term developed by Russian theorist Yuri Kholopov in works on harmony, a counterbalance to "microtonal music." In the article "Micro and Consequences," Kholopov discusses the imperfection of the term "microtonal," which has become widespread in the German language as well

as in global literature. The author is concerned with the deep meanings of the concept, which lie in the composite structure of the word: “micro” and “tone.” On the one hand, the term does not stand up to criticism from the point of view of its possible connection with the definitions of mode, as a kind of tonic of the lowest order. On the other hand, the term microtone refers us to “micro-tonality,” which has no relation to tonality itself. The confusion came from the literal translation from the German *Mikrotonale musik* as “microtonal music,” although in German the noun *Tone* means “sound” (Kholopov 2000, 27). Kholopov, however, does not explain the advantages of the term, which he used widely to describe non-European modes or Greek music and for any temperament except the twelve-tone one. Kholopov said:

Microchromatics stands on the verge of refined tonal and sonorous music. (Kholopov 2009, 127)

This idea of sonority is picked up in the research by Russian musicologist Elena Polunina, who characterizes the microchromatics of the late Renaissance as an acoustic form “through which the functional musical organization of musical art is expressed and developed in the given historical period” (Polunina 2010, 11). Polunina indicates two types of microchromatics: the category of the type (in determination of steps with a distance less than a semitone) and the result of zone intonation (the term by Russian scientist Nikolay Garbuzov).

Until now, there is no clear definition for the concept of microtonal music. Some researchers are inclined to attribute to this phenomenon all unequal tempered systems, respectively, all music of the pre-Bach era and experiences of the twentieth and twenty-first centuries with sound – aleatoric or neofolk music as examples. Others intentionally state that the music of the past is built on other laws and is not a reflection of the idea of microtonal sound. The only thing that all researchers agree on is the definition of a microtone as an interval or distance between neighboring sounds, other (less or more) than a semitone of a twelve-tone equal temperament.

So what is microtonal music?

In the conditions of modern music, when the axis of coordinates is still a twelve-tone equal temperament, under microtonal music we will understand musical systems based on those other than the twelve-tone temperament. It is important to take into account that the emphasis in this definition is on the presence of a *system* of organizing sounds.

The word *microtone* itself contains main the directions. Firstly, it is a “tone” as a characteristic of the genus of the phenomenon. This is a tone as a source, source material or tone, as a sounding substance. Next to it is the concrete part – “micro.” In connection with this concept, many additional definitions appear, in particular “microscopic,” which often arises in articles and reviews. Since microtonal music has passed several stages of mastering a musical texture, I would conditionally refer the first experiments in this direction to this phenomenon, timidly introducing microtones into the generally accepted system.

## 2 Fragmentation in the art of the early twentieth century

The Russian futurist team led by Mikhail Matyushin, Alexei Kruchenykh, and Kazimir Malevich, warned:

The crackling after an explosion and the cutting of scarecrows will stir up the coming year of art! (Matyushin et al. 1999, 233)

Ivan Wyschnegradsky, who heralded the future importance of microtonality, stated:

Now we are on the eve of the greatest musical revolution of the introduction of a quarter of the tones into music. (Wyschnegradsky 1992, 138)

Discussing the phenomenon of microtonal music as a whole, it is necessary to analyze the numerous prerequisites for the idea of splitting sound into micro-components at the beginning of the twentieth century, to reveal the general cultural and social processes that have become the impetus for its development and dissemination, and, finally, to pay attention to the parallel experiences of splitting the whole into parts.

The idea of splitting the whole into parts first clearly manifested itself in the art of the 1900s–1920s. In Russia it was modern to the avant-garde currents and was their component. In Europe, the idea was actively developed by “modernists” – all who tried to move away from tradition. Without claiming to be the main representative of the era, the principle of division, splitting, stratification, or fragmentation allowed science and art to branch out. Since artistic and scientific results based on this principle were achieved rapidly and in areas disparate from each other, it is hardly possible to speak about their continuity. Rather, they were the result of the so-called *Zeitgeist* – the spirit of the time.

Nikolay Berdyayev drew attention to the distinctive fascination with division and fragmentation in a 1917 public lecture called *The Crisis of Art*:

The corporeal world is shaking in its foundations. (Berdyayev 2006, 361)

Using Pablo Picasso as an example, the philosopher stated that: a “mysterious cosmic spreading” was taking place, the analytical dismemberment that artists used in order to explore the skeleton of things and hidden solid forms behind the frame. Berdyayev called this phenomenon “dematerialization, the disembodiment of painting.” (Berdyayev 2006, 361)

The process of fragmentation also affected two types of art, which were often combined into a synthetic whole: literature and music. Here artists searched for special principles of text formation. There was a separation of phoneme and sound, and they were fragmented and dissected. Poets and musicians turned to science to find an instrument to understand the world and matter. They drew inspiration from science; they enthusiastically split the whole into pieces.

In poetry the tendency to split a word into phonemes was clearly traced, and on the basis of sound parameters they used phonemic combinatorics. In music, on the contrary, the process of searching for the shortest distance between two adjacent semitones led to a deepening of the structure of sound as such. This is how artists sought out radical ways to find “free art.” In poetry and music the process of fragmentation was not confined to the phoneme and sound. In music, the integrity of construction is split into parts, like the dissection of an object and space in painting. The composition is divided into tiny fragments; there is no music stave as such, and only sound, splashes, or spatters remain. Such, for example, are *Forms in the Air* by the Russian futurist composer Arthur Lourie, first performed in 1915.

In the 1910–1920s, the idea of using an overtone sound series for the purpose of forming new tuning systems was born. The idea was picked up by composers who were interested in the structure of sound, those who listened to harmonics, overtones, and different-frequency formations. At the origins of the phenomenon, which in the 1970s acquired the name spectral music, were composers, music theorists, and acousticians of the beginning of the twentieth century – all who developed questions of temperament. The new understanding also received the term caesura, which originates from the Latin meaning “dissection” and has been recategorized from an applied tool to a structure and text-formation tool.

In 1921, in one of his poems, Andrey Bely described events accompanying the futuristic explosion:

“The world – will burst!”  
Exploding, Friedrich Nietzsche said...

The world’s been bursting in Curie’s experiments  
As an atomic bomb exploding  
Onto electron streams  
Like an unconsummated hecatomb;  
I am – a son of ether, Man,  
Down from the superterrestrial path  
I coil world after world, age after age  
With my ethereal royal purple.

Andrey Bely, *The First Encounter* (1921)

According to Bely, a person’s mind was overflowing with physics: Moscow University Professor Umov applied what he called philosophical “perplexity” to the natural laws of physics. Umov tried to discover the mystery of the beginning of the world, and Rutherford and Soddy formulated the theory of atomic disintegration. The energy stored in the motion of atoms and the strength of particles was important for them. Such energy of sound, world, and object in art atoms forced artists again and again to work on examining their internal selves.

“Everything is analytically decomposing and dividing,” Russian philosopher Nikolay Berdyayev in his article “The crisis of the arts” stated. The rapid development of mathematics, physics, chemistry, and microbiology in the 1900s marked a triumph of science. Positivist feelings in the creative environment of that time assigned the natural-scientific method a potential role in the future of artistic development. Musicians, artists, and poets addressed science in order to find a common ground. Their creation was “radioactive,” as the poet Sergey Bobrov stated. According to his opinion and that of many other poets, their works consisted of “inseparable explosions” (Bobrov 1999, 202–3).

The consideration of such processes in literature and music related to the splitting of the whole can only become the first approximation to an analysis of the general trend for different sciences and arts of this epoch. Let us observe some characteristic tendencies that allow us to speak about parallels and about general and different features in the aesthetics of fragmentation.



Many artists, poets, and musicians were in the mainstream of the idea of the convergence of the arts. Russian futurist writer Boris Kushner, for example, in his work “On the Sonic Side of Poetic Speech,” published in 1916, created categories for the sounds in poetic material: sonic and discordant; tonic and detonic, analyzing only consonant sounds. In 1925 his colleague, poet and theorist Mikhail Malishevsky made an attempt to analyze poetry in terms of rhythm, meter, strength of the syllable, length of syllables, and syllable height. Malishevsky used a term from ancient prosody, *mora*, which denotes syllable weight, that is, stress or timing. Some may attribute to it the time taken to pronounce a short syllable. It is symbolic that in the same year the collection of articles *De musica* included one by Georgy Rimsky-Korsakov, a pioneer of microtonal music in Russia, entitled “The Justification of the Quarter-tone Music System” in which *mora* was chosen as the definition of the smallest distance between neighboring tones (Rimsky-Korsakov 1925).

In the 1900–1920s the manifesto became separated from creativity. From then on, two strategies worked: theory (verbal statements, declarations, written pamphlets, manifestos) and practice (creative works). This process of separation showed the intrinsic value of each alone. Artists sharpened the tip of their pen, rehearsed the slashing of expressions, and tried unpredictable ideas. Manifestoes went ahead, while practice appeared *post factum*. Poet and futurist Benedikt Livshits recalls:

Typing... poems in *A Slap in the Face of Public Taste* Mayakovsky made the same mistake as I did by putting things in the fighting program book in which an old symbolist’s hops had not yet been fermented... (Livshits 1991, 125)

In other words, intuition was much ahead of erudition, as Arseny Avraamov noted (Avraamov 1917, 148). This correlation of theoretical theses and artistic practices generated attempts to reorganize creative systems.

The principles for the organization of the whole throughout the centuries existed in each of the arts, and adherents to the new ways saw signs of “consciousness enslavement” in such traditions. The object of attack on traditional poetry was all the parameters of versification: the text, its parts, rows, and boundaries of given segments. In the new poetry, the division into measures was often leveled, and the fundamentals of versification were subjected to careful analysis and modernization. There was no element that innovation would not touch. According to Roman Jakobson, a Russian-American linguist and literary theorist:

[Art] destroys such truths that have never been expressed by anyone, were not emphasized, because they seemed self-evident. (Jakobson 2009, 410)

In turn, the reform instituted by Andreas Werckmeister, a German organist and music theorist, in music was the starting point for the study of the basic elements of temperament. The new system was initially closed by twelve mathematically equal steps in the octave. It is this equality that became an obstacle to the expansion of the system, to the appearance of endless rows of tonalities:

The 'Faustian' spirit in music was always eager for new sounds, and then was temporarily enslaved in a closed twelve-tone system and was temporarily satisfied with it [...] now it feels crowded. (Wyschnegradsky 1992, 138)

Similar systems in literature and music formed a basis, which was built up by facultative elements in accordance with the arrival of increasing currents and trends. It is the "whole" which is the totality of all its constituent parts that has become the creative and theoretical target of musicians and writers. Futurists saw the objective properties of things as one of the sources for the idea of fragmentation. Russian poet and artist David Burlyuk, appealing to children's philosophy, pointed out that:

[C]hildren do not like whole objects; their parts (fragments) give them a complete idea of the whole. (Burlyuk 1930)

The smallest unit, obtained as a result of division, became a primary language (elements, sounds, letters). The whole was treated as a secondary substance, derived from basic being (primary elements) by poets and musicians (Burlyuk 1930). The whole in art was not perceived as an abstract entity, but as a concrete object that could be subjected to practical and theoretical research. Artists approached it with different analytical tools. Since most manifestos were written by writers and poets, it is necessary to trace some of the most characteristic methods of fragmentation and the model of constructing the whole on this basis.

The word (as a unit of poetic text) and sound (as a unit of the musical text) were studied with the aid of an auxiliary system, an artificially constructed structural model. The purpose of such analytic decomposition was to search for the criteria of a new art, an attempt to express them with the "language of mathematical formulas" (Livshits 1991, 114) and the

disclosure of patterns subordinate to human logic (Avraamov 1917, 146). The objects of research were considered in the context of their general structure or mechanism of functioning and were subjected to “strict scientific analysis” (Avraamov 1917, 146). Let us consider the options for usage of such tools in a more detailed way by looking at Russian literature and experience.

1. In literature, the word is equated with a physical body. Russian philosopher Pavel Florensky proposed that the body be considered an external form of the word. Various properties of the real object were applied to it. First, without the body the inherent individual characteristics would disappear from the word; second, the body is the primary element given initially outside any conditions; and further, without the body, the full functioning of the word is impossible, and if it is limited to narrow limits, “its life force ... only molders” (Florensky 2009, 48). On the contrary, the inner form of the word is intangible and constantly updating. It, according to Florensky, should consist of atoms. The philosopher speaks of the trichotomous structure of the word, representing it as circles, among which the phoneme is the main nucleus, passing into the morpheme, and after it into the sememe (Florensky 2009, 48).
2. Another category of concepts is connected with the definition by Russian futurist poet Velimir Khlebnikov of the whole as a molecule consisting of atoms (letters, sounds): the atom of the text, as the smallest part, which is the bearer of its properties and the atom of judgments, that is, a primary element of the concept or notion, of an object containing the connection, the subject, the predicate. As Mayakovsky observed, Khlebnikov created the “periodic system of the word” (Mayakovsky 1959, 25). He advocated the necessity and viability of new words and the inevitability of their appearance.
3. A scheme similar to Khlebnikov’s was developed by Andrey Bely. He reflected on what the art work is and what its coordinate system is. In his theory, the finished poetic text is an organism in which the brain is the thought itself, the nerves are experiences, breathing is the assonance and harmonic combinations of the vowels, the glands are gradation of the vowels, and the connective material is sound texture (Bely 1917, 178).
4. In manifestos, there is also another important concept, the “grain.” It occurs in different contexts, but more often it means sounds as “the seeds of the tongue.” In this connection, a whole system of agro-literary relations arises: “word seeds” as elements of the alphabet, from which

a whole variety of words comes, or “sower of languages” as an abstract mechanism that should “fill a palm with the twenty-eight sounds of the alphabet.” (Khlebnikov 1999, 63) The entire system goes back to an attempt to recreate a mechanism of any living organism structure on literary grounds, an attempt to acquire a new principle of word formation (“to extract a fruitful grain from the word”), which could be “let through the world,” and design word systems by analogy with the laws of Dmitry Mendeleev and Henry Moseley (Khlebnikov 1999, 63).

In addition to mathematical, chemical, and biological analogies of the structure of the word, they developed rules for word formation. The most important features of creativity in the 1910s were stated by Mayakovsky in his obituary of Khlebnikov in 1921. They can be formulated as an algorithm method and with “infinite variance.” The first part of the formula represents a model where the whole and parts were constructed according to a chosen pattern. It is quite typical to see instructions from Khlebnikov himself:

Reading, he broke off sometimes in mid-sentence and simply pointed out: ‘and so on.’ (Mayakovsky 1959, 24)

Not only the unit was subjected to division and distortion. Poets, painters and musicians reviewed and reconstructed the notion of the work model, its composition. They attributed a new role to us, making it a part of general disintegration process. “After reading, tear it up!” – Alexei Kruchenykh and Velimir Khlebnikov advised readers. This appeal is not only a protest against the “eternal” in general. Another important thing is that a potential reader will be able to extract from the book the method of constructing it and the principle of word formation, and then he or she will join the word-creation process (Kruchenykh and Khlebnikov 1999, 49).

In 1910s and 1920s they also changed strategies of the reconstruction of the whole fragmented into parts. Poet Nikolay Burlyuk believes that “the word and the letter (sound) are only random categories of the indivisible elements.” (Burlyuk 1999, 58) Burliuk reflects on the boundaries of word-making, on criteria for the beauty of a word and for resources of its formation. The poet wrote:

Should the creation of the word come from the root or accidentally?  
(Burlyuk 1999, 57)

He sought to develop a new, common for all, algorithm for the configuration of the fragmented word, and makes a choice in favor of aesthetics random, because “the root word has less future” (Burlyuk 1999, 58).

### 3 Evolution of auditory sensations

The idea of fragmentation arose largely as a result of special attention to the “word as such,”<sup>1</sup> to the sound as such, that is, to the unit of the text. Let us focus on sound and its philosophical shift. This is how we go back to Debussy’s music, who from the 1880s became a symbol of a new attitude towards sound and emerging sonoristics. The song *Mandoline* (1884) is indicative. In the introduction and conclusion of this work the composer uses only one note,  $g^1$ , imitating fading sound, the standing vibration of the string. Debussy shows a full dynamic scale from interrupted silence tone to barely audible sound. Due to the lower-octave grace note, which precedes fermata sound, the pedal generates a whole spectrum of sound, well auditioned in this context. Thus, creative and theoretical research, listening to the nature of sounding body, and attention to sounds ran parallel to the process of developing the structure of sound as such. It is interesting that the idea of analysis and its implementation applies only to the beginning of the nineteenth century.

Jean Baptiste Joseph Fourier (1768–1830), a French mathematician and physicist, founded a theory of harmonic analysis. His discoveries were preceded by those of Jean le Rond d’Alembert, who was known for his works in the exact sciences as well as for his philosophical works. In 1747, he founded the mathematical expression of wave processes, and in 1753 the Swiss scientist Daniel Bernoulli, one of the developers of mathematical physics, put forward the first version of the division of each movement of the string as a sum of elementary sinusoidal oscillations. This was the impetus for the development of Fourier’s theory of the harmonic analysis of sound.

The Fourier analysis made it possible to extract the physical characteristics of any continuous sound signal. The sound was perceived not as an atom, but as a fractional whole. The signal was deconstructed into parts – a series of harmonics – and the sound was thus represented through a mathematical formula.<sup>2</sup> The discovery led to the understanding of *sound* as a working material for composers. It was a process that attracted those creators who developed

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1 A futurist declaration.

2 A more detailed description of Fourier’s method could be found in Prestini 2004.

microtonal music, and later, spectral music, who made this method the basis of compositional technique.

No research or history of physics and acoustics could overlook the importance of German physicist Hermann von Helmholtz (1821–1894), who was engaged in physical research of the sound structure. He and Georg Simon Ohm had the idea of applying Fourier’s analytical method to sound as such, which is described in the monumental work by Helmholtz *On the Sensation of Tone as a Physiological Basis for the Theory of Music* (1863).

Experiments in the field of temperament relied on the achievement of technical progress. The invention of instruments fundamentally changed the consciousness of people and became crucial in the process of working with sound as such. “Any art begins with the establishment of the boundaries of its elements,” German psychologist Albert Wellek (1904–1972) argued in an article on quarter-tones. In any language there is a limited number of words and in painting a limited number of color shades. Both words and shades of color can be infinite, but no one intends to use them all in one work (Wellek 1926, 231). A similar selection takes place in music, forming a system of tones. Experiments on the structure of sound have moved the horizons apart: a choice of sounds for a particular musical coordinate system was expanded and a new problem arose: what were the guiding rules? Where were the boundaries of division and fragmentation? What was human hearing capable of perceiving?

Wellek noted a detail important for the process of tone division: the modern human ear is brought up on a twelve-tone equal temperament. Imagine the situation when a person listens to microtones incorporated into an equal scope: he or she will perceive all the same twelve sounds as an unconscious adjustment takes place. This problem was encountered not only with respect to extended temperaments. Any deviation from the usual sound even inside the equal temperament causes resentment and rejection, whether this refers to the emergence of special conditions for dissonances, or legalization of aleatory. In this respect, the increase in the number of sounds was only one of the stages of evolution. However, such an evolution took another fifty years for adaptation.

The greatest popularity among composers and theorists of the early twentieth century was obtained by two temperaments: fifty-three and twenty-four. In the first one, the octave was divided into fifty-three equal parts, each corresponding to a frequency of  $21/53$  or 22.6415 cents (the so-called Arabic comma). The second one was obtained by dividing twelve-tone

equal temperament into two. Musicians perceived the fifty-three equal temperament as more innovative, closer to the natural system, while the twenty-four-tone system only strengthened the position of halftones.

Arnold Schoenberg in the *Theory of Harmony* associated the acceptance or rejection of micro-division of the octave with the evolution of auditory sensations. In his opinion, in the modern situation, ordinary musicians would laugh, having heard serious arguments in favor of the fifty-three-tone temperament. For them it must seem excessive and unnecessary, whereas the succeeding generation, as Schoenberg predicted, would be narrowed to twelve tones: this system would be considered incomplete, because it did not use the hidden possibilities of sound, and the sound did not have depth or perspective.<sup>3</sup> Discussing the reasons for such changes, explicit or hypothetical, Schoenberg believed that fragmentation does not result from the imitation of a prototype, not through material, but as a result of comprehension and development of thought and spirit (Schoenberg 2010, 424). As for the technical side of the matter, the *Theory of Harmony* refers to Robert Neumann's observations, with which Schoenberg was personally familiar. According to Neumann's theory, the fifty-three-degree temperament most corresponds to the requirements of just intonation and to properties of natural intervals. This indicator was decisive for Neumann. Schoenberg also agreed with him in the matter of temperaments that are multiples of twelve: twenty-four, thirty-six, forty-eight. Any other divisions would not be able to provide a perfect fifth, he believed.

Most experiments before the end of the nineteenth century were associated with fifty-three-tone temperament. The shift occurred in the 1890s, when musicians and researchers began a study of twenty-four and forty-eight-tone temperament possibilities. The reasons for this change were evident. First, they wanted to preserve and enrich the twelve tones in the octave. This was due to the desire to find a compromise between the overly laborious fifty-three divisions and the traditional twelve-tone system. The search for a balance between structures was not only related to the need to simplify and make innovations more accessible; it was necessary to accustom hearing to a multitude of tones. And if the fifty-three-tone temperament almost lost its connection with the twelve-tone system, then the twenty-four-tone systems supported usual tuning. The evolution of hearing went a more conservative but more reliable way.

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3 Speaking on the perspective, Schoenberg compares this situation with European experience of Japanese painting understanding (Schoenberg 2010, 423).

## 4 Systems

Microtonal music is multifaceted in its basis. In connection with the fact that heterogeneous phenomena fall under this definition, it is important to build a hierarchical system and determine the criteria for analyzing works. The multiplicity of research efforts made in this time period allows us to conditionally distinguish two properties of microtonal music – basic and applied. In this observation I chose a type of material to use as the main criteria. On the one hand, there are works in which fragmentation is a systematic element, the basis of art work, and texture organization tool. On the other hand, there are applied (creative and research) purposes.

Let us consider the most typical examples of each of these categories.

### 4.1 Basic features

By basic features of microtonal products, we mean systems in which microtones are a systemic unit and the relations between tones are formalized into a harmonious system. Here we could develop a system of mutual subordination between tones. Within the framework of basic features, I would like to point out three general methods: systemic, authentic, and imitative.

The systemic method (single-system, mixed, polysystem) is distinguished by the presence of one, two, or more alternative systems which are the basis of the musical composition. With the development of microtonal music, elements of musical text became more complex and composers invented new, more sophisticated systems of music organization. Thus, they used successive or simultaneous temperaments in the same work.

The authentic method is associated with appealing to ancient modes and original folklore elements. In substantiating their ideas, microtonal composers kept nature as a symbol of the primordial, native language and scientific theories in their arsenal. All this was their defensive weapon in opposing conservative-minded people – all those who did not want to accept the expansion of twelve-tone system. When it became clear that those three options did not justify the innovations, the revolutionary musicians used one more important argument: ancient modes, which contained quarter-tones as an integral part of tone-scale. The enharmonic scale, described by Aristoxenus, a music theorist from Ancient Greece, inspired many musicians and became an important tool for modern music development. According to Aristoxenus, listeners are reluctant to perceive such scales, but those tones are a sign of the development of art.



In the history of European music, examples of the emergence of the quarter-tone enharmonic scale are singular. In Paris in 1849, the cantata *Prométhée enchaîné* (lyric scenes) by Jacques-François-Fromental-Élie Halévy (1799–1862), inspired by the tragedy of Aeschylus, premiered. It was one of the first known concerts in the nineteenth century when quarter-tones were presented to public. Their appearance in musical composition is more than justified. The composer's brother, Leon Halévy, the librettist of this work, pointed out that:

It was fundamentally important to show the results of insertion of quarter-tones in one part of the composition – an element characterizing the Greek enharmonic scale. (Halévy 1863, 47)

The enharmonic scale in Greece was considered a kind of chromatic scale, different from the traditional European understanding of this term. The specificity of such scales consisted in lowering the pitch of the fourth and seventh strings in the lyre. For the enharmonic version of the mode, these strings were lowered to a whole tone so the pitch of the third and sixth tones was a quarter-tone lower. This scale was first presented in the fifth movement of the cantata in *Okeanides' Choir*. The three-section form with middle section, full of contrasts, and developing recapitulation contributes to the creation of modal and thematic contrast. The mode that interests us appears in the first and third sections. It is indicative of how the composer cautiously treats the new material. An appearance of *Okeanides* is accompanied by a dialogue between the flute, violin, and viola. Strings insinuating intonational melodic lines consist of trichordal cells, including quarter-tone steps. Fettered at first, the melody in the third section "straightens."

Alexandre Vincent, a professor of mathematics at the Sorbonne, philologist, and essayist, advised the composer to address such an original musical source. Vincent's main work is a 600-page monograph containing a translation of two anonymous Greek treatises, individual manuscripts, and a thirteenth-century treatise on harmony by George Pachymeres into French (Vincent 1847). One of the results of this work was a musical instrument designed by Vincent and his colleague, organologist Jean-Joseph-Auguste Botée de Toulmon, and demonstrated at the academy. This instrument could reproduce any harmony from Ancient Greek music, although it was much simpler than the archichembalo by Nicola Vicentino. There was one flaw in it: it was impossible to perform any works on it. Nevertheless, following the Ancient Greek theoretical works, Vincent achieved unprecedented accuracy in dividing intervals by calculating acoustic logarithms. Part of Vincent's work is devoted to the theory of Aristoxenus, who perceived sound as a continuum

subjected to endless modifications and divisions. In one of the anonymous treatises, sound is likened to a point in geometry, the unity of numbers.

The tone is divided into two halftones [in diatonic], three sharps of triental or one-third of the tone in chromatic music, and a quarter [sharps of quadrantals or] quarter-tones [...] in the harmonic genre. (Anonime 1847)

It was this moment, obviously, which most interested the translator and his colleagues. What was obvious to the ancient Greeks but forgotten in European tradition struck the minds of musicians and scientists. The translator, commenting on the terminology, noted that in the Pythagorean system names were provided for halftones, thirds, and quarter-tones. The unknown author of the treatise adhered to the system of Archytas of Tarentum, which did not allow any division within these three genres. Vincent did not stop at the translation of treatises. A few years later, two of his works appear in print: “The use of quartet tones in Gregorian singing” and “The use of quarter notes in liturgical singing” (Vincent 1854, 362–72; Vincent 1854a, 670–76). Both articles, published in the appendix to the journal *La revue archéologique*, attempt to reveal the system and methods of applying quarter-tones in the indicated traditions.

Greek scales were historically closer to European music than Chinese and Indian, an interest in which was awakened at the end of the nineteenth century. One of the earliest known cases of microtone use in the imitation of the ancient system dates back to 1760, when French flutist and composer Charles Delusse composed *Air à la grecque* (Delusse 1984). Here quarter-tones are used as an ornament, introducing a characteristic color. It was not the only experience of using smaller gradations of tone in Delusse’s works.

*Okeanides’ Choir* by Halévy historically is not the first example of using quarter-tones in European music, and although it is very laconic in comparison with the previous movements, he drew the attention of all the critics. The introduction of quarter-tones into musical text, which spread into orchestral texture (despite the fact that they are only actually heard in the string group), did not go unnoticed. There were different reasons for that. The exact reproduction of the enharmonic scale was very rare in the European tradition. Despite the use of original harmony, quarter-tones were apocryphal for European musicians. This is explained simply: they were a hindrance, recalling an out-of-tune performance. Hector Berlioz as the author of regularly published feuilletons devoted to symphonic evenings even wrote in an article in the *Journal des débats* in March 1849:

The use of quarter-tones in Halévy work is episodic and very brief, and generates a type of squeaking sound on the strings, but this strangeness seems to be completely justified here and greatly improves the melancholy prosody of the music. (Berlioz 1849)

Berlioz's similar ambivalent attitude to this music was caused by a cautious attitude towards Halévy music in general, and to the work described in particular.

At the end of the nineteenth century, composers also paid a special attention to folklore. Alois Hába, in substantiating new systems, often pointed to the true nature of microtonal music:

From early childhood I heard (in particular from my mother) folk songs in which there were 'uneven' intervals. I listened to them both at festivals and home. Therefore, it is not surprising that later, when I started composing, I was thinking about the possibility of using just these intervals. [...] I emphasize: the effect of fragmentation of tones for me is not an abstract, but a real phenomenon in the songs of Eastern Moravia. (Kaczyński 1974, 112)

Arseny Avraamov, developing microtone systems, primarily paid attention to the features of the folk song and its untempered nature. For the accurate reproduction of folklore, he invented a special instrument.

Many researchers and critics who discussed the evolution of musical art at the beginning of the twentieth century noted the composers' special interest in Eastern music or music of non-European cultures, which the Europeans themselves called exotic. I will give some examples.

Richard Stein, an enthusiast of the new music, who published the result of his experiments in 1906 – a microtone composition for cello and piano – talked about the origins of musical systems. After just over ten years, he published an article in which he gave an overview of contemporary musical life in the context of the introduction of a microtonal current into it. Summarizing a cursory review of different cultures' traditions, Stein insisted that:

Quarter-tones in no way are an invention of the speculative minds of the newest time, but on contrary, they were used in all parts of the world thousands of years before us. (Stein 1923, 12)

That is, "modernism," with respect to quarter-tones, is a revival of old systems. Concerning this matter, Stein referred to the Arabian and Persian systems, characterized by the division of minor third (three semitones – six

quarter-tones) into two three-quarter-tones, and in the melody a third tone. He explained further:

Hindus have long known third and quarter-tones, the Turks use quarter and eights, and the Modern Greeks use quarter-tones in their religious music. Similarly, the Gregorian chant had, as it has now been unquestionably established, quarter-tone intervals (compare the works of Gregorian Academy in Freiburg, published by Professor Dr. P. Wagner). Finally, quarter-tones disappeared from Western music only with the development of polyphonic singing. (Stein 1923, 12)

This statement is very important in the context of the formation of microtonal movement. In 1906, neither Stein, Busoni, nor other seekers of micro dimensions of tone thought that their experiments led to the modes of Eastern cultures. However, history knows particular cases of mastering the Eastern non-tempered systems by musicians of the nineteenth century.

Hector Berlioz, as already mentioned, knew about the modern experience of using quarter-tones. In a letter to Joseph d'Ortigue dated June 21, 1851, he mentioned his meeting with a Chinese singer and her accompanist. This happened during the composer's stay in England, marked by a colossal shock from the St. Paul Cathedral's choir, in which 6,500 children sang ("It was, without comparison, the most imposing and tumultuous ceremony it has ever, up to present time, fallen to my lot to witness") (Berlioz and Bernard 2010, 201). At the end of his letter, Berlioz observed:

You will see how we ought to estimate the stupid inventions of certain so-called learned theorists in connection with a pretended system of music in quarter-tones. There is no fool like a *savant*. (Berlioz and Bernard 2010, 201–2)

D'Ortigue had "to see" an article in the newspaper *Journal des débats*. Berlioz published another feuilleton there on May 31, 1851, devoted to a review of musical life for the past month. Almost half of the article's volume was devoted to the composer's communication with Chinese musicians, which became a rare auditory experience of contact with non-European cultures for him. Comparing Chinese with Indian music, Berlioz noted with surprise different musical roots and manners of performance. In a detailed description of all the pieces heard, Berlioz's most tormented question was about their mode:

My interest in the matter related to the divisions of tones and Chinese tonality. (Berlioz 1851)

The composer noted:

In fact, an external similarity of the scale with the European one does not allow us to speak about the same results. The melody of the song was not sufficiently deterministic. It did not consist of quarter-tones or half-quarter-tones, but from simpler diatonic sequences. (Berlioz 1851)

It is important to raise the question about awareness of European musicians of so-called “oriental music.” It is known that the stereotype of the “Eastern” was in existence for a long time, and a complex of means for its musical embodiment was universal. However, publications of anthropological and sociological works containing reliable information about the Eastern countries and often, more importantly, musical samples of national folklore, should have remedied this situation (Bougainville and Forster 1967). Jean-Baptiste Du Halde, describing China, published five supposedly authentic melodies, one of which was used by Weber and Hindemith. Barrow published his *Travels in China* a year before the first version of the *China Overture* by Carl Maria von Weber.

One of the ideologists of the real East was German composer and organist Georg Joseph Vogler, who regularly made expeditions to the countries of the Middle East, Spain, and North America. In *Polymelos* for violin and pianoforte with cello accompaniment, he presented folk songs from Africa, Morocco, and Greenland, and “The Chinese theme deciphered from the notes of missionaries in Beijing.” The significance of Vogler’s activities for European musicians is difficult to overestimate. Even Beethoven was intrigued by his experiments (Hamburger 1960). Nevertheless, the transcription of melodies was limited to a twelve-step system and did not bring composers closer to real sound.

That is why Berlioz’s experience of contact with a new harmony, a new method of dividing the octave should be regarded as a certain interpretation of the oriental system, attempts at its implementation and adaptation in European consciousness. Most likely, Berlioz owes his knowledge in temperament to his teacher Antoine Reicha (1770–1836), a prolific composer more widely known as a theorist and teacher who taught in Austria and France and had his own composer school. During 1824–1826 he worked on the *Treatise on the highest compositional technique*, which was published in 1832. However, many of his ideas were already formulated in 1814, in the *Treatise on the Melody*, in which Reicha demonstrated methods of unfolding melodic and harmonious material and gave examples of experimentation with rhythm

and, most importantly, of usage of quarter-tone notation for recitation. In these two works Reicha gave vent to the most daring ideas of those times.

In particular, he shrewdly noticed that in the future, quarter-tones would become a natural phenomenon. In the *Treatise on the Melody* he described how one famous singer once made a transition in the quarter-tones from the second to the third period of the vocal exercise.

This had an exceptional effect on the public; the experienced singer deserved a grandiose applause. (Reicha 1893, 45)

Reicha indicated that professional performers should be in such form that they could perform ascending or descending quarter-tones, because among all musical instruments the voice can do it with sufficient ease. In his example he shows a segment of melody based on a quarter-tone descending third. In order to perform this exercise, the author believed it was necessary to build a monochord with the octave divided by twenty-four tones, and in order for them to be accurately tuned, it was important to tune this instrument with two tuning forks with a quarter-tone difference, and the task would not be difficult.

These ideas would be partially reflected in a four-volume treatise on musical composition, the last book by Reicha, which was completed in 1826, when Berlioz and Liszt entered his class. Despite an apparent independence of musical ideas of both composers from those of their teacher, some features of their works indicate otherwise. Thus, we can note the frequent appearance of fugated passages in Berlioz's music, re-harmonization of musical themes at every new appearance, often asymmetric metric – all described and declared in the theoretical writings of Reicha (Bücken 1919, 156–169).

It is important to note that not all microtonal composers developed their systems based on the idea of imitating modes of other cultures. This rather served as an auxiliary impulse for creativity, and most importantly, the justification for experiments.

The latter – the imitative method – is a basic method, associated with an attempt to depict the properties of nature with the help of microtonal music. Artur Holde, an acoustician and physicist, who followed the research of microtonal composers, indicated that quarter-tones had special success in depicting nature. This was largely due to the creation of new instruments (Holde 1938, 533). A ground for experiments was required even by futurists, who having thrown out all the artistic baggage of the past from the “modern steamer,” faced the problem of finding objective principles. They were seen in nature, whereas art was its continuation, the development of the process,

“initiated by nature” (Solovyev 2001, 12). Ultimately, “all arts, resources, and forms ever aim at the one end, namely, the imitation of nature and the interpretation of human feelings,” concluded Italian composer Ferruccio Busoni (Busoni and Baker 1911, 3). For him, a system of tones, frames and tonalities was “a part of a fraction of one diffracted ray from that Sun” (Busoni and Baker 1911, 28).

The categories of “nature” and “music” were approaching. Arguing about Bach, Busoni noted that:

His Organ Fantasias (but not the Fugues) have indubitably a strong dash of what might be overwritten as ‘Man and Nature.’ (Busoni and Baker 1911, 8)

Nikolay Kulbin enlarges this logical chain to: nature – music of nature – free music. In this triad nature was a primary source: music should inherit its naturalness because the music of nature is “imitating the sounds of Nature” (Kulbin). Such arguments allowed composers and theorists to come to the necessity of splitting the tone into quarters and eighths. Due to their introduction into the structure of the octave, the advantage over the twelve-tone temperament, the author believed, would be felt immediately: first, there would be the pleasure of unusual sounds; second, the musician would deal with the complicated and refined structure of chords and melodies; third, a new quality of dissonance would appear, which would color the usual sound for the ear. In addition, Kulbin believed:

[T]he power of musical lyrics grows, and this is the most important thing, since music is primarily lyric poetry. Free music also has great opportunities to influence the listener and cause him emotions. (Kulbin 2006, 547–48)

Significantly for Kulbin, there was an appeal to nature:

The whistling of the wind, the splashing of water, and the singing of birds are free in their choice of sounds. A nightingale sings not only on the notes of current music, but also on all convenient ones. (Kulbin 2006, 547)

The singing of a nightingale (of course, untempered) becomes that indisputable argument by which Kulbin armed himself, arguing about the closeness of music to nature.

Attempts to imitate birdsong in music were carried out in all epochs. However, the approach to onomatopoeia was changing. If during the Baroque

epoch the rhythmic basis of themes and their general intonational orientation were important, then by the end of the nineteenth century the composers' attention shifted to a detailed study of intonational segments of musical material. A typical example of the search for a "correct," that is, reliable intonation, close to the original source is an open appeal by the reader F. R. C., published September 1, 1893, in *The Musical Times* (F. R. C. 1893, 556). His letter entitled "The song of the yellow-hammer" was a reaction to a special newspaper issue that appeared in December 1892 dedicated to Beethoven's music. This gentleman, obviously possessing some musical education, questioned the correctness of the facts set forth in George Grove's article (Grove 1892, 14–5). Birds in the *Pastoral Symphony* became a subject of the debate originating from Anton Felix Schindler's book *The Life of Beethoven* (Schindler et al. 1840). According to Schindler, Beethoven admitted that in addition to three birds identified in the symphony (the nightingale, the quail, and the cuckoo), there was one more hidden in the depths of the score, namely, the *Emberiza citrinella* (yellow-hammer). The composer pointed out that in the scene at the stream he depicted these birds first (an ascending passage on G major sixth chord). George Grove, doubting the validity of such an *arpeggio*, turned to the dictionary in which the bird song was deciphered as follows:

[O]ne note is repeated four or six times at a rapid tempo, followed by two others, the last of which is elongated. (Grove 1892, 15)

The F. R. C. objected to this example. He stated that he had never noticed that the last sound of this "recitative" was a perfect fifth higher than the main one. On the contrary, most often it was lower, and lower by an interval of less than a semitone. It is important to note that a century after the creation of the symphony, the process of analyzing sounds was associated with a new level of comprehension of nature and understanding and that there was a big gap between justified systems and real sounds.

A typical example of a quarter-tone measurement of nature's voices can be found in the case described by Russian futurist composer and violin player Mikhail Matyushin. As early as 1904–1905 Matyushin tried to imitate bird-song on the violin:

Birds sang like that in the spring [...]. It was so amazingly beautiful and alive. The intonations of the voices simultaneously audible sounded like the most wonderful melodies and I listened, trying to catch the melody rising and descending in simultaneity. (Matyushin n. d., 70)

At the same time, Matyushin recalls, his desire was realized when he managed "to double [...] the chromaticism, i.e. to split a halftone into



two” (Matyushin n. d., 70). Matyushin believed that the use of quarter-tones in stringed instruments would lead to the appearance of “amazing combinations, extraordinary approximations to nature” (Matyushin 1915, without page numbers). For composers and theorists, nature served as a standard as well as uncompromising proof of the strict regulation of all, even the most radical experiments. Who would dare to argue with nature?

Thus, the search for the correspondence between music and nature was brought to life by deep reflections on the role of art and its position in the universe. Experimental attempts to reach the depth or the essence of things, that is, the primary elements of sound, were aimed at the return of primordiality to music and its liberation from “architectonic, acoustic and esthetic dogmas” (Busoni and Baker 1911, 34).

#### 4.2 Applied features

At the same time, the idea of the applied nature of microtonality was developing. A separate technique developed by musicians is the juxtaposition of new and old systems and the comparison of whole and split words and sounds. As a rule, composers use the additive method.

For this musical system, the experience of Arthur Lourié is a good example, who in the impressionistic *Prélude*, Op. 12 No. 2 (for grand piano with higher chromatism), built an algorithm for appearance and disappearance of extended-tempered sounds: pure (halftone) and microtonal (quarter-tone) blocks appear alternately. Sometimes such blocks have one consonance, sometimes the sum of several.

With the introduction into the use of tone splitting and of new uniform and non-tempered systems, the modernization of musical texture systems was required. This is how experiments comparing different types of systems based on the smallest gradation of tone and the study of the spectrum of a single sound developed.

Wyschnegradsky was one of the first composers in Russia to systematically develop new spectral features (1916–1920). His Opus 5 – *Four Fragments* for two grand pianos is an example of a quarter-tone combination of instruments. The composer tried to find support in a new quarter-tone measurement. Microtones, like a shadow, chase the chords highlighting them; thematic grains (an integral structure is absent) are distorted in a curved mirror, and relatively large segments are refracted by the echo.

Yuri Kholopov, analyzing String Quartet by Alois Hába, suggested distinguishing between two types of microtones (Kholopov 2000, 128):

1. Over-alteration (inner-degree microtones) as sharpening of intonation by approaching the target sound by a quarter-tone. Possible variants are micro-passages from the main (diatonic) degree through the microalteration to the target degree, as well as auxiliary microtones.
2. Degree of microtonal system.

We can accept this gradation of microtones with only one remark: that alteration as a term denoting a change does not correspond to our basic concept of microtonal music, as music not associated with the twelve-step uniform temperament. Nevertheless, the first microtonal experiments rejected this system, multiplying it by dividing a semitone. Therefore, the term alteration is possible only in the case of explicit or indirect support for a twelve-tone system.

The auxiliary method of using microtonal music can be interpreted as experiments conducted in the field of acoustics and mathematical calculations of temperaments and their subsequent use in musical works. As a rule, such an association of mathematics and music was of an experimental nature. Nevertheless, mathematical analysis and calculation in the 1920s was particularly popular in the artistic environment. Velimir Khlebnikov wrote as a “teacher” in one of his articles:

Only the growth of science will make it possible to guess all the wisdom of the language, which is wise because it was part of nature itself. (Khlebnikov 1999, 34–40)

This was due to the desire for absolute accuracy and justification of all the experiments produced by the creators of new art. The exact sciences were applied in substantiating a process of crushing and calculating the smallest units of a system.

A program of a future musical system was outlined by Avraamov in his article “In the wilds of aesthetics” in 1917: the natural row of numbers plays a large role in the construction of musical scales and is “the basis of all arithmetic operations” (Avraamov 1917, 148). This was the starting point for the research of following decades. In parallel to the way composers and physicists-acousticians tried to solve the problem of the boundaries of sound division in music to build their musical “alphabet,” linguists talked about the infinity

of the number of sounds in the language. The experience of writers in the related problem, an approval of a new alphabet based on a new idea of its phonetic component, is no less fruitful.

Nikolay Yakovlev, a Russian linguist and linguistic specialist, worked out the mathematical formula for the construction of the alphabet (starting in 1926) in the Institute for the Study of Ethnic and National Cultures of the Peoples of the East. His case is an example of scientific research in phonology, which is very revealing in relation to the experiments that took place in the 1920s. The system he invented was to create a limited alphabet (in terms of the number of letters) based on the revision of the old alphabets. Unlike Jan Baudouin de Courtenay, he treated a phoneme as a minimal sound unit used for differentiation of meanings. Using the formula, Yakovlev calculated the number of letters to which you can shorten the alphabet of any language due to its phonetic features. To avoid the infinity of sounds in the language (from the point of view of acoustic function, outside the relation to their social and linguistic function), Yakovlev recognized behind the phoneme “those sound differences that stand out in speech as its shortest sound moments in relation to distinction of language significant elements” (Yakovlev 1970, 129). According to the linguist, the system of practical writing should graphically reflect all the phonemes of the given language. Yakovlev applied his theory to the Russian alphabet, making proposals for its modernization, simplification, and reduction. However, being a specialist in the field of Caucasian linguistics, he applies this method of calculation to the Finno-Ugric languages. He headed a scientific commission engaged in the creation of a written language for the peoples of the North Caucasus, Dagestan, and Abkhazia, and for the Turkic, Finno-Ugric, Mongolian, and Tungusic-Manchurian languages, as well as for the languages of the peoples of the Soviet Far North. Thanks to the phonemic principle of writing formulated by Yakovlev, writing appeared in more than 70 languages (spoken by various peoples of the USSR).

The appeal of musicians and writers to the exact sciences was not accidental: humanitarian knowledge in conjunction with science (the primacy of fact over hypotheses and theories) was considered all-powerful in those years. Therefore, the use of methods based on formulas and models played a large role in the evidence base of new creative concepts.

In addition, the ethnographic method achieved a new level. Microtonal notation was used for extremely accurate fixation of sounds in folk music. In 1876 a landmark event took place: The Magician of Menlo Park, the American

inventor and entrepreneur Thomas Alva Edison, presented to the world an unusual device capable of recording and reproducing sound. The phonograph, a prototype of which was studied back in 1857, struck the public consciousness and became a guide to a new sound world. The phonograph underwent many changes, and due to the use of a cylinder with a wax coating, the replacement of a cylindrical sound-carrier with a flat disc, the gramophone appeared in 1887. Musicians became some of the first to use the gramophone's capabilities. This discovery coincided with the growing interest in folklore. Refinements to the gramophone made between 1904–1906 improved the quality of recording and playback of music. Therefore, the beginning of the century saw a new stage of interest in folklore. The need for such an instrument had grown over a long period of time: from the end of the nineteenth century, folk song collectors began to note the greater conventionality in the existing tradition of musical notation. It was necessary to pull individual sounds up to the stage from the prevailing uniform scale. This greatly coarsened a melody and differed from the original version.

Russian ethnomusicologist Eduard Alekseyev, followed by Ivan Matzievsky, more than once expressed the idea of a universal sign for “microalteration” in his studies and stressed that:

[T]hese signs must be specified every time in transcription process, and in addition, similar double signs are used by some folklorists (and composers too) to notate quarter-tone intervals (semiflats and semi-sharps), which, in order to avoid misunderstandings, must be taken into account, since quarter-tone relations are also not uncommon in folklore music. (Alekseyev 1990, 61)

As early as 1904, the issue of an extremely clear fixation of sounds was discussed at meetings of musical and ethnographic commissions. Alexander Listopadov organized an experiment by recording wedding songs of the Don Cossacks on the phonograph and asked the most authoritative members of the Moscow Musical and Ethnographic Commission to notate the record and determine its mode. All six experts, among whom were Sergey Taneev, Alexander Grechaninov, Viktor Paskhalov, Boris Yavorsky, and Evgeniya Lineva, transcribed the song differently. Taneev summed up:

Here we are most likely dealing with a special, traditional for the given locality manner of performing the most ancient ritual songs. (Listopadov 1909, 5–6)

The applied features of microtonal music – that is, elements, additional sounds and imaginary systems – calculated mechanically show another way

microtones were applied. Either in music or theory they helped to perfect results, making the result exact and useful for future work with them.

## 5 Marginal culture

Microtonal music as a phenomenon modern to late romanticism, expressionism, and neo-folklore, has always been in the shadow of these trends, but in combination with other artistic initiatives created an atmosphere of searching for a new, unexplored sound. It never came to the forefront of the evolution of musical art. Existing in parallel with the main artistic trends of the twentieth century, microtonal music could not join to one of these trends nor to the new techniques of composition. It focused on the development of a primary element, sound as such. There are several reasons for the marginalization of microtone experiments.

First, the practice did not keep up with the theory. The necessity for the evolution of sound was caused not by musical factors, but rather by aesthetic and historical ones. Although on paper, in theory, most radical innovations looked convincing, in real life, in creative practice, the existence of new sounds needed to be persuasively proven. The experimenters sought to push back the twelve-tone temperament, to go beyond it, or at least to expand its content. In this regard, an experience of dividing a halftone into micro-components, called microtones, was one of the main trends.

Second, composers sought a path of compromise between the defiant-revolutionary theory and their own creative possibilities. Most of those who worked in a new technique and who possessed a fundamental academic musical education looked for artificially justified results in splitting of the tone, but most of their compositions were nothing more than an enrichment of a major and minor system or an atonal piece often losing individual style. The well-known critic Boris Shlözer, the author of several reviews of microtonal music concerts, noted in one of his detailed articles on quarter-note composers:

We do not have the need for this multiplication of sounds, for this expansion of musical scale, but taking into account indifference or hostility it is impossible to make any conclusions about the future, even nearest future. It is very possible that some genius composer will 'make us' feel this need and the need for this reform. (Shletser 1924)

These "genius composers" were required by that time. Only with rare exceptions did individual musicians and amateurs use microtonal music in their

professional activity. Especially rarely did composers whose work was unconditionally accepted by a wide audience deal with it. Several generations of composers, performers, musicologists, inventors, physicists, and acousticians worked on the problems of microtonal music. The period of the early twentieth century characterizes the most individual and bright projects. Some of them have sunk into oblivion, while others have been continued.

Catching up the newest trends, microtonal specialists thought and rethought how transformed microtonal music could be simply turned into a universal language. During the twentieth century they ruined and broke, planned and designed, argued and agreed, and finally constructed and reconstructed. In 1938, English composer Alan Bush, commissioned by the Russian magazine *Soviet Music*, wrote an article about contemporary musical trends in Europe. Revealing the very characteristic property of modernity – the lack of uniformity in the prevailing styles in music and compositional techniques – he noted as a negative feature the predominance of antitonal phenomena. He was confused by new scales borrowed (transformed) or invented, or arbitrary or totally controlled:

Contemporary Western composers use ‘new’ scales – either borrowed from folk music (and heavily deformed) or ‘invented’ by the composer himself, usually from twelve semitones of the tempered octave. (Bush 1938, 93)

To the group of “folk composers” he attributes Bartók, Bloch, Stravinsky, Vaughan Williams, and partly Ravel. The group of “inventors” included Casella, Hindemith, Schoenberg, and Hába. The latter “suffered” for the arbitrary use of a number of twenty-four well-tempered quarter-tones in an octave.

Of course, it was difficult to expect logical harmony and order in the innovative field. Eclecticism reflected only the diversity of approaches to the use of resources. Chaotically appearing systems, inventions, and revolutionary concerts were part of the microtonal movement and united in an idea.

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**Leon Stefanija**

## **Microtonality in Slovenia: The Concept and its Scope**

When Vito Žuraj (b. 1979), a composer active mainly in Germany, gave a pre-concert talk at Cankarjev dom on March 13th, 2015, after he received the Prešern Prize, Slovenia's highest national recognition, for his recent work, he commented that today many contemporary composers also write *only* microtonal works. He, among other composers today, accepted microtonality as a *common* compositional vehicle. The concept had to undergo a thorough redefinition to become common in music after it was, for the first time in Slovenia, reflected upon publicly in 1928 by one of the theoretically most well-informed composers in Slovenia, Srečko Koporc (1900–1965), and further propagated by the main “opinion-maker” of the 1930s, Slavko Osterc (1895–1941), who actually wrote only two pieces of microtonal music. Namely, although after WWII the concept of microtonality was considered a noteworthy asset of modern music theory and aesthetics, it was considered but a consequence (Alojz Gržinič), even as a dead-end (Ivo Petrić), of romantic chromatism.

In Slovenia, a more positive attitude toward microtonality came with the growing popularity of electronic music during the 1960s, especially with the generations of composers active from the last decades of the twentieth century onwards, members of which include Uroš Rojko (b. 1954), Brina Jež Brezavšček (b. 1957), Urška Pompe (b. 1969), Nina Šenk (b. 1982), and Petra Strahovnik (b. 1986). Microtonality today is a clear sign of composers' rootedness in the modernist tradition. However, the artistry emerging out of heterogeneous aesthetic idea(l)s connected to microtonality throughout history has gradually shifted the function of microtonality within contemporary musical practice, roughly speaking, in two directions. Thus, this contribution will summarize the scope of the concept in a chronological manner through two trajectories – two complementary threads that are relevant for microtonality in Slovenia. The first one is a transition from the almost exclusively quarter-tone music debate in the interwar period toward the sound-art debate in the last decades. The second thread addresses microtonality as a specific *theoretical* issue of musical modernism that became an integrative *aesthetic* issue pointing to certain postmodern *ars subtilior* of the musical expression shared by the musical modernists as well as members of the DIY (do-it-yourself) musical culture.

## 1 Introduction: the quarter-tone legacy from interwar Slovenia

Microtonality has a rather marginal position in Slovenia. It is connected, at first, primarily to the so-called Hába school, although it seems that it should be regarded as a pivotal concept in music theory. I will address the historical facts regarding microtonality in Slovenia in three sections: the 1920s, the 1930s, and the period after WWII.

Two complementary stories – trajectories – about microtonality are outlined: the first one charts the transition from the almost exclusively quarter-tone music debate in the interwar period toward the sound-art debate in the last decades. The second trajectory describes microtonality as a specific *poetological* issue of musical modernism that became an integrative *aesthetic* issue pointing to a certain postmodern *subtilitas* of musical expression shared by musical modernists as well as members of the DIY (do-it-yourself) musical culture.

The fact remains that few examples of microtonal music from interwar Slovenia exist – and microtonal music is exclusively confined to the quarter- and sixth-tone systems. These pieces are more educational than they are artistic, except for those by Franc Šturm, who claimed his Opus 1 was his quarter-tone piece. The scarce number of quarter-tone pieces and no published scores indicate the position of quarter-tone music within the musical culture of that time.

### Slavko Osterc (1900–1941)

1. *Tri skladbe za četrttonski klavir* (Three pieces for quarter-tone piano), 1935 (Pokorn 1970, 82: only the first is available, Moderato, probably the grading piece from Hába's quarter-tone music course; Stanko Vurnik mentioned Osterc's *Preludij in fuga* in quarter-tone system in *Dom in svet*, 1938; there is also a fragment of a *Fuga* preserved in Osterc's legacy).
2. *Štiri Heinejeve pesmi za glas in godalni kvartet v četrttonskem sestavu* (*Four Heine's songs for higher voice and string quartet in quarter-tone system*: 1. *Ej, prijatelj, kaj pomaga*; 2. *Pri kralju Visvamitri*; 3. *Ne norčuje se iz hudiča*; 4. *Kastrati so tožili*), dedicated to Alois Hába, composed probably in 1931 (Pokorn 1970, 85).
3. *Cvetoči bezeg* (*The lilac in flower*), cantata, 1936 (O'Loughlin 2000).

**Franc Šturm<sup>1</sup> (1912–1943)**

The whole bibliography (Bedina 1978, 112) lists, beside two lost works (*Šest majhnih skladb* for quarter-tone piano and String quartet in quarter-tone system, “accepted by Alois Hába as a graduation work,” as he wrote to his sister on February 13, 1935; see: Bedina 1978, 113), four quarter-tone and two sixth-tone works, all manuscripts:

1. *Mala suita* for 2 violins, Op. 2. (1. Allegro; 2. Adagio; 3. Andante cantabile; 4. Vivace). Prague, November 1933.
2. *Luftbalonsuite* for quarter-tone piano, Op. 3. (1. Andante; 2. Allegretto; 3. Moderato; 4. Vivace). Prague, April–May 1934.
3. *Pet pesmi* for voice, violin and violoncello, lyrics by Oton Župančič (1. *Tak tenka, tak mirna je zarja večerna*, Lento, tranquillo; 2. *Svež dih od gora*, Allegro molto; 3. *Tiho prihaja mrak*, Andante; 4. *Po stranskih potih*, Vivace; 5. *Palma svetlih sanj*, Lento). N. d.
4. *Mala muzika* for two violins (1. Agitato; 2. Adagio; 3. Allegretto; 4. Lento; 5. Con moto). Ljubljana, 1938. Handwriting.
5. *Veseli, žalostni in častitljivi koledniki* for two voices, lyrics by Oton Župančič (1. *Veseli koledniki*, Vivace; 2. *Žalostni koledniki*, Grave; 3. *Častitljivi koledniki*, Moderato). Prague, February 1935.
6. *Štiri otroške igre iz Cicibana Otona Župančiča* (only two sketches for children were written) for three voices on poetry from *Ciciban* by Oton Župančič. (1. *Dedek Samonog* 2. *Otroci spuščajo mehurčke*). N.d.

**Demetrij Žebre (1912–1970)**

1. *Dan*, ciklus pesmi za godalni kvartet v četrtonskem sistemu. Prague, 1938. Lost.

**Ivan Pučnik (1915–1991)**

1. Quarter-tone String Quartett with soprano. N.d.
2. Quarter-tone Phantasy for solo viola. N.d.

This list may be prolonged, yet the additions would hardly change the historical position of the pieces as indicated below.

<sup>1</sup> It is noteworthy that the only scholar of Šturm mentions that his Op. 1 is “likely to be a quarter-tone work because Op. 2 and Op. 3 are also” (Bedina 1978, 113). Bedina mentions also “*Dan*, ciklus pesmi za godalni kvartet v četrton. sistemu” (Praga 1938), yet I could not find the piece in Slovenia.

## 2 The views on microtonal music in the 1920s

The public experience with microtonality in Slovenia seems to have started on December 18, 1924, with the concert given by the Amar-Hindemith Quartet.<sup>2</sup> It was announced in the local newspaper *Jutro* on December 17, 1924, p. 4, where among other things Hába's self-reflected historical position is expressed:

The quarter-tone system is actually nothing new, it is only a completion of our common tonal system. As it is known, this was felt by the famous Busoni and Möllendorf, they both have experienced and expected this novelty in creating music.

One of the reporters, composer Emil Adamič (1877–1936), signed mysteriously as "Č", recorded the event with veneration for those:

[W]hom we, the Ljubljana provincialists with our straitened music, cannot hold even a candle to. They came as a storm that cleans the atmosphere, as a light that brightens the darkness. Alas, my pen cannot follow my emotions. I would have written for them all the gospels, an entirely new, and the newest, musical Testament. (–Č, 1924)

The biblical elevations, however, took an interesting turn with the judgement of Hába's two movements from his Second String Quartet (probably Op. 7, 1920). Emil Adamič continued:

Hába does not seem to me to be honest. This is experimental music, a music for itself. If I would not have been told that this is quarter-tone music, bichromatic, I could not have felt that. I consider as music, the true daughter of God, only music that is not a product of thinking and experiments but an outpouring of cordial feeling. Hába certainly did not, as far as we were able to hear, feel [the music] as a son of the Czech people that is not acquainted with quarter-tones. We could more easily claim that about our Istrians, Čičis, about Oriental people. Perhaps we even do not feel the aesthetic need for quarter-tones and similar divisions because we have passed that

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2 The programme: "1. Stravinski: Koncertino 2. Schubert: Kvartet op. 125, št. 1. Es-dur. Allegro moderato. Scherzo. Prestissimo. Adagio. Allegro. 3. Odah: Godalni kvartet B-dur op. 5. 4. Hindemith: Kvartet op. 32. Zelo odločno. Zelo počasi. Mala koračnica. Passacaglia. 5. Haba: Godalni kvartet v četrtrglasnem sistemu. Andante. Allegro Scherzando."

over through the centuries, and the equal temperament is a liquidation of our unsteady music from the past. Anyways, the future will reveal whether Hába, his predecessors, and his followers will prove right. The Hindemithians should be happy, though: if not because of the number of their listeners than at least because of the enthusiasm. They opened up a new entrance into the temple of music where we saw and felt the beauty alongside the musical charms that we have experienced never before. (–Č, 1924)

Out of several more documents – mainly marginal notes about quarter-tone music – created during the 1920s, only two of them are (at least somewhat) more substantial. Both were published in 1928, one by Slavko Osterc and the other by Srečko Koporc. They nicely reveal the dichotomy regarding the perception of quarter-tone music.

Slavko Osterc – a notorious Slovenian modernist, himself a pupil and a friend of Hába – claimed, to the contrary of the claim in the citation above, that Hába was highly influenced by the folk songs from his region in his quarter-tone music:

When I enrolled in the quarter-tone course, Hába first played on the automatic instruments [the Förster quarter-tone piano] to me about 30 Slovak folk songs that he “photographed” during his journeys through the Č.S.R. He wanted to call to attention that quarter-tone music also exists in the folk songs. “If you wish to hear more of it, you should go to Bosnia and the southern parts of your state,” he added. The course started with intonational exercises, and that was quite demanding at first. After about a month we managed to get into that and then he tested us about how we “follow” the quarter-tone theory and the old modal scales. Then he formed several groups, I forgot how many of them; I went to the last group with three older students that took their degrees this year (Karl Hába, Miroslav Ponc and [Rudolf] Kubín). Thus we started with practical composition and mainly composed piano pieces that Erwin Schulhoff played for us. (Osterc 1927/28)

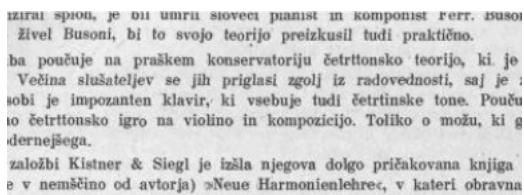
With his notorious irony, Osterc described the reception of quarter-tone music as something pragmatic and vital for his time. He thought of his sympathies for quarter-tone music as for “moral support for every fighter on his way to victory” because quarter-tone music, he noted apologetically, is:

[An] enrichment of the octave for additional 12 tones. [...] Thus the possibility for harmonic and melodic expression is not only doubled but drastically multiplied. (Compare mathematical combinations of successive numbers from 1 to 12 and from 1 to 24.) (Osterc 1927/28)

It was the same year that Srečko Koporc questioned Osterc's views. In the journal for church music *Cerkveni glasbenik* in 1928, while reviewing Hába's *Neue Harmonielehre*, after a short historical sketch of quarter-tone music from Busoni to Hába, Koporc noted:

His theory is very primitive. It is founded on multiplication of the intervals from the current [chromatic] tonal system.

For instance C–e (the third) between the major and minor third, neutral third and so forth. The 12 old tones + 12 new tones. In such a way, smaller units may be derived. Nothing different like Möllendorf's harmonium. In Hába's new book on harmony we read the explanation about chromatics, old diatonics, but not as one may expect, because he operates too much with passing notes. The same mistake holds true for the quarter-tone theory. His [string] quartets (written so far) are compositions in which the harmony is just the common one; the only difference is that above the ordinary chords some quarter-tone notes are added, considered exclusively quarter-tone notes. I expected Hába to operate and elaborate quarter-tone chords separately. Or at least in such a way as a certain gentleman (a student in the master class for composition) explained to me the first chord of B. Jirák's Sonata Op. 30. Because I may not reproduce the same chord, let me illustrate with another combination with the same interval structures as in the mentioned Sonata:



iziral spion, je on umrlu sioveci pianist in komponist ferr. busoni  
Živel Busoni, bi to svojo teorijo preizkusil tudi praktično.  
ba poučuje na praškem konservatoriju četrtonsko teorijo, ki je  
Večina slušateljev se jih priglasi zgolj iz radovednosti, saj je  
sobi je impozanten klavir, ki vsebuje tudi četrtonske tone. Pouču  
to četrtonsko igro na violino in kompozicijo. Toliko o možu, ki g  
dernejšega.  
založbi Kistner & Siegl je izšla njegova dolgo pričakovana knjiga  
e v nemščino od avtorja) »Neue Harmonienlehre«, v kateri obravna



a) This chord was considered by the mentioned gentleman as pure E major and according to him, Jiráček's Sonata starts with a pure C major chord, the second theme (of course) is on the dominant. The tones under b) are passing tones, etc. It is worth mentioning here [Marij] Kogoj's theory,<sup>3</sup> so-called "typical harmony." With Kogoj's theory, every chord of the chromatic [poltonski] system can be explained. The same will be possible in quarter-tone music. On this occasion I wish Kogoj would publish his harmony as soon as possible. We could compare both books from both a practical and scientific position. Professor Ot[a]kar Šin is also preparing a modern harmony. As it may be seen from these publications the new era aspires toward clarification of the harmonic formations, one explains them in one way the other in another. It is necessary to establish unity, which is a discipline for all teachings – be it either chromatic or quarter-tone music. The classical harmony may be a model that is slowly passing away; it dies slowly but it had unified and musically legitimate functions. It is the traditionality [tradicionalnost] that keeps it alive. (Koporc, 1928)

Srečko Koporc mentioned the "practical" and "scientific" level of the textbooks by Hába and the canonic music theory textbook by Otakar Šin. But he missed Hába's point, indicated by Osterc. Koporc omitted that Hába's book, as Spurný (2007) elegantly explained a decade ago, advocated a "Konzept einer 'Musik der Freiheit'" and was not a classical textbook on harmony. Hába pursued a socio-aesthetic goal of "free music" founded on one rule only: "Das einzig wirkliche Gesetz lautet, 'nicht traditionell zu sein,'" or, in Hába's biologicistic notion:

Die Gesetzmäßigkeit der geistigen Produktivität ist prinzipiell anscheinend dieselbe, wie die der animalen sexuellen Wollust und Produktivität. (Hába 1927, [v])

It was a textbook of *free composition* that deprived the composer only from one freedom: s/he had to remain within the confines combining intervals of pitches, not other sounds, as was indicated by the futurists and exhaustively practiced especially by electronic musicians after WWII.

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3 Kogoj has in a manuscript a very interesting book on harmony; it is a book in which all possible combinations [of chords] are given, past and future, in chromatic [poltonski] music. Because the author has not yet given a title to his book, I used the name "Typical harmony" because of the lack of a more appropriate one.

### 3 The views on microtonal music in the 1930s

Hába's eloquence hints at the importance of the aesthetic issues within a certain context. Yet, a mixture of social and music-theoretical arguments circling around quarter-tone music was not recognized as a compound theoretical issue. Yet it was exactly this combination of music theory and aesthetics joined by different sociologisms that reverberated long after the modernist reintroduction of microtonality. By sociologisms I mean Hába's curious idea that advocated for microtonality as an anti-Germanic phenomenon, almost as an embodiment of the modern pan-Slavic idea. Bravničar recounted his meeting with Hába in the early 1930s, noting:

"The Romans have musically taken joy in diatonics, the Germans have devised great musical works in chromaticism. To us Slavs," continued Hába, "belongs the future and the task of quarter-tone music." – "I highly respect Schoenberg because he introduced new colors in music, new expressive means, and because he went on and on upwards without compromise. Look at Strauss and Schrecker. In their last compositions they ease off and I lose respect for such people. [...] It is necessary to always move forward; every retreat is pernicious for a person and it reveals nothing but the loss of power. Thus spoke Prof. Hába. (Bravničar 1931)

The overall impression regarding quarter-tone music was prophetic only in the sense of its historical potential:

I was curious what other Czech composers thought about quarter-tone music, and I spoke about it with Vít. Novak, Jos. Suk, V. Talich and others. Strangely enough, the answers to my questions were all so similar as they would have set them up earlier. They all respect and highly appreciate the consistency, belief, and sincerity of Professor Hába, yet no one would swear with both hands on quarter-tones. Yet he successfully persuaded me that this system will be never disappear from this world and that it will coexist simultaneously with diatonic, chromatic, and quarter-tone systems, and Hába will enter the history of music as the John the Baptist of quarter-tones. (Bravničar 1931)

It was during Hába's visit to Ljubljana that the public found out about his prophetic cultural position as opposed to the aesthetic ontologies of that time. A certain "T" reported about Osterc's quarter-tone piece *Four Heine's Songs* in 1932 and Hába's visit in the newspaper *Slovenec*:

Today we mock romantic music everywhere and we try to impose on it all imaginable sins: sentimentality, effeminacy, tearfulness, whining, bombasticity. We fancy strong, clear, sometimes even primitive, music. As the undersigned has heard quarter-tone music, it is intensified romanticism, that is, intensified sentimentality, effeminacy and so forth. That does not work today anymore. Because we also know Osterc from other perspectives, we know that he wanted to pay compliments with this experiment to the propagator Alois Hába, who personally attended the concert and shared with us some of his thoughts about quarter-tone music. Yet these songs are fairly innocent, and they did disappoint those who expected that the world will fall from its hinges. If the listener had not seen the written score; that the songs were composed in the quarter-tone system, he would almost miss the fact. He would think that the performer uses too many sugary portamentos. (T. 1932, 2)

Marij Kogoj, soon to go off the Slovene public musical life due to his mental illness, reported about the quarter-tone phenomenon as “fully understandable thing”:

The novelty for Ljubljana are “Four Heine’s Song” in the quarter-tone system for voice and string quartet composed by Slavko Osterc. Prior to the concert, a short lecture was given by the pioneer of the quarter-tone composition Al. Hába. It turned out that the quarter-tones will be a fully understandable thing, even if the chords as such were not used completely in a specific manner. These songs were sang by Mrs. Arko, 4 Gradnik songs (in chromatic system) by the same composer were performed by Ms. Golobova. The programme was played by a quartet from our Conservatory of music. (Kogoj 1932, 39–40)

A month later, the (leftist) newspaper *Jutro* published a translation of Hába’s affirmative review of the same concert (“Češka sodba ...” 1932). Hába emphasized the closeness of Osterc’s quarter-tone music to the folk song diction as well as the historical necessity of quarter-tone music. He claimed that it promotes “new forms in music” within Slavic culture. Not only were the social and aesthetic variables discussed; the theoretical potential of the quarter-tone system was also recognized.

Ivan Pučnik, an amateur composer who hated any kind of music education although enjoyed Hába’s classes immensely (and ended up as a

physician-pneumologist; cf. Weiss 2018, 211–13), described Hába in June 1935 (Pučnik 1935) as “the most modern Czech composer.” The interview is the longest presentation of Hába’s views on composition in Slovenia and the main emphasis lies on the context: the anthroposophy of Rudolf Steiner. The view (philosophically comparable to some ideas found by Stockhausen in his *Licht*) deserves a longer quotation:

What do you think about the new Steiner anthroposophic era in music?

As if he wanted to answer on complexity with a single word, Hába said: Yes!

Then he continued with great optimism:

First of all, nobody knew how to answer simply to the question: What is music? Kallenbach simply said: We are not on that spot to be able to answer that. But Steiner said: Music is an image of an inner man, a condensed image of his surrounding and nation. That is why every true inner music is typical for a nation and in its essence is unquestionably collective; it is a reflection of the struggle that a man fights with two powers: with the Luciferian and the Ahrimanic element, in order to attain the classical, the balance and the fullness, what personifies Christ. Luciferianism is feverish gout of ghosts and certain humidity, while the Ahrimanic element is a stabilized, non-fierce, crude dogmatism. In music, these three elements are expressed with adequate concepts: the pure original melody forms the type of Christ; Luciferianism is expressed in harmony, Ahrimanic in the rhythm. Christ is not a struggle against Luciferism and Ahrimanicism, but a harmony between the two poles in a sense of the normal, the healthy; therefore all three elements must be represented in music: thought, emotion and will, all with the same consistency. – Each of these three types, which is for itself exclusivist, is larpurlartistic. We need general spaciousness: the high and the low registers, the proper development, the power, and the balance of the elements to give birth to a Christ-type; full-bloodedness and absolute humanity.”

Hába said precisely: This is the Steiner era, which necessarily leads to uncompromising, the corresponding musicians get it. Today, these three elements, Christ, luciferism and Ahrmanism in battle must be shown, because we live in a battle and blighted age! (Pučnik 1935)

The all-encompassing, universalist view on music as a reflection of the world and the artist are the prime-movers that led Dragotin Cvetko in the late 1930s to picture Hába as the person who presented common theoretical foundation of all tone systems and set up the possibility of composing in all systems (Cvetko 1938, 562).

Publicly, however, the attractiveness of quarter-tone music was rather ephemeral. The quarter-tone music course organized by Franc Šturm in 1937 attracted only one student:

[O]nly one candidate enrolled, Primož Ramovš, a younger student of Osterc, who keeps his notes from that 'school' that consisted of three meetings only. (Bedina 1981, 18)

Quarter-tone music remained a kind of a theoretically generated propaganda for modern Slavic music throughout the 1930s. Was it more imagined by Hába himself in 1933 than considered as a feasible goal in Slovenia? Hába's article on microtonal music was published (translated into Serbo-Croatian) in the most advanced Yugoslav music journal of that time, *Zvuk* (Sound) (Hába 1933). His words were a kind of a musical light-house that sporadically indicated the coordinates of a new land. But this light did not have the power to guide many ships. The beacon, at that time, attracted only a few sailors.<sup>4</sup> Yet its light grew stronger and stronger in the following decades.

#### 4 After WWII

After 1945 an important feature of emphasizing two complementary aspects of microtonality grew in importance. On one side, the historical arguments are widening in range and include geographical (or, rather, ethnographical) as well as ethical arguments. On the other side, microtonality is seen as an aesthetic *qualia* of the modern world. It is important to stress that the second issue emerged publicly in the late 1960s. The biggest Yugoslav musicological resource, *Muzička enciklopedija*, dedicated in the second edition only a sparse three paragraphs to quarter-tone music (Kuntarić 1972) and none on microtonality at all, although the word itself and its derivatives exists in several entries. There is hardly any doubt that microtonality today is seen as

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4 Not even the both theoretically and historically informed writers, such as Osterc and Koporc, did not demonstrate the "empirical attitude" (Johnson 2015, 195) comparable to that of Nicola Vicentino, who according to Julian Johnson "revealed remarkable awareness of different musical traditions of the world. His own system of microtones, he argued, would be the first to accommodate the microtonal tunings and in infections of all the world's music" (Ibid.).

a common compositional means used by many modern musicians regardless of their stylistic persuasion, as indicated in the 1980s by Amalietti (1987, 1987a, 1987b).<sup>5</sup> This trajectory of discussing microtonality may be depicted as a process starting from a specific historical circumstance in the 1920s and 1930s, gaining theoretical importance especially with the highlights of electroacoustic music and becoming an aesthetic universal variable. It deserves a more detailed discussion.

The first Slovenian survey of microtonality was a part of the historical survey of twentieth-century music by Ivo Petrić in 1962. Although Petrić stressed that the “division on micro-intervals is a historically and geographically conditioned” phenomenon (Petrić 1962, 509), he emphasized a universalist view of microtonality, important also to Hába’s musical philosophy. Petrić identified microtonality as having a universal theoretical potential for discussing different tonal systems, as did Dragotin Cvetko as early as in 1938. However, Petrić also formulated the aesthetic function of microtonality, claiming that it erases the gaps between individual cultures and enables music to be an inclusive, integrative art:

Micro-interval division is being revived in our time. Yet it emerges as a consequence of a deeper intervention in the material and thus also in the aesthetic appreciation of the art of music. We find the quarter-tone being expressed, above all, in the works of the Polish composer Krzysztof Penderecki (1933); it functions to create sound masses and noises produced with traditional instruments. Micro-intervals are also used in electronic music, which artificially creates its tone material. Although micro-intervals will need a long time to enter the consciousness of the entire humanity, their usage demonstrates an aspiration to bring closer and join all existing

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5 For instance, Darja Koter (2013) mentioned in her history Slovene music after 1918 the quarter-tone music briefly in connection to Slavko Osterc and Franc Šturm (although more students attended Hába’s quarter-tone music class: beside Demetrij Žebre who left also some compositional traces in quarter-tone music, also Drago Mario Šijanec, Pavel Šivic, Marijan Lipovšek should be mentioned). And includes rather contingently the microtonality in connection to:

- electroacoustic music (Vinko Globokar),
- the acoustic analysis of the harmony and its use in composition (Božidar Kos),
- spectral music and
- world-music legacy (Tomaž Svete).

One could add only that the technical aspect of microtonality features much more prominently already in the music written by composers born in the 1920s and 1930s, as O’Loughlin does not forget to mention in connection to Milan Stibilj, Jakob Jež, Primož Ramovš, and Darjan Božič. Yet, not Koter’s and not O’Loughlin’s (2000) history of the Slovenian music since 1918 – the only synthetic histories of the Slovenian music of the last century – do not point to an important *unificatory* perspective of microtonality discussed further on.

musical cultures. The advancement of the technique alongside the traffic and, on the other side, the advancement in electronics with all its developments (the gramophone industry, tape recorders, radio broadcasts) break down the last obstacles that kept individual cultures in isolation. (Petrić 1962, 510)

It would be difficult to find a nicer proclamation of “postmodernity” as a period of “liquid” entities that “cross borders” and grow (at least nominally) into a culture of coexistence. And Petrić indicates another important trajectory about microtonality: the microtonality that emerges in the second half of the twentieth century is a result of a “deeper intervention of the material and thus also in the aesthetic appreciation of art of music” and is simply a reproach to what he saw as a more superficial phenomenon of using microtonal structures on the level of interval-distribution only. Petrić’s words echo the reproach articulated more than three decades earlier by Srečko Koporc: microtonal composers from the first half of the twentieth century “did not reach into the essence of devising music”, thus it was heard “to sound like deformed traditional music” (Petrić 1962, 510). Though, Petrić added, the use of microtonality was successful in some works based on folk music (he mentioned Bartók’s Violin Concerto and his String Quartet No. 6, Bloch’s Piano Quintet, and the quarter-tone Aria from *Oedipus* by Georges Enescu).

To illustrate Petrić’s (and Koporc’s) argument, a representative piece of quarter-tone music, a comment on the passage from Franc Šturm’s *Little Music* for two violins in quarter-tone system from 1938 may be offered. The rhythmic and metric structure is neo-classical. The leading voice may be interpreted with the judgement of microtonal music by Alojzij Geržinič (a student of Slavko Osterc and political emigrant that fled to Argentina in 1948), who in 1962 set microtonality in a line with “polytonality” specific to those for whom:

[E]ven the utmost chromatism of composers, like Reger, did not crumble the material for composition thoroughly enough; that is why they broke the whole tones into four (quarter-tone music) or more parts (Hába, Wyschnegradsky, Carrillo).<sup>6</sup> (Geržinič 1962, 249)

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6 Beside the mentioned examples, the microtonality is publicly mentioned several more times in the interwar period on different occasions: while reporting about certain pieces (of Hába in: Osterc 1931), reporting about Hába (Bravničar 1931).



Example 1: Franc Šturm, Mala muzika za dve violini v četrttotskem sistemu.  
NUK Ljubljana, Glasbena zbirka

The importance of microtonality as a theoretical concept was, again, stressed in the early 1960s by Pavle Merkù, who noted that quarter-tone music is a consequence of the fall of tonality and aspirations toward certain “pan-tonality” (Merkù 1961, 867). However, it is not only this theoretical *pregnancy* of microtonality – the concepts of *pan-tonality* (polytonality, also pandiatonicism?) – that will be of theoretical interest later on. It is also its epistemologic, primarily aesthetic flexibility – its evasive, heteronomous and heterogeneous, *pan-aesthetic* pregnancy – that attracts the youngest generation of professional as well as non-professional musicians. This interest is indicated by the activities of the sound artist Miha Ciglar, the director of the Institute for Sonic Arts Research (IRZU) founded in 2008, and the founder



of the EarZoom Sonic Festival. It is as if Hába's and Vicentino's philosophy have been rephrased and reframed into a certain holistic, all-encompassing, universal theory that exists somewhere in-between the contemporary do-it-yourself (DIY) culture and academically "self-evident" yet till now rarely theoretically reflected fact.

In IRZU's 2011 description of a series of events entitled *Theory and Techniques of Contemporary Music*, we read:

With sound becoming – through the various contexts and discourses – the object of our thoughts, it simultaneously raises numerous questions that can be seen both as a challenge for new interpretations and as a subject matter for creation.<sup>7</sup>

It seems that Ivo Petrič's indicated hypothesis that microtonality has still a long time before entering into the "consciousness of the entire humanity" as an "aspiration to bring closer and join all existing musical cultures" has become the behest of young DIY musicians and their fascination with "the sound itself." What emerged as a moving idea within different modernisms of the twentieth century and became a compositional theory further unfolds through aesthetic reflection in the functionally hardly comparable context of "alternative" music culture.

## 5 Inclusiveness and exclusivity of microtonality today

Today, microtonality is a commonly accepted compositional feature. Some of the most recognized Slovenian composers today – beside already mentioned Vito Žuraj at least Uroš Rojko (b. 1954), Tomaž Svete (b. 1956), Larisa Vrhunc (b. 1967), Urška Pompe (b. 1969), Nina Šenk (b. 1982), Matej Bonin (b. 1986), and Petra Strahovnik (b. 1986) may be mentioned here – use microtonal procedures with astonishing skill. Although not interesting for all composers, the microtonality seems to have become a part of a wider discourse on sound art. Similarly as the microtones existed, without the theoretical background, in the futurist aesthetics of sound, the sound art seems to be interesting not only for the academic composers but for different musical practices connected to DiY culture. With an important consequence: the theoretical, aesthetic, and ideological layers obviously differentiated indicate interestingly entangled notion of our musical modernity.

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<sup>7</sup> See leaflet to the IRZU's 2011 at: [http://irzu.org/flyers/TPSG\\_2011.pdf](http://irzu.org/flyers/TPSG_2011.pdf).

In the above-quoted leaflet to the IRZU 2011 event, the editorial starts tellingly with a series of questions:

How are we to think of sound in all its heterogeneity? How can we ascribe meaning to this evading, transitory, yet omnipresent entity that does not fall within conventional categories offered by music or within aesthetic interpretations, musicological analysis, and a breaking down of its structure, organization, and syntax? How are we to rethink the critical interpretation of various sound practices, the media, and technology-mediated sound, its modes of production and the wider social implications, and the role of sound in the consumer culture, and how can we extend the act of perceiving outside the dominant cultural patterns?

This confusingly rich “shopping list” of phenomena – sound in all its heterogeneity – semantically implodes in itself. It only thematizes the heterogeneity of sound as an “evading, transitory, yet omnipresent entity.” It may be read as a nice idealistic echo of the eleventh analytical recommendations formulated by Hans Heinrich Eggebrecht, namely that:

Sei dir bewußt und gib es zu verstehen, daß du sie [die Wahrheit] niemals als Ganzes erreichen kannst, sondern nur als einen Strahl des unendlichen Strahlens. (Eggebrecht 1995, 136)

The “rays of radiation” seem to add an idealistic conundrum to the universe of music, picturing the communication chain as an eternal process of generating endless variables out of which *also* music emerges through “various sound practices”.

The “various sound practices” and “inscription of meaning,” taking into consideration the different strata of the musical culture, is an essayistic formulation of the field that since Guido Adler tries “[d]as Verhältniß der Musik zur Kultur, dem Klima, den nationalökonomischen Verhältnissen” (Adler 1885, 12–3) to grasp and define anew. The quotation of IRZU 2011 event actually juggles with the phenomenon of sound *and* the social (communicative, cultural, cognitive) processes in which the sound appears in a freely integrative fashion, otherwise promoted as interdisciplinary approach. The very substance of “the sound itself” in “its entire heterogeneity” disappears into different meanings, different contexts, perfectly flexible to cross disciplinary borders.

Although DIY culture does not use the theoretical idea of microtonality for understanding music, it is probably not difficult to connect the concept as advocated by Busoni and Hába a century ago with their endeavors: the advancement – in its widest sense: *differentiation* – of expression is the main idea behind it. Yet, the DIY culture of sound-art rhetoric at first sight concentrates on sound, it moves the sound and the reflection, paradoxically, away from the sound. Instead of thematizing the delicacies of the sound – as was done by *ars subtilior*, *seconda pratica*, Expressionism, electronic music, the spectralists, or the composers of the New Complexity – the DIY music culture transforms the debate into a conceptual hotchpotch. Instead of imposing differentiated epistemological integration and proposing complementary of disciplines dealing with music research, a socially pregnant yet loosely defined universe connected to artistry with sound and the ideas of freedom is emphasized. Noone seems to feel at home where everybody may be home.

It seems that microtonality has been itself devised and thematized from three sides. Firstly, it was introduced as an epistemologic tool for addressing different musics (Vicentino) outside of the modal/tonal system as well as a tool for analyzing musical performance based on different scales (Alexander J. Ellis's logarithmic system of cents); this aspect is still crucial for music research in the era of computer-aided analyses. Secondly, Busoni, among others, set the microtonality as a theory for enriching the expressive possibilities of music; in Hába's eyes, microtonality as a new system of harmony enabled *total freedom* of composing. Thirdly, the microtonality was addressed through an aesthetic point of view, most thoroughly by the expressionists, futurists and dadaists. Yet, contemporary DIY culture seems to introduce the fourth side with the sound art, an evasive soundscape philosophy points to a "borderless tonicity" in which any sound may be treated as a tone, any noise as a pitch, any audible event as music. DIY culture stirs up the layers microtonality as a heterogeneous concept combining aesthetics, music theory and sociology (anthropology), in short, as a tool for theorizing musickings of the world.

## 6 P.S.

It is as if the initial idea for Hába's microtonal system (the games with his brother about "'false' intonation" in his youth)<sup>8</sup> has been granted legitimacy

8 "Den größten Dienst haben mir meine zwei älteren Brüder (Josef und Vincenz) erwiesen. Hätten sie mit mir in meinem Kinderjahren nicht das tolle Spiel der Intonation der ‚falschen‘ Töne betrieben, wäre kaum die Viertelton- und Sechsteltonmusik von mir da, auch keine Theorie der neuen Tonsysteme könnte ich ohne klare Tonvorstellung der kleineren Tonstufen schaffen." (Hába 1927, XIII–XIV)

for creating a kind of “generational history” of microtonality, now addressed often as “sound art.” What earlier and for other musical cultures seemed acceptable has yet to be theoretically and aesthetically re-defined to meet the expectations of concrete users.

Yet, Hába also emphasized his personal experience with the microtonal acoustic world as an important advantage of his, comparing himself to Busoni, who did not live long enough to create any microtonal music, allegedly because of lack of instruments, even though he pioneered the contemporary theory of it. And Hába also rather pragmatically explained the necessity of microtonal music:

Was entsteht zuerst, die Theorie oder die Musik? Zuerst ist eine Sehnsucht da, das oder jenes zu erreichen. (Hába 1927, XV)

It is the same pragmatic context in which today’s reflections on the heterogeneity of the “sound itself” implicitly or explicitly evoke the theoretical foundations, aesthetic features, and social contexts of microtonality. If the mysterious “Č” reported about the Amar-Hindemith Quartet not bothering with the theoretical foundation of the tone system and offering sociologism while falsely denying the existence of microtonal features in the folk music of Hába’s milieu, Hába and Osterc, to the contrary, knowledgeable from first-hand experience, indicated a that there was a universalistic historical and theoretical foundation for microtonal music. The theory, ethnographic evidence, and aesthetic expectations did not coincide, obviously – and it seems that they often still fail to do so.

Microtonality as an “aesthetic enrichment” rooted in the romantic ideal of differentiation of the expression remains important for the fragmented yet to a reasonable extent comparable musical practice today. Not as a social concept in the sense of Hába’s idea of microtonality as a vocation of Slavic music, but certainly as a concept of sound art and its aesthetic universalism that was equally emphasized by Hába (here indicated by Cvetko in 1938, later by Petrić, and to some extent by Merku). Aesthetic universalism found a pragmatic echo in DIY culture and its “heterogeneity.” If the “main rule” that Hába derived from his music teachers about the possibility of connecting any tone/chord to any other tone/chord (Hába 1927, VI–VII),<sup>9</sup> contemporary iterations of sound art elevate the theoretical possibilities of creating music

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9 “Mein Grundsatz lautet: Jeden Ton kann man mit jedem anderen Ton jedes Tonsystems verbinden (in Beziehung bringen). Jeden Zweiklang und Mehrklang kann man mit jedem anderen Zweiklang und Mehrklang jedes beliebigen Tonsystems verbinden (in Beziehung bringen).” (Hába 1927, VI–VII)

“from the sound itself,” using the fascination of sound as a synonym for electronic music and (free) improvisation, creating imagery of a incommensurable, utterly subjectivist, contextually conditioned notion of sound art as *the* (referential) state of contemporary music.

It is, of course, not difficult to take sides *pro et contra* whether microtonal music, as Srečko Koporc claimed, is “a reminder that the world today is living faster and more superficially than ever before” (Koporc 1928, 112) or not. But it would be interesting to compare further the idea of *progress* that was the giant who carried also the theory of microtonality with the other theoretical concepts on the giant’s shoulders. The giant is fairly alive, he just seems to have several more dwarfs on his shoulders.

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*Rima Povilionienė*

## **From Tone Inflection to Microdimensional Glissando: Observations on Microtonal Manner in Contemporary Lithuanian Music<sup>1</sup>**

### **1 Introduction**

“Why the interest in new tunings?” Thus Douglas Keislar introduced the Microtonality Today forum in 1991.<sup>2</sup> Yet the same question may be applied to the beginning of the twentieth century when intense changes in the cultural panorama – as well as in music – were occurring.

The first decades of the twentieth century were marked with an aspiration for recommencement in the arts. That was influenced, in particular, by a burst of technological innovation. Changes to the external world, especially the glorification of technology, fostered a rebellious and even negative reaction against remnants of romanticism and sharpened the gap between the circulating modern outlook and rooted cultural values. A revolt against the past revealed itself in an admiration for reality and objectivity that renounced and replaced the exaltation of the inner world and emotions.

The vivid juxtaposition of two centenaries caused the settlement of new artefacts, which had an influence in the creation of music as well. We can mention the rise of the futurist wave, which addressed the desire to reorganize nature, sought to discard the art of the past, and even glorified violence (e.g. encouragement destroy museums). In 1911 Francesco Balilla Pratella, the author of *La Musica Futurista. Manifesto tecnico*, was calling for the link of music to everyday sounds. As Diana Keppler (2001) pointed out, the idea of the liberation of the music/composer, raised by Pratella, encouraged composers to refuse the traditional rhythmic arrangement, genres, and forms of music as well as the conventional perception of tonality, consonance, and dissonance.

Furthermore, the surge of recording techniques was followed by the appearance of machinist aesthetics. The formalization of nature seemed to be a general

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1 The chapter was written as the part of the project “Sound Utopias: Cultural Impulses and Institutional Contexts of Lithuanian Music (Trans)avant-garde”, funded by the Research Council of Lithuania (LMTLT), agreement No S-LIP-18-39.

2 The question cited from Keislar’s introductory text (Keislar 1991a, 174) in a special chapter “Forum: Microtonality Today (Part One)” of *Perspectives of New Music* journal. The chapter is of great interest and consists of four texts: introduction by Keislar (Keislar 1991a) as well as Keislar’s interview with six American composers (Keislar 1991b), Hesse’s text on ekmelic music (Hesse 1991) and an essay by Ezra Sims (Sims 1991).

aspiration, in parallel to futurist intentions: machinist composers deliberately eliminated the elements of nature and landscape, replacing them with urban and technological artefacts.<sup>3</sup> Moreover, the recording technologies extended the horizons for sound analysis, transformation and distortion, and decomposition and synthesis and produced a new quality of timbres, stimulating the emergence of electroacoustic and electronic music. To assess the development of machinist music in the middle of the twentieth century, Christopher Hailey pointed out:

The aesthetic of machine heralded by the prewar Futurists had become a reality: the motoric, metallic, percussive qualities of post-war music seemed to mimic life's accelerated tempo, its spirited commerce, heavy industry, mass transit systems, and swelling urban populations. (Hailey 1994, 16)

Here I would add a remark by Hermann Danuser (1984, 100), which states that the emancipation of noise became an essential part of the history of twentieth-century music.

It seems that microtonal experiments appeared to consciously control and functionalize natural phenomena (cf. attempts by futurists and machinists). In the beginning of the twentieth century, microtonality started to manifest simultaneously to the prevailing employment of the artificial chromatic scale, a row of 12 semitones in the octave.<sup>4</sup> Actually, the consensus of equal temperament was a result of the sequential process in music that had taken place since the sixteenth and seventeenth centuries. However, the established 12-TET quickly began to reflect "exhaustion" and "tiredness". As Arnold Schoenberg commented on the processes in the nineteenth century:

Richard Wagner's harmony had promoted a change in the logic and constructive power of harmony [...] a development which ended in what I call the emancipation of the dissonance.<sup>5</sup>

Later, such flourishing outcomes of 12-TET, like serial thinking and Schoenberg's technique of dodecaphony, encountered the limitations encoded in their inner structure.<sup>6</sup>

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3 However, the language of machinist music couldn't escape the manner of imitation of, e.g. the motion of locomotive or rhythmic rail wheel sound (e.g. in Ernst Křenek's *Ballad of the Railroads*, Op. 98, one may find a reference "illustratively" for performers).

4 The twelve-tone equal temperament (12-TET, also 12-EDO/equal division of the octave), where the adjacent notes produce the same ratio, i.e. the distance between any adjacent semitones is equal to 100 cents.

5 Cited from Schoenberg's essay repeatedly published in 1984 in English as "Composition with Twelve Tones" (in *Style and Idea*, edited by Leonard Stein, 216. London: Faber & Faber).

6 As Ben Johnston has argued in his articles, serialism and indeterminacy were "natural outcomes of the exhausted pitch structure bequeathed by equal temperament" (Granade 2007, 297), as a composer

The increased attempts in microtonal music contributed to the transformation and even rejection of the 12-tone temperament as well, signifying the rediscovery of just intonation. Composers started to look for the expansion of an equal temperament to create new sonorities, a diversity in tone relationships, and realizable chords. Among the first attempts to compose music, we might identify Richard Stein's *Zwei Konzertstücke* with quarter-tones for cello and piano, Op. 26 (1906), which are reputed to be the first published quarter-tone music; the quarter-tone opera *La Rosiera* by Vittorio Gnecci in 1910; and the chrestomatic case by Charles Ives, *Three Quarter-Tone Pieces* (1904–1924).<sup>7</sup>

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himself he was involved in neoclassicism and serialism; however, quite soon Johnston abandoned the serial technique and turned towards just intonation, fascinated with Harry Partch's ideas.

- 7 However, as early as in the nineteenth century we may notice some signs of increasing dissatisfaction with limited possibilities of Western major-minor system, the turn of music processes towards abandonment of form and melody, and the revision and extension of diatonics, e.g. the use of non-tempered scales and microintervals. It is stated that Heinrich Richter wrote on quarter-tone music in his *Aphorismen* as early as in 1823. Among tentative examples are the String Quartet in quarter-tones by John Herbert Foulds composed in 1898 or an earlier case from 1849: to simulate the enharmonic sound of ancient Greek Oceanides Fromental Halévy invoked some sporadic quarter-tones in the strings of *Prométhée enchaîné*. Moreover, let's recall some historical background, e.g. a source of special significance, Abraham Bartolus's treatise *Musica mathematica* (1614), which presented Andreas Reinhard's division of Phrygian scale into 48 equal parts as an analogue of cosmic proportions. Some vivid examples reach us from the Renaissance period, when Vicentino experimented with microtonal archicembalo with 31 keys in the octave in 1555 (the idea later developed by Christian Huygens), or Francisco de Salinas in his treatise *De Musica* (1577) described the 19-tone scale in the meantone tuning. It is stated that Christian Huygens experimented with 31 tone, while the division of octave into equal thirds of a tone (19-tone scale) was implemented practically by composers Guillaume Costeley, Jean Titelouze.

Meanwhile, returning to the nineteenth century, let me highlight two more facts remarkable in the context of the period, celebrating the apogee of the major-minor system. The first is the recollection of the centuries-old idea of nineteen-tone equal temperament – in 1835 Wesley Woolhouse in his study on music intervals was engaged to approximate the diatonic scale stating that “enharmonic scale of 19 sounds in the octave would furnish a very accurate diatonic series on each of them as a key-note” (Woolhouse 1835, 68). Incidentally, a century later this idea was raised again by musicologist Joseph Yasser when he defended his hypothesis on “evolving tonality”. In a 1929 article Yasser expressed a prevision of 12-tone development into the division in 19 equal parts as sequential and logical because the 12-tone system was derived from diatonics, i.e. a 7-tone scale that was a result of pentatonic (for more, see Yasser 1929; also Berry & Solkema 2014).

The second fact from the period of Romanticism, a text by German composer, music teacher and writer Johanna Kinkel, is of great interest because of her insights on the purely tonal sound-world by Chopin. In her essay from 1852, the 8th letter “Notes on Piano Literature”, one may find the germ of the idea on the liberation of sound, an emotional plea for microtones: speaking about the flow of the melody in Chopin's piano music, Kinkel calls for the emancipation of quarter-tones, regretting that the “clumsy” semitone scale is insufficient to express the tiny relief of a composer's melody, because the music in its nature is “the infinite scale decomposed into sound atoms”. Here are the original text in German from the “Notes on Piano Literature” [Anmerkungen zur Klavierliteratur] (Kinkel 1852, 76, 78–9):

“Chopin will die Vierteltöne erlösen”;

“seine Melodien schleichen widerstrebend durch die halben Töne, als tasteten sie nach feineren, vergeistigtern Nüancen, als die vorhandenen feinen Intentionen bieten”;

and further: “unsere sogenannten ganzen und halben Töne zu plump und lückenhaft auseinander liegen, während die Natur nicht bloß Viertel- und Achteltöne, sondern die unendliche, kaum in Klang-Atome zersetzte Skala besitzt!”

It is very likely that Kinkel might have had in mind Chopin's pieces, like the rapidly ascending and descending chromatic passages in the Etude #2, Op. 10 or the false-like harmony created by semitone E minor Etude #5 from Op. 25.

From the 1920s, increasing interest was shown in microtonal composition.<sup>8</sup> At this time, various forms of critical writing around musical modernism appeared as well. As early as in 1892 Georg August Behrens-Senegalden published a text describing his designed and patented quarter-tone piano. Almost at the same time, in 1895 Julián Carrillo started to explore microtonal intervals on the violin and elaborate the 13<sup>th</sup> sound theory<sup>9</sup> (yet, only in 1922, in *Preludio a Colón* for ensemble, were Carrillo's experimental intentions carried out for the first time).<sup>10</sup>

It's worth pointing out a progressive idea based on the sixth-tones that was described by Ferruccio Busoni in his 1907 essay on new music aesthetics published in Germany. In his seminal work Busoni offered pros and cons of giving up semitones for tripartite tones and presented two models of third-tone series from C and C-sharp (Busoni 1911, 31–3) (see Example 1).<sup>11</sup> A German auditorium was introduced to another proposal a decade later when, in 1917 the German composer Willi Möllendorff set out his theoretical and practical insights on quarter-tones and microtonal harmonium. In his pamphlet, Möllendorff elaborated his idea of bichromatic music and presented propositions for notation and chord combinations as well as a discussion on the choice of suitable sonorities (Möllendorff 1917) (see Example 2).

It was at the same time that Charles Ives, probably the composer most often cited who believed in the future of microtonal sound, envisioned potential

8 Not to overlook the fully devoted oeuvre by Julián Carrillo, Alois Hába's consistent creation, including the 1927 study *Neue Harmonielehre*, Ivan Wyschnegradsky's musical experiments and the publication of his Manual in 1932 as well as bringing together a Circle of quarter-tone music enthusiasts led by Georgy Rimsky-Korsakov in Russia. Also worth mentioning is the Piano quintet using quarter-tones in strings by Ernest Bloch (1923), *Four Japanese Songs* for soprano and orchestra (1929) by Jan Maklakiewicz with the quarter-tones originating from a Japanese scale, the Concerto for quarter-tone piano and strings by Hans Barth (1930), and others afterwards.

9 Originally *el sonido trece* or *Sonido 13*.

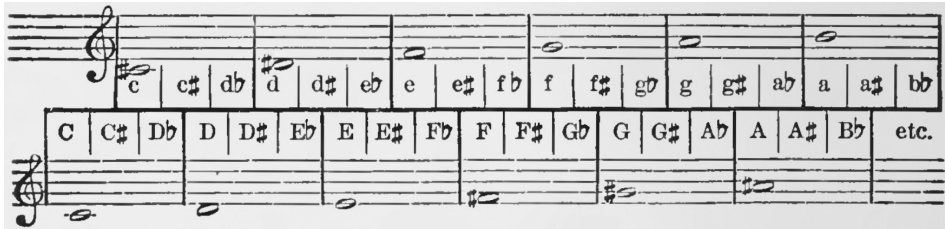
10 Although sporadic experiments with musical instruments date back for several centuries (e.g. in their writings, theoreticians Salinas, Fabio Colonna, Kircher depicted the model of enharmonic keyboard with 24 to 60 keys in the octave; according to Mersenne, Titelouze had a harpsichord with 19 equally tuned tones to octave; a well-known archicembalo with 31 keys by Vicentino in 1555, etc.), the interest in microtonal music in the turn of past century revealed itself in the design of new types of instruments further. In 1892 Behrens-Senegalden announced his patented quarter-tone piano, while Stein, after composing his *Zwei Konzertstücke*, constructed keyboard and wind instruments with new chromatic capabilities and a quarter-tone clarinet. Wyschnegradsky was among the fortunate composers to own his personal experimental piano, produced at Förster in the 1920s to perform the composer's predominantly used 24-TET. To recreate the music creation processes a microtonal piano with twelfth-tones (i.e. 97 keys per octave) was designed at Sauter and presented at Brussels Expo 58, world's fair famous for such landmarks as Atomium, the Philips Pavilion or the display of the autograph of Mozart's Requiem.

11 Originally in German as *Entwurf einer neuen Ästhetik der Tonkunst*, Busoni's essay was ridiculed by his peers. However, quite soon, in 1911, it was translated into English and published in New York as the *Sketch of a New Esthetic of Music*.

ways of producing music that were not yet a part of the practice of composing (Ives 1925):

Even in the limited and awkward way of working with quarter-tones at present, transcendent things may be felt ahead – glimpses into further fields of thought and beauty.

In parallel to Ives, his contemporary Ivan Wyschnegradsky (a Paris-based Russian émigré composer called “the most enduringly influential of this first generation of ‘pitch adding’ composers – particularly in Europe” [Werntz 2001–2003]) also emphasized the advantage of the quarter-tone harmony for its possibility to modulate “in the most distant tonalities”; he considered quarter-tones as a “natural and logical extension” of the semitonal system (Wyschnegradsky 1927) and “a central issue in modern music” (Wyschnegradsky 2017, XI).



Example 1: Two scales with the third-tones from C and C# presented by Ferruccio Busoni in his *Sketch of a New Esthetic of Music* (Busoni 1911, 32)



Example 2: ‘Bichromatic’ notation and possible modulations according to Willi Möllendorff (Möllendorff 1917, 18–9, 23–4)

From today's perspective, Wyschnegradsky's prescient thoughts, devoted composing practice of Alois Hába and his pupils (the Lithuanian composer Jeronimas Kačinskas among them) as well as manifold experiments by other microtonality advocates did not develop into a leading trend of twentieth-century music composing or firmly rooted network of microtonal communities. This is what Julia Werntz worried about in her 2001 article:

So then why, with so many innovations to point to, hasn't microtonality established itself more solidly in the conscience of the general musical public? [...] this [is] after a century in which so many other musical parameters have been explored and eventually accepted into the new music "establishment": extended instrumental techniques, pantonality, timbre, sampled sound, electronically and computer-generated sound, musical multiculturalism, "non-intentionality," issues of structure and time and even the function of music. Viewed from this angle, changing or adding pitches should seem simple, obvious, even inevitable... (Werntz 2001–2003)

In the last decades of the twentieth century, although it did not represent the most popular trend, microtonality re-experienced a growing interest from composers, which was encouraged, to a large extent, by rapid progress in information technologies. As Keislar pointed out, "computers and microprocessor-controlled instruments have alleviated the problem of performance difficulty" (Keislar 1991a, 174). Aesthetic flexibility was another factor in the revival of microtonality because "nonstandard tunings offer a means to breathe new life into minimalism" (Ibid.). In addition, I want to mention David Lewin's transformational theory, presented in the early 1980s, about the conceptual space of music. In Lewin's theory, intervals could be measured with a mathematical group system and musical space occupied three dimensions – pitch, rhythm, and timbre.<sup>12</sup> Here a remark by Hugues Dufourt comes to mind, which states that in the last decades of the twentieth century, the musical/sound space was perceived as "an element of new sound plastic".<sup>13</sup> So for microtonality's revival, no less influential was

12 In 1987 David Lewin published a solid volume on transformational theory, *Generalized Musical Intervals and Transformations* (New Haven, CT, and London: Yale University Press).

13 Dufourt's quotation comes from his book *Musique, pouvoir, écriture* (1991, 279; cited from: GRUODYTĖ, Vita. 2013. "Kvėpuojanti Justės Janulytės muzika" [Breathing Music by Justė Janulytė]. *Kultūros barai* 9: 38). In his book Dufourt captured the rich contexts and music aesthetics of Paris group L'itinéraire (also represented by Tristan Murail, Roger Tessier, Gérard Grisey, Michaël Levinas), later labeled as

the emerging fascination in timbre and the search for new timbral qualities that resulted in an especially refined trend for contemporary music – the phenomenon of spectralism.

## 2 Systematizing microtonality

The characterization of microtonal music/composing with microtones remains under consideration. Today, the description of non-12-tone music is reflected in different concepts and attempts to systematize it because, first, of highly individualized technological as well as each composer's aesthetic attitude and, second, of the diversity in application of different tunings based on such aspects as microtonal relationships, different divisions, and acoustical properties of the harmonic series. Yet, as Navid Bargrizen has noted, "these different systems have one characteristic in common: they all reject the dominance of twelve-tone equal temperament and attempt to break through its limited, monolithic scope".<sup>14</sup> In this section I try to collect and discuss cases of the microtone phenomenon in order to highlight and systematize the important features of microtonal music composition.

### 2.1 Of the term and connotations

In general, the diversity of descriptions is typical of naming the microtone phenomena itself. For example, according to Lydia Ayers's listing in her 1994 thesis, we find several alternatives to cover the term "microtonal" (Pertout 2007, 1):<sup>15</sup>

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spectralism. Yet the idea of sound plasticity was soaring in the atmosphere more broadly, e.g. at a time Horațiu Rădulescu raised his idea of sound plasma, publishing a fascinating prose composition in 1975 (the text itself was completed two years earlier). For example, French composer Pascal Criton, who focused on microtonal harmonies as well, has stated about her 1980s piano pieces that she claimed "to reach molecular material, to fluidify the material of sound" (cited from: DOSSE, François. 2010. Gilles Deleuze and Félix Guattari: *Interesting Lives*, translated by Deborah Glassman, 446, New York: Columbia University Press).

14 Cited from Bargrizen's description of his seminar on intonations, tunings, scales, and microtonality, [https://www.navidbargrizen.com/uploads/5/4/8/1/54814981/bargrizen-syeminar\\_in\\_microtonality\\_tuning\\_and\\_intonation.pdf](https://www.navidbargrizen.com/uploads/5/4/8/1/54814981/bargrizen-syeminar_in_microtonality_tuning_and_intonation.pdf) [accessed August 20, 2018].

15 In 2007 Chilean composer Adrián Pertout completed his PhD with the thesis on microtonal music and tuning systems, encompassing the ideas by Lou Harrison, Alain Daniélou, Harry Partch and Ben Johnston as well as describing his utilization of Persian, Indonesian and Japanese musical scales in creating new microtonal works. The listing by Lydia Ayers' is presented in the introduction, where Pertout refers Ayers' DMA thesis *Exploring Microtonal Tunings: A Kaleidoscope of Extended Just Tunings and their Compositional Applications* (University of Illinois, Urbana-Champaign, 1994).



- **tuning**
- **microintervals**
- **macrointervals** or **macrotones**, such as 5-tone, 7-tone, and 10-tone equal temperaments
- **omnitonal**
- **omnisonics**
- **neoharmonic**
- **xenharmonic**
- **“exploring the sonic spectrum”**
- **non-twelve.**

The latter concept (“non-twelve”) prompts us to add the term **“atwelve-tone”** (“atwelve-tonality”), which in 2001 was proposed by Julia Werntz, an American composer and musicologist and a representative of the Boston Microtonal Society, in order to generalize the harmonies mismatching the 12-tone model (Werntz 2001, 189–90). As we may see, in fact both Ayers’s listing and Werntz’s term focus on certain ways and types of operating with the sound/pitch/interval and show the broadness of the phenomenon in basic opposition to the “twelve-tone”. For example, taking into account the range of octave, “atwelve-tone” refers any quantity of tones that is different to 12, either more or less. Moreover, the adjacent tones may relate either in same/equal or different ratio.

Furthermore, the provided listing should include some earlier dated references such as:

- **“quarter-tone”** (as common as “microtone”), which theoreticians used as early as the seventeenth and eighteenth centuries to explain the ratio between enharmonic diesis and flat.
- **“achromatic”** was chosen by Behrens-Senegalden to explain his quarter-tone experiments with instruments in 1892.
- the above-mentioned **“bichromatic”** used by Willi Möllendorff in his 1917 text,
- and Wyschnegradsky’s visionary idea of **“ultrachromatics”** from the 1920s that brings together several interrelating micro-dimensions, and thus the microintervallic domain becomes inseparable without the micro-rhythmic and micro-durational techniques.

The consideration on microtonality gives another way to discuss when dealing with the concepts of “consonance”, “dissonance”, and “tonality” and their variation in a long-lived Western culture. For example, advocating for pure sound, composer David B. Doty rejects equal tuning, because “if you want a perfect



fifth, use a 3:2, not a 32:21 or a 40:27 [...]; if you want a major triad, tune it 4:5:6 [...] that would be impossible in 12-tone equal temperament, where all of the supposed consonances other than the octave are, to varying degrees, dissonant” (Doty 2003). Werntz holds the same position as she indicates the pure intervals consonant, too (Werntz 2001, 161). Moreover, in his 80<sup>th</sup> anniversary interview, Hába confessed his music was tonal, albeit microtonal,<sup>16</sup> while Ezra Sims stated that his work is established “squarely in the evolving tonal tradition of Western music”, and as Brian Bartling noticed, “focused on expanding musical materials within a tonal framework” (Bartling 2016, iii, 3).<sup>17</sup> But on the contrary, Lithuanian composer and musicologist Antanas Kučinskas has pointed out that Lithuanian composers mainly tend to use microtones in order to avoid/reduce the sense of tonality or tonal sound (Kučinskas 2003, 13). These statements (emphasized with the composer’s personal position as well) encourage us to consider microtonality as a sequential extension of established equal temperament in the common practice of Western tonality.<sup>18</sup>

As we may see, the arguments for the most accurate way to characterize the microtonal phenomenon continue to vary. For example, while Ayers advocates for the term “omnitonal” (Pertout 2007, 1), San Diego composer Ivor Darreg exploits the Greek word “xenharmonic”<sup>19</sup> as “especially apt for radically different tunings” (Keislar 1991a, 173). In my study I prefer to use the term “microtonal”<sup>20</sup> as most proper for describing small structures.<sup>21</sup> What’s

16 This was said in one of the last interviews with Hába published in Polish musical press, see: KACZYŃSKI, Bogusław. 1973. “Jubileuszowa rozmowa z Aloisem Hábą.” *Ruch Muzyczny* 16.

17 As Brian Bartling summarizes, all of Sims’ pieces use transpositions of a single scale and a corresponding notational system in 72-TET that, to him, had tonal implications but with an expanded palette (Bartling 2016).

18 In fact, today the conceptual problem of (a)tonality and con/dissonance oversteps the area of microtonality and demands a broad re-assessment in the context of contemporary music panorama. The problem exceeds the subject of this article and is not developed further.

19 Meaning “unfamiliar modes” in Greek.

20 Etymologically “microtone” is a combination of Greek μικρός (*mikrós*, “small”) and Latin *tonus* (“sound, tone”), but the Greek τόνος (*tónos*, “strain, tension, pitch”) would be a more accurate origin.

21 The definition of microtone, signifying the interval smaller than semitone, is the most common explanation presented in leading music encyclopedias like:

- SIMS, Ezra. 1972. “Microtone.” In *Harvard Dictionary of Music*, 2<sup>nd</sup> edition, edited by Willi Apel, 527–28. Cambridge: Harvard University Press: “an interval smaller than a semitone”
- RANDEL, Don Michael. 1999. “Microtone.” In *The Harvard Concise Dictionary of Music and Musicians*, 417–18. Harvard University Press: “an interval smaller than a semitone”
- GRIFFITHS, Paul, Mark LINDLEY, and Ioannis ZANNOS. 2001. “Microtone.” In *Grove Music Online*, <https://www-oxfordmusiconline-com.ezproxy.lmta.lt/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000018616> [accessed August 20, 2018]: “any musical interval or difference of pitch distinctly smaller than a semitone”
- BARTHELMES, Barbara. 2016. “Mikrotöne.” In *MGG Online*, edited by Laurenz Lütken. Kassel, Stuttgart, New York, 2016ff., veröffentlicht 2015-07-07, <https://www.mgg-online.com/mgg/stable/13668> [accessed August 20, 2018]: “Die Bezeichnung *Mikroton* bzw. *Mikrotöne* (engl. *microtone*, *microtones*, ital. *microtono*, *microtoni*) steht zunächst als Sammelbegriff für Intervalle, die kleiner sind als ein temperierter Halbton.”

interesting, though, is that according to the authors of the “Microtone” article for *Grove*, “microtone” itself may specify *any* interval that deviates from the familiar 12-semitone scale, even “with fewer than 12 pitches” (Griffiths et al. 2001) [italics by R.P.]. On the other hand, for example, based on the criticism by Gieseler, Lithuanian musicologist Gražina Daunoravičienė suggests replacing the use of “microtone” and advocates for the term “Kleinsintervallen” or “microinterval” as more precise (Daunoravičienė-Žuklytė 2016, 320–21).<sup>22</sup> However, microtone remains the most common and general for music intervals smaller than semitone (respectively, the concept “macrotonal”, “macrotone” would be more appropriate for describing structures bigger than semitones).

## 2.2 About the technological approach

It would be accurate to say that the variety in names for the microtone phenomenon reflects the multiplicity of ways microtones are expressed in music texture. Paraphrasing Tristan Murail’s talk on spectral music, we could properly switch his remarks to microtonality, commenting that it is “not a style”, but “a *technological* approach” towards pitch and music composing [italics by R.P.].<sup>23</sup> Even according to the chrestomatic systematization of principles for contemporary music composing by Walter Gieseler, we might classify microtonal composing as a type of musical material organization.<sup>24</sup> Thus, when investigating microtonal music, researchers generally take a look into the technological substance of music and analyze the ways and methods of

22 The reference is made to Gieseler’s article based on his presentation “Kritische Anmerkungen zur Komposition mit Kleinstintervallen” at the 2<sup>nd</sup> Mikrotöne Symposium in Salzburg in 1987 (in 1988 published in *Mikrotöne* II). Moreover, Daunoravičienė points out a widespread association of *tonus* with the whole tone mainly, i.e. major second composed of two semitones. So according to Daunoravičienė, namely the semitone, *semitonus*, is the starting point for further division into smaller parts, not the whole tone; thus a generalizing concept “microdimension”, “microdimensional music” is more accurate for Lithuanian musicologist (Daunoravičienė-Žuklytė 2016, 321). I have to clarify that in choosing the term microdimension Daunoravičienė mainly refers to the case of Lithuanian composer Mažulis’s oeuvre that is a broad landscape enriched with intersecting various microdimensions from tiny intervals to microscopic durations.

23 In 2005, visiting the Gaida contemporary music festival in Lithuania, Tristan Murail said in an interview (the interview was published in Lithuanian): “Spectralism is by no means a style, nor a trend. It is a pure technological approach to the timbre and process of music composing. Of course, the connection between aesthetics and technique is obvious. [...] There are no universal rules here.” (Mockutė 2005)

24 According to Gieseler, music composing techniques are categorized as a hierarchical model of three levels, which are: (1) music material and its organization, (2) structural organization (e.g. serial technique) and (3) entire form. Organization of music material operates with such parameters as duration, dynamics, timbre as well as pitch (more see GIESELER, Walter. 1975. *Komposition im 20. Jahrhundert*. Celle: Moeck).

octave division as well as certain tools and elaborated types of tuning applied in the piece. However, according to composer Rytis Mažulis, the brightest figure in Lithuanian contemporary music who faithfully deals with microtones in his oeuvre, there are no established rules in microstructural composition yet. Further in this text, I intend to distinguish certain factors that are presented by different scholars and/or composers.

It would be true that the most common is the focus on the **music interval** alongside the **division of the octave**. The division may be represented in different models like various results of equal division as well as historically fixed and artificial  **tunings** featuring microtonal relations. For example, in the mid-twentieth century, James Murray Barbour indicated four European “leading tuning systems” – Pythagorean tuning, just intonation, meantone and equal temperaments – which we consider important in discussing microtonality.<sup>25</sup> While for Gardner Read, who attempted to collect the types of microtones in his book on microtonal notation (Read 1990), a starting point is the division of the octave. As a result, Read selected five types of scales:

- 1) the division of the octave into 24 equal intervals with quarter- and three-quarter-tones
- 2) a scale with eighth- and sixteenth-tones, respectively modeling the octave with 48 or 96 intervals
- 3) third-, sixth-, and twelfth-tones, or 18, 36, and 72 equal intervals
- 4) fifth-tones, or 31 equal intervals
- 5) extended and compressed scales with equal as well as different ratios.

Though the list above shows Read’s interest in equal division (points 1 to 4), he was criticized for insufficient attention to non-equal scales.<sup>26</sup> However, Read’s meticulous specification corresponds to numerous results in music

25 Below listed synopsis of Barbour’s description (Barbour 1948, 20) presents some microtonal insights:

- 1) Pythagorean tuning that according to Barbour is “excellent for melody”, but “unsatisfactory for harmony” and characterized with g-sharp higher than a-flat,
- 2) just intonation, “better for harmony than for melody”, g-sharp lower than a-flat,
- 3) meantone temperament, “a practical substitute for just intonation, with usable triads all equally distorted”, g-sharp lower than a-flat, and
- 4) equal temperament, “good for melody, excellent for chromatic harmony”, g-sharp the same as a-flat.

26 Shortly after its publication, Read’s study was reviewed by Rudolf Rasch (1991. In *Perspectives of New Music* 29, no. 1 (Winter): 258–62) and David B. Doty (1992. In *Notes*, Second Series 48, no. 4 (June): 1309).

I should also note that the first four items indicated by Read are usually put together, i.e. I see no need to separate #1 and #2 for they both focus on the versions of duplex division.

practice.<sup>27</sup> On the opposite end of artificial equal division, some composers get into employing natural scales, creating their own systems based on tuning of just intonation or other tunings, series of overtones, and non-Western harmonies.<sup>28</sup>

The observations above allow me to discuss probably the most general viewpoint regarding the use of microtones that I call a bipartite approach.<sup>29</sup> For example, generalizing the variety in microtonal music categorization in his thesis on microtonal equal temperaments, William Reilly Ayers focuses on two groups of composers who “desire an *expanded* musical palette” and those who look for “an *altered* one” (Ayers 2018, 1). In principle we may rely on Julia Werntz’s proposed “division between composers using just intonation and those choosing to ‘add pitches’ to the usual twelve-tone scale”<sup>30</sup> as well as Frank Denyer’s “distinction between the ‘tuned’ (using justly tuned intervals) and ‘untuned’ (not using justly tuned intervals)” (Ayers 2018, 4).

27 We should start the list of composers employing equal division with Wyschnegradsky, who was passionately occupied with the division of the octave into small, equal parts and predominantly used a division of 24 tones (among others – 18-TET, 36-TET, 72-TET that divide the octave into third-, quarter-, sixth- or eighth-tones). It is worth mentioning the set of etudes by Easley Blackwood that present his research on microtonal tunings and possible equal tunings from 13 to 24 notes to the octave. Ezra Sims was interested in an octave with 72 tones while Mathew Rosenblum, according to Grove, “a leading voice in American microtonal music”, employed both a 12-note equal tempered system and a 19- or 21-note microtonal system in his music.

28 A 43-tone system designed by Partch was based on unequal divisions of the octave, while Ben Johnston in his *Suite for Microtonal Piano* created a 12-tone scale with microtone deviations comparing to the equal intervals. Lou Harrison and Ben Johnston were interested in just intonation due to its natural perfection; Harrison, even more, called the equal temperament intervals “fake” because they can’t be expressed in whole number ratios (Keislar 1991b, 184).

29 I would say that the bipartite approach is quite convenient and common and carries out certain systematizations because it is based on the universal phenomenon – constant opposition as stimulus for the momentum of the universe. Here I would like to demonstrate a parallel to Lithuanian composer and musicologist Kučinskas’s research, who took the principle of dichotomy (or opposition) and proposed a systematization of contemporary music. In this way Kučinskas specified two general directions, the first of which aspires to determination, precision and consistency (e.g. serial music), while the second presents the tendency of approximation (e.g. aleatoric music) (Kučinskas 2003, 11–3). As for Kučinskas’s approach to the category of sound, he points out two qualities: the traditional *tonal* type, i.e. determined and differential sound; and the *sonorous* type, a syncretic and indivisible field/mass of sound without a fixed pitch (e.g. represented by timbral explorations). Namely the latter type, according to Kučinskas, includes microtonal sound. However, Kučinskas’s position (i.e. the perception of microtonal sound as not fixed pitch) needs clarification – basically Kučinskas has in mind only *coloristic* microtones (he discovers this way to employ microtones prevalent in the oeuvre of Lithuanian composers).

30 Julia Werntz’s observation pointing out the creative motives also comes to mind: on the one hand, composers desire pure, i.e. justly tuned sound and/or are fascinated with “exotic” harmonies; on the other hand, they simply add pitches. The latter motive, according to Werntz, is not only rationally based and theoretically clear, but at the same the most artistic and creative approach. Werntz’s ideas were presented in her PhD thesis *Toward an Understanding of Expanded Equal Temperament* (Brandeis University, 2000) as well as in subsequent articles (e.g. Werntz 2001 & 2001–2003).

To this model I would add Georg Friedrich Haas's distinction between *evenly* and *unevenly* structured music scales.<sup>31</sup>

### 2.3 Werntz and Haas's classification model

I would like to discuss two classifications that, in full-scale, attempt to encompass the diversity of microtonal music (including different divisions of the octave as well as tuning models). They are systematizations provided by Julia Werntz and Georg Friedrich Haas. As mentioned above, Werntz suggests grouping microtonal compositions into two main categories based on (Werntz 2001, 160–61):

- (1) pure tuning and
- (2) the simple addition of pitches.

While Haas in his article "Mikrotonalität" points out four types (Haas 2003, 59):

- (1) equal divisions of the octave,
- (2) overtone series proportions/just intonation,
- (3) *Klangspaltung*,<sup>32</sup> and
- (4) aleatoric microtonality.

However, in general, both classifications overlap and select the same components/objects. That is, the first category by Werntz corresponds to Haas's second category and exposes, in Werntz's words, a "rejection"/"correction" of the 12-note equal temperament model (Werntz 2001–2003).<sup>33</sup> Just intonation is the most commonly applied model (among others: neo-meantone, Pythagorean temperament, etc.), where with the help of microtones one could attain "acoustically correct tuning" that is based on, for example, pure thirds  $5/4$  and fifths  $3/2$ . Additionally, Haas includes the scale systems based on natural scale and harmonics.

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31 Moreover Haas, an Austrian composer often presented as a second-generation spectralist, applied this approach in his own music too, as Robert Hasegawa discussed on Haas's use of just intonation and equal temperaments in his music pieces like *Blumenstück* and *in vain* (Hasegawa 2015).

32 *Klangspaltung* or "tone-splitting" is explained as the production of harmonic impulses out of tiny, but audibly still perceptible intervals.

33 According to Werntz, "composers in this category have in common a philosophical attraction to the notion of obtaining pure (i.e. truly consonant) intervals", having in mind such figures as Harry Partch, Ben Johnston, Lou Harrison, experiments with the mean-tone tuning at the Huygens-Fokker Foundation, as well as compositions by spectralists (Werntz 2001, 161–63).

The second category presented by Werntz characterizes an “expansion” inside the 12-note equal temperament model (Werntz 2001–2003).<sup>34</sup> Dealing with various cases of pitch addition, Werntz identifies three subcategories, where two subcategories manifest as a random use of microtones such as (a) masses of sound, microtonal clusters, and (b) ornaments as simple coloring of an ordinary 12-tone scale, and in certain way resemble Haas’s third and fourth categories.<sup>35</sup> In the third subcategory Werntz places equal division of the octave (cf. Haas’s first category) and calls it “the most genuine effort to develop a truly microtonal language” (Werntz 2001, 176). If Werntz talks about the creation of minute equal scales only, with 24, 36, 72, and so forth, notes (e.g. the scale of 24-note consists of equal quarter-tones, a 36-note scale of the sixth-tones and so on), Haas includes equally set scales with intervals that are not only smaller, but also larger than a semitone, i.e. he provides the examples of octave division into 19 and 10 equal parts.<sup>36</sup>

## 2.4 What vs. how

The classifications by Werntz and Haas may be found elaborated enough because of their inclusion of various operations with microtones, though they basically rely on technological manipulation with a certain element of music – the interval. So these classifications question mainly *what* is employed in the microtone structure of music.<sup>37</sup> But let’s raise a question *how* the microtones are treated, as does Lithuanian composer Rytis Mažulis who pointed out that “the composer, who decides to deal with microtones

34 Werntz discusses the chrestomatic cases of Carrillo, Hába and Wyschnegradsky as well as music by Iannis Xenakis, György Ligeti, Krzysztof Penderecki, her teacher Joe Maneri and earlier examples by Charles Ives, Béla Bartók and “fleetingly even” Alban Berg. For example, for the latter composer Werntz indicates mm. 274–76 and 441–43 from Berg’s *Kammerkonzert* (Werntz 2001, 172–83).

35 Regarding the use of microtones in the ornamental, sound cluster manner, I would refer to Douglas Keislar, who states that “microtones are frequently used in an ornamental fashion, or to increase density of texture” (Keislar 1991, 174).

36 Interestingly, but in his own music Haas, on the contrary, makes a declaration against the label of microtones:

I am not really comfortable with being pigeonholed as a ‘microtonal composer.’ Primarily I am a composer, free to use the means needed for my music. There is no ideology regarding ‘pure’ intonation, either as Pythagorean number mysticism or as a notion of ‘Nature’ determined by trivial physics. I am a composer, not a microtonalist. (Varga 2011, 102)

37 In my opinion, the statement by Ezra Sims below focuses mainly on tone relations as well:

We call our musics, so far, by the name of the *scale* used in them (pentatonic, diatonic, twelve tone), not the *tuning* that happened to be the ideal at one time or another (just intonation, Pythagorean, meantone, equal temperament). So I would further suggest that microtonal must describe the *gamut*, not the tuning – that it must be microtonal no matter *how* it’s tuned. (Sims 1991, 237) [italics by Ezra Sims]

in his composition, should first make a choice whether he is going to use microtones as a *decorative tool* or as a *structural element*” (Mažulis 2015, 159) [italics by R.P.].<sup>38</sup> This motivates us to get back to cases, such as those mentioned by Werntz, like masses of sound, microtonal clusters, and ornaments as coloring.<sup>39</sup> Again I would refer to Mažulis’s statement that “when we are dealing with quarter-tone music based on conventional rhetorics, like *Three Quarter-Tone Pieces* by Charles Ives, the traditional notions as melodic shape, linear pattern, or expressive gestures are still valid. However, the effect might be certainly different for the piece composed of much smaller intervals (2 or 3 cents approximately)” (Mažulis 2015, 159). Thus, in preparation for my discussion of the use of microtones in Lithuanian contemporary music, I propose a classification, again – a binary model, generally juxtaposing opposite compositional intentions, that is, systematic and non-systematic application of microtones.

Focusing on non-systematic cases, I have in mind composers who employ microtones, let’s say, occasionally and sporadically and/or for coloristic purpose. Most often we may observe an aspiration to add some variety to the traditional 12-note musical texture. Thus the microtone implication in the tonal soundscape results in the coloring of traditional harmony and even evokes disorder (or accidental/false sound). The way microtones can be integrated may vary from single pitch ornamentation to the sleek transition from tone to tone, from unison sounding in subtle deviations of quarter-tones to the effect of glissando. Thus I suggest including the following in the group of non-systematic manifestation of microtones:

- ornamentation, “inflection” of traditional tones/pitches, creating effects close to, for example, a traditional trill or vibrato,

38 Being passionately involved in microtones, both in their creation and in investigating them, Mažulis has described his own “laboratory” and composing. As the composer emphasizes the linearity in microtonal music, for him a melody is the central parameter determining certain microtonal aspects of music texture. Therefore, based on his oeuvre, Mažulis has indicated five ways to operate with microtonal melody: 1) motif-based structure; 2) pendulum motion; 3) microphonic contour; 4) gliding notes; and 5) resulting patterns (Mažulis 2001 & 2015).

39 We will agree that microtones of coloristic purpose are common especially in the texture of tonal, 12-tone music, appearing mostly in, let’s say, an ornamental manner. This is what Daniel James Wolf was talking about with Charles Ives’s use of microtones: besides distinguishing two types of structural approach (like “fully integrated quarter-tone melodic and harmonic textures” in *Three Quarter-Tone Pieces* and “experiments with a form of just intonation based upon the harmonic series” in the sketches for a *Universe Symphony*) Wolf points out a coloristic category, when Ives separates the unison by a quarter-tone interval or employs quarter-tones to ornament melodic line or chords (Wolf 2003, 5). When talking about the coloristic type of microtones Werntz invokes a description such as “inflection of the traditional sounds” with a reference to Bartók’s Sonata for solo violin, mm. 3–4, 6–10 and 58–9 (Werntz 2001, 174).

- “multiplication” of unison, when the main tone/pitch is surrounded by its “doppelgängers”, that is, secondary tones/pitches, yet attributed to the main tone-field, deviate from the central tone by distance smaller than semitone,<sup>40</sup>
- emphasizing microtonal transition, inserting additional pitches in between the semitones, e.g. treating quartertone as a gradual transition point between two 12-tet pitches and moreover, creating an effect of smooth and sleek glissando,
- aspiration for un(de)tuned (non-clear or even “false”|) harmony, creating unclear chords, seeking to escape from still potent remnants of classical tradition, and
- purpose of stylization inserting certain tones/pitches typical for non-Western harmonies.

The systematic approach includes examples of music composition based on a particular type of logic and a system applied to the whole musical work. This can be achieved using the following:

- employment of a certain **scale** that already exists or is specially designed and consists of microtonal relationships, etc.
- application of certain **tuning** based on or with added microtones
- application of the **glissando phenomena as the overall model**,<sup>41</sup> that is, the principle of glissando in parallel to certain compositional rules determines the whole structure of the composition
- adaptation of an all-encompassing composing system, combining different parameters and creating a micro-dimensional network.

I would like to note that the presented classification is open to supplementation with more cases. As the purpose of my study is to highlight the ways microtones are employed in Lithuanian contemporary music, certain points are derived from the compositions by Lithuanian authors that I will discuss further.

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40 Multiplication of unison may be compared to the “Klangspaltung” in Haas’s categorization, if focusing on beating or interference effects.

41 The idea of large-scale glissando would remind various earlier examples, e.g. the slow change of chords in Saariaho’s *Vers le blanc* (1982) described by the composer in her “Timbre and Harmony” article, or common technique in the compositions by James Tenney (*Koan* for solo violin, 1971).



### 3 Observations on Lithuanian composers' microtonal manner

Despite being in the European periphery of new music, as early as in the interwar decades, Lithuania experienced a very direct influence in the sphere of microtonality. Mainly thanks to certain composers who went to study abroad, it was a chance to join the European musical modernism of the 1920s and 1930s. A pupil of Hába, Jeronimas Kačinskas (1907–2005), whom Hába recalled as one of the best students in his class of composition, after studying at Prague conservatory, started to actively promote microtonal music upon his return to Lithuania<sup>42</sup> and faithfully continued his teacher's experiments with quarter-tones and athematic music in his own compositions.<sup>43</sup> However, the outbreak of WWII forced Kačinskas to emigrate, and his career with microtonal music was interrupted for a long period, mainly because of the absence of direct followers and/or adherents of quarter-tone music novelties. In the last decade of the twentieth century, the renewed interest in the microtone approach manifested alongside similar processes worldwide. But having in mind compositional practice until the '90s, Lithuanian composers primarily used such abstract features like glissando sound masses or employed undetermined pitches that could be performed freely. During the postwar period up to the 1990s, very few attempts to employ microtonal elements and use certain pitch notation in the regular score can be noted. Among them is Vytautas Barkauskas's very subtle message in the beginning of *Monologue* for oboe, Op. 24, composed in 1970.<sup>44</sup>

42 It is worth remembering, that Hába's class in microtonal composition was the only higher education course before WWII, and thanks to his efforts the quarter-tone music formed into a strong counter-current to the Second Viennese School. While through Kačinskas Lithuanian students were introduced to microinterval music by playing the quarter-tone harmonium, in 1933 he briefly taught a course on quarter-tone music at the Klaipėda School of Music and made attempts to establish a class of microtonal composition at the Kaunas Conservatory. One year earlier, in 1932, he founded the journal *Muzikos barai* and started to publish texts promoting microtonality, the same year he founded the Association of Musician-Progressivists with some colleagues, which led to the establishment of the Lithuanian section of the International Society for Contemporary Music in 1936.

43 Looking at the extant *Nonet* (1931–1932/1936) for nine strings and winds one could witness a remarkable example of non-programmatic, non-illustrative and somewhat abstract and rationalistic music. Hába considered this *Nonet* to be one of the prime examples of modern music composed in the 1930s while Lithuanian critic and composer Vladas Jakubėnas named it "a visionary reverie" (a review published in: JAKUBĖNAS, Vladas.1938. "J. Kačinsko kūrinyš skamba Londone" [Kačinskas's Composition Performed in London]. *Lietuvos aidas* (June 25, 1938): 1). However, nearly all of Kačinskas's microtonal attempts disappeared during WWII. Luckily, a few years ago, his Concerto for quarter-tone trumpet and symphony orchestra (1930–1931) and Trio No. 1 for trumpet, viola and harmonium in the quarter-tone system (1933) were discovered in Czech archives.

44 In the early '60s Vytautas Barkauskas (b. 1931) was one of the first in Lithuania to experiment with serial, aleatoric, collage and other techniques. In the context of that time of official, politically moderate musical language, Barkauskas's ideas boldly declared the avant-garde. Focus on the oboe drew the composer's attention a few years prior to *Monologue*, and in 1968 he composed *Intimate Composition* for oboe and strings, Op. 15, effectively exploring sonoristics and employing aleatoric elements, in some manner

*Monologue's* introduction is based on the oscillation around tone E5,<sup>45</sup> ornamented with single and double trills; he uses bisbigliando and flageolets and the subtly ascending and descending semitone glissandos E5–F5 (later, the glissando effect is exploited richly in the score). It is worth noticing that during the first transition from E5 to F5, instead of regular glissando, Barkauskas recorded a quarter-tone sharp emphasizing the singularity of semitone transition (see Example 3).

Example 3: Beginning of Barkauskas's *Monologue* for oboe, Op. 24 (1970)

The gust of avant-garde in the 1970s left various imprints in the music scores by Lithuanian composers; however, quarter-tone employment remained uncharacteristic. In his *Monologue*, Barkauskas recorded the quarter-tone symbol only once in the whole three-page score, and thus it makes an especially eloquent gesture. Such brief, albeit very subtle manipulation with single tone ornamentation and treatment of glissando in the *Monologue's* introduction, in some sense, provide a very common way to express microtonal sound in future works by Lithuanian composers. Later on Barkauskas incorporated quarter-tones in his works quite often, among the brightest

reflecting Penderecki's *Capriccio*. After presenting *Monologue* in 1970, the piece was published by Edition Peters in Leipzig one year later. *Monologue* is surrounded by memorable incidents; while attending Warsaw Autumn festival Barkauskas passed the score to oboist Lothar Faber, who performed the piece at the Rouen Festival, France. As a result, Barkauskas was forbidden to go abroad for five years, and the Soviets banned the performance of his *Intimate Composition* at Warsaw Autumn.

45 In my study I apply the International Standards Organization (ISO) system for register designations where the middle C is C4. Accordingly, an octave higher than middle C is C5, and an octave lower than middle C is C3.

examples: Second Symphony, Op. 27 (1971, quarter-tones in the 1<sup>st</sup> and 4<sup>th</sup> parts), First String Quartet, Op. 31 (1972; quarter-tones in the 3<sup>rd</sup> part *Vollendo semplice*), Third Symphony, Op. 55 (1979), and Concerto piccolo for chamber orchestra, Op. 88 (1988).

That same year, in 1970, Jurgis Juozapaitis composed the symphonic poem *Stained-glasses* and three years later presented his *Rex Symphony* (1973), both scores colorfully employing quarter-tones. These works to some extent summarized the composer's youthful attempts under the influence of avant-garde techniques. However, his early works predicted that sound color would occupy a special place in the composer's music.<sup>46</sup> To create a snaking sound mass in the strings in the beginning of *Rex Symphony*, besides emphasized glissandos and multilayered chords, Juozapaitis invoked quarter-tones (see Example 4). The manner Juozapaitis manipulates with quarter-tones is an inflection of ordinary (12-TET) pitch, for example, creation of a detuned unison "wrapping" single tone with neighboring quarter-tones. According to the composer, the use of quarter-tones in his scores was mainly a result of the intuitive desire to enhance the expression and color of sound. This kind of approach was brightly implemented in his atonal attempt from the '80s; the score of the Second String Quartet (1984) is richly mottled with quarter-tone sharps and flats and primarily intended to create smooth transitions and tiny trills.<sup>47</sup> Here, Juozapaitis consistently applies the 24-TET system, creating symmetrical and gradually expanding scales around precisely chosen central tones (e.g. in the beginning of the Quartet, tone B acts as the axis for symmetric scale with the range of two major seconds up and down) (see Example 5).<sup>48</sup>

46 Jurgis Juozapaitis's (b. 1942) early works from the very beginning of the 1970s clearly tended to dodecaphonic, quarter-tone and aleatory experiments. After soon recognizing avant-garde as having alien aesthetics, Juozapaitis abandoned it, in future works focusing more on the spontaneity and natural flow of sounds alongside expressive atonal works. He then composed pieces akin to the aesthetics of neoromanticism and minimalism. "I'm moving away from numerically based logic, from constructivism. It's much more important to feel intuitively the free flow of the music, the right moment of inspiration."

47 Besides *Stained-glasses*, *Rex Symphony* and Second String Quartet, Juozapaitis's oeuvre presented some other bright examples with quarter-tones, mainly composed in the '70s–'90s, among them: chamber symphony *Jūratė and Kąstytis* (1975), *Aphrodite (Five Metamorphoses)* for oboe (or flute) (1975–1976), *Night Music* for string quartet (1997), and *Tower Counterpoints* for symphony orchestra, created in 2003. Incidentally, the latter score was awarded the first prize at the Sinfonia Baltica international competition for symphonic music in Riga in 2004.

48 While analysing the score a ¼-tone flat error was identified in the notation of 1st violin part (rehearsal number 1): instead of D4 ¼-tone flat ♭ should be D4 ¾-tone flat ♭♭ to be consistent with the quarter-tone trill and symmetry of the scale around central pitch B. By the way, in his music Juozapaitis applied quarter-tone symbols close to today's notation, ♭♭, ♭♭♭, ♭♭♭♭, and ♯.

Example 4: Juozapaitis' *Rex Symphony* (1973), mm. 1–3, glissando like transition in quarter-tones

Example 5: Juozapaitis's *Second String Quartet* (1984), manuscript score, p. 1, rehearsal number 1. Manipulation with quarter-tone trills and transitions, above: reduction of symmetrical tone scale with axis B

Juozapaitis's approach to quarter-tones and the 24-TET scale mainly arises from the intention to enrich and color traditional sound space. While nearly a decade later, Šarūnas Nakas's *Wings to Cross the Abyss* for alto saxophone (1996) along with the three-part cycle for ensemble *Chronon* (1992–1996), namely in part one, *Sources. Birds*, and part three, *Sea. Sky*, presented a systematic use of quarter-tones employing the 24-TET division throughout the work alongside a serial-like approach.<sup>49</sup> For example, in the first ten bars of the composition for alto saxophone, Nakas presented the complete 24-TET scale ranging from F3 to F5 ¼-tone sharp (see Example 6).

Example 6: Nakas's *Wings to Cross the Abyss* (1996), manuscript score, mm. 1–10, presenting the complete 24-TET (normal digits indicate natural 12-TET pitches, digits in italics – quarter-tones)

49 Šarūnas Nakas (b. 1962), who has earned a reputation as a “transgressor” of accepted norms, presented his innovative works based on Dada, Merz and the ideas of futurism as early as in the 1980s. The search for new types of expression was always typical for the composer, thus exploiting quarter-tones in his experiments seems sequential as well. Besides composing *Wings to Cross the Abyss* and *Chronon* cycle, other bright examples of systemic use of 24-TET in Nakas's oeuvre were carried out later, e.g. in the pieces for ensemble, *Aporia* (2001) and *Eyes Dazzled by the North* (2004), as well as his symphonic score *Nude*, composed in 2004. The latter I discuss below in the context of glissando phenomena.



For quarter-tone notation in his saxophone piece, as well as in *Chronon*, Nakas used five symbols supplementing regular accidentals with arrows indicating  $\frac{1}{4}$  or  $\frac{3}{4}$ -tone up or down, ♭, ♮, ♯, ♯, and ♯. The use of certain accidentals marked the division of the score into three sections: the margin section features accidentals with down arrows, while the central section, mm. 93–127, employs accidentals with up arrows. Original symbols for quarter-tone notation were used by Vytautas Germanavičius in his compositions from the same period: for example, in *EOS* for tuba solo (1995) he recorded self-invented graphics (recalling the number 4) with arrows to indicate  $\frac{1}{4}$ -tone up or down (4↓, 4↑). While searching for the appropriate expression in the piece three years later, *Other Space* for voice, flute, horn and three cellos (1998), Germanavičius inserted the specific digits 4 and 4.

The diversity in notation, typical for Lithuanian music towards the end of the twentieth century, on the one hand, marked the search for self-expression and, on the other hand, reflected how tendencies in microtonal music composition were not always followed.

Since his first attempts in the '90s Germanavičius<sup>50</sup> has been involved in composing with microtonal sound. Very few of his compositions represent a stylistic approach, for example, in the 2010 cycle for cello and piano, *25 haiku*, and an arrangement of his two earlier vocal cycles *13 haiku* and *12 haiku*. If we have a look at the first part of his instrumental miniatures (13 haiku after various Japanese poets), we notice a quasi-pentatonic scale centered around tone G, that is, a freely altered model of tuning for the Japanese instrument the koto. The scale varies from one haiku to another, with certain tones added or removed, in some cases enlarged up to a nearly complete diatonic scale, and additional chromatic tones as well some quarter-tones inserted. Therefore, the application of accidental quarter-tones, inflecting the traditional (this time, pentatonic) sound, serves mainly the purpose of stylization. For example, in the material of the 8<sup>th</sup> haiku, mm. 36–42, the cello part is composed of five tones, which are shaped into an artificially altered pentatonic, while the piano part is composed of six pitches of white-key diatonics (see Example 7).

50 Vytautas Germanavičius (b. 1969), the recipient of Fulbright and Sir William Glock scholarships, composed pieces with a balance between intuition and new compositional techniques, but particular attention is focused on the variety of sound color and its transitions, and the timbral spectrum of sound. Invoking microtonal sound is one of the most appropriate ways to achieve this goal. Therefore, Germanavičius constantly returns to the quarter-tones, and he recently experimented with the creation of an individual system based on microtonal relations emerging from overtone series.

The image displays a musical score for Example 7. At the top is a single staff in bass clef, 6/4 time, containing a melodic line with quarter-tone inflections indicated by arrows and slurs. Below this are three staves: a grand staff (treble and bass clefs) for piano, a cello staff, and a piano staff. The piano part features a diatonic scale of six tones. The cello and piano parts are both in 6/4 time. The cello part shows quarter-tone inflections with arrows and slurs. The piano part shows a diatonic scale of six tones.

Example 7: Germanavičius's 13 haiku (2010), mm. 36–40, presenting quasi-pentatonic scale with quarter-tone inflections in cello part and scale of 6 diatonic tones in piano part

Overlooking many other attempts by Germanavičius, it is clear that his focus stays on sound ornamentation using traditional tone inflection. The coloristic approach may be represented in one of the most recent large-scale scores for solo violin and symphony orchestra, *Horizontal Drift Trilogy* (2018), mainly its first part *Angelus Oculus*, where the quarter-tones appear in the strings (while the rest of orchestra performs in the traditional manner). Let's say sporadic quarter-tone inflections appear in the texture of *Ihr Schatten schneller Zeit, Ihr leicht beschwingten Stunden!* for two sopranos and chamber orchestra (2015) or in *Rote Bäume* for flute, cello, and organ (2018). While in the first and third sections of the trio *Nidamanngrieg* (2001) quarter-tone accidentals ornament certain pitches very similar to those in the *Alien Dances* for string orchestra and percussion (2010), where the  $\frac{1}{4}$ -tone sharp is applied to create a subtle "migration" around the central tone C (it is obvious in the first bars; see Example 8). Germanavičius exploits the quarter-tones for transitional purpose too, as he did in the instrumental miniature trio *Falling Raindrops* (2005) or in his piece *Black Shadows – White Shadows* for accordion and string quartet (2008). In the latter work we can see the combination of regular glissando in the strings and descending two-tone cluster produced by accordion (in between the transition is enriched with quarter-tone flats; see Example 9).

Example 8: Germanavičius's *Alien Dances* (2010), mm. 1–8: “migration” around central tone C

Example 9: Germanavičius's *Black Shadows – White Shadows* (2008), mm. 49–54: quarter-tone employment for glissando/transition effect

In the analyzed works Germanavičius mostly deals with microtonal sound in strings, which is probably the most common field for other composers, too. But for Marius Baranauskas<sup>51</sup> the human voice is no less interesting in expressing microtonal sound in his works, which provide a focus on certain kind of quarter-tone ornamentation. Fascinated with the phenomena of unison

51 A middle-generation Lithuanian composer Marius Baranauskas (b. 1978) is typically occupied with “translating” words into musical sounds and timbres. He first implemented a method of his own invention whereby he subjectively attributes acoustic and timbral equivalents to every sound of the spoken language in his symphonic oeuvre *Talking* (2002), which was awarded the third place at the prestigious Toru Takemitsu Composition Competition in 2004. The verbal-musical game is the main focus in Baranauskas’s creative sphere; however, the employment of microtones/quarter-tones is inseparable in his experiments.



surrounded by its secondary “wrong” tones, Baranauskas implemented this idea in three scores of 2008–2011. As early as in the introductory measures of *Templum Dei estis* for mixed choir (2010) we encounter the oscillation around tone A involving quarter-tones and forming a five-tone scale centered around A (see Example 10). A more refined expansion of unison may be observed at the end of the first part *Ever in My Life* from Baranauskas’s *Three Visions After Tagore* for mixed choir (2008), soprano part, invoking specific signs – arrows – for microtonal expression of glissando as well as quarter-tone accidentals (see Example 11). According to the composer, this use of quarter-tones was consciously based on continuous expansion and narrowing/returning to the initial tone, like “breathing” in the sense of a single tone or seeking its “un-tuned”, “false” sound. A similar manipulation with “un-tuned” harmony was continued in his 2011 work, *The Trapezium* for 10 instruments, for example, in the structure of the very final chord of the four-part composition (see Example 12). Choosing the harmoniously stable sound of D–A combination, the composer at the same provides its inflection, a quarter-tone “shadow”, blurring the direct sound of perfect fifth.

The image displays a musical score for four voices: Alto I, Alto II, Tenor I, and Tenor II. The score is in 4/4 time and features a key signature of one flat (B-flat). The lyrics are: "Nes - ci - - - - - tis qui - a". Above the score, a small diagram shows a five-tone scale centered around A, with red arrows indicating the oscillation. The score itself shows the vocal lines with dynamic markings (pp, mp) and a red line indicating the pitch contour. Red boxes highlight specific intervals in the Alto II and Tenor I parts.

Example 10: Baranauskas’s *Templum Dei estis* (2010), mm. 1–4 presenting the oscillation around A

19 *pp* *gliss.*

S. *pp* *f*

21 *f* *pp*

S. *pp* *pp*

24 *ff* *poco a poco dim.* *Tongue whistle* *pp* *f*

S. *ff* *poco a poco dim.* *Tongue whistle* *pp* *f*

B. *ff* *poco a poco dim.* *Tongue whistle* *pp* *f*

B. *ff* *poco a poco dim.* *Tongue whistle* *pp* *f*

*attacca*

Example 11: Baranauskas's Three Visions After Tagore (2008), final section of the part #1 Ever in My Life, mm. 19–29: manifestation of microtonal glissando (notation in arrows) and quarter-tone accidentals

The image displays a musical score for Example 12, showing quarter-tone inflection in a chord D-A across various instruments. The score is arranged in a system with ten staves, each representing a different instrument. The instruments and their corresponding inflections are listed on the right side of the score:

- Flute: A5 - D6
- Oboe: A4# - D5#
- Clarinet in Bb: D3 - A3
- Trompet in Bb: D4
- Trombone: A2
- Violin 1: D5# - A5#
- Violin 2: D5# - A5#
- Viola: D4# - A4#
- Violoncello: D3# - A3#
- Contrabass: D3# - A3#

The score includes dynamic markings such as *f* and *mf*, and a tempo marking of 10" (Allegro ironico). The notation shows quarter notes with inflection symbols (triangles) indicating the quarter-tone shifts.

Example 12: Baranauskas's *The Trapezium* (2011), m. 191 exposing the chord D-A with quarter-tone inflection

The desire for un-tuned or deformed, “false” like harmony, signifying the use of quarter-tones in Baranauskas’s music, has its own aesthetic background for this composer. But such interpretation also recalls the wrongly established semantics of quarter/micro-tone as sound out of tune that was common in the 1980s and 1990s. The latter point of view was specifically encouraged by Laurynas Vakariss Lopas to involve some microtonal sounds in his example of Western harmony, *Quintet for woodwinds* from 1986. Based on his recollections of demonstrations on special occasions during the Soviet period, the composer intended to convert an image of “false” society, injecting ideological slogans into his music and creating a harmony somewhat out of tune. In the third part of his *Quintet*, marked with the tempo marking *Allegro ironico*, Lopas inserted a four-bar march-like fragment recalling the rhythm from Tchaikovsky’s 6<sup>th</sup> symphony, 3<sup>rd</sup> mvt., and colored with microtonal deviations of certain tones. He used his own symbols for approximate raising and lowering (instead of noteheads, Lopas recorded triangles pointing up and down, ▲ and ▼; see Example 13).

Example 13: Lopas's Quintet (1986), manuscript, rehearsal number 40 exposing the use of "un-tuned" pitches marked with triangles instead of noteheads

Now, I would like to discuss some cases in music by Onutė Narbutaitė<sup>52</sup> that expose her attitude to microtonal ornamentation in music. Narbutaitė has pointed out three main ways she includes a microtonal sound effect in her oeuvre: various types of glissando, technique of vibrato, and trills. Moreover, in the composer's opinion, the microtonal sound may emerge even when a special performance technique on strings like *sul ponticello* is applied. So, according to Narbutaitė's statement, it is obvious that the composer deals mainly with the ornamentation and inflection of regular sounds and the various effects of transition. The ornamentation, or sound inflection, is typical for large-scale symphonic works such as *Riverbank-River-Symphony* (2007) and *La Barca* (2005) as well as the vocal part in her 2017 work for soprano and flute, *Labyrinth*, which explores a rich "arsenal" of vocal abilities and expresses whistle tones, glissandos and double sounds in the part for flute. A certain approach to microtonal effects may be provided in such works as *Was There a Butterfly?* for string

52 Onutė Narbutaitė (b. 1956) is one of Lithuania's best-known female composers. In Lithuania and beyond she is still often presented as a neo-romantic. We can hear recognisable melodies and quasi-tonal seventh harmonies in Narbutaitė's music. However, the composer underlines the rationality of her music that is expressed by meticulously detailed textures, exact proportions of smaller and larger sections and the overall form, as well as the understated interplay of minute details. The abstract musical narrative is extremely expressive, prominent and often reminiscent of "something familiar". The composer draws inspiration from a multitude of experiential sources such as texts, stories, images and sensations.

orchestra (2013), where Narbutaitė invoked the quarter-tone accidentals by requesting a special implementation of vibrato in the strings (see Example 14). As for *Heliography* for female voice (soprano), viola, cello, and drums (2015) this composition exposes an intriguing approach to glissando very typical for Narbutaitė (according to the composer, her favorite) – in the first section, instead of a solid ascending or descending line, the composer requests a dotted (punctated) performance, thus creating a flowing series of tiny microtones (of course, the size and quantity of microtones depend on the individual performance), as it is implemented in mm. 9–16 (see Example 15).

The image shows a musical score for four string instruments: Violin I (vi.), Violin II (vi.), Viola (vi.), Cello (cello), and Double Bass (bass). Each instrument part begins with a dynamic marking of *p* (piano). The score is in 3/4 time. A red rectangular box highlights the final measure of the excerpt, where each instrument part has a vibrato marking (vibr.) and a quarter-tone accidental (♯ or ♭) above the note. The notes are: Violin I (D♯), Violin II (D♯), Viola (D♯), Cello (D♯), and Double Bass (D♯).

Example 14: Narbutaitė’s Was There a Butterfly? (2013), 2 bars before rehearsal number 5: request for vibrato with quarter-tones

The image shows a single line of musical notation in treble clef. It consists of a series of short, separate tones that ascend in pitch. The notes are: D♯, E, F, G, A, B. The text "the ascending line of short separate tones" is written to the right of the notation.

The image shows a musical score for voice and strings. The voice part is in soprano clef and has lyrics: ü a ü a ü a ü, u ü m m m ü a, ü a, ü a. The strings are in treble clef. A red box highlights the dotted glissando marking (gliss.) > above the first note of the voice part. Another red box highlights the dotted glissando marking above the first note of the string part. A third red box highlights the dotted glissando marking above the second note of the string part. A fourth red box highlights the dotted glissando marking above the third note of the string part. The text "the ascending line of short separate tones" is written to the right of the first voice line.

Example 15: Narbutaitė’s Heliography (2015), mm. 9–16, an example of dotted glissando resulting in microtonal transition; above: direction for performance of dotted line by composer

*Example 16: Nakas's Nude (2004). Fragments of the introduction: mm. 1–6, entrance of strings; m. 21, dynamic climax and chord structure; mm. 33–6, final cluster of 19 tones from D2 to G5# concluding the quarter-tone glissando. Below: ascending quarter-tone scale, creating glissando, in the 1<sup>st</sup> violin part, mm. 1–36.*

The argument to link glissando with microtonal sound and microchromatics arises not only from Narbutaitė's or Baranauskas's approach. In a broader sense, the principle of glissando is able to shape the overall structure of music composition. For example, the analysis of the beginning section from Nakas's *Nude*, a 2004 composition for symphony orchestra, exposes a constantly enlarging "sound cloud" in the strings that is based on precisely written

out quarter-tones creating an ascending and descending glissando-like effect centered around its axis (pitch B3). The composition of introduction reveals a rationalized and precise calculation typical for Nakas. In the span of 36 bars the Lithuanian composer has designed 19 simultaneously sounding quarter-tone lines performed by 19 string instruments. All instruments start their quarter-tone ascent or descent from the same pitch, the initial B3. Gradually moving further, the parallel melodies arrive at the final chord/cluster consisting of 19 tones and ranging from D2 to G5# (see Examples 16 & 17). Moreover, the principle of gradual motion is applied to the level of dynamics, creating a sequence of dynamic markings from *ppp* to *ff* with the climax in m. 21, very close to the golden section (that is, very likely, a result of conscious calculation by Nakas). Looking at two tone clusters appearing in the most important locations of the introduction (that is, climax and final chord) we come to the symmetric structure forming around the centre – the initial tone B3. The symmetrical shape of “growing” glissando cluster is represented in the graphic (see Example 17).

The complete music composition arising from a single tone, like in the Introduction of Nakas’s *Nude*, is typical for Justė Janulytė’s music too. As well as the glissando-like approach, she employs a slow transition from one chord to the other, and an extremely slowed down motion like zooming into the very depth of sound, its essence.<sup>53</sup> The score of *Sandglasses* for four cellos, live electronics, video and installation (2010) is based on systemically applied glissando lasting strictly 50 minutes. The inspiration of the piece is a simultaneous launch of several sandglasses of different capacity and duration. This idea is materialized in music by a polytemporal canon. Cellos pass through their entire register at different rates.

53 Justė Janulytė (b. 1982) often writes for dense monochromatic ensembles (e.g. only strings, only winds or only voices). She seeks to explore musical time/space perception through large-scale multilayered textures and to strike a balance between the aesthetics of minimalism, spectralism and drone music. The impulse for her music comes from the various optical and physical ideas as well as images of nature. According to Vita Gruodytė, Janulytė’s music is somewhat of “a promenade in the space of sound [...] as if we were inside the sound trying to catch the shadows of sound” (cited from Gruodytė, Vita. 2015. “Esu garsinių fenomenų stebėtoja.” *Kultūros barai* 12: 3).

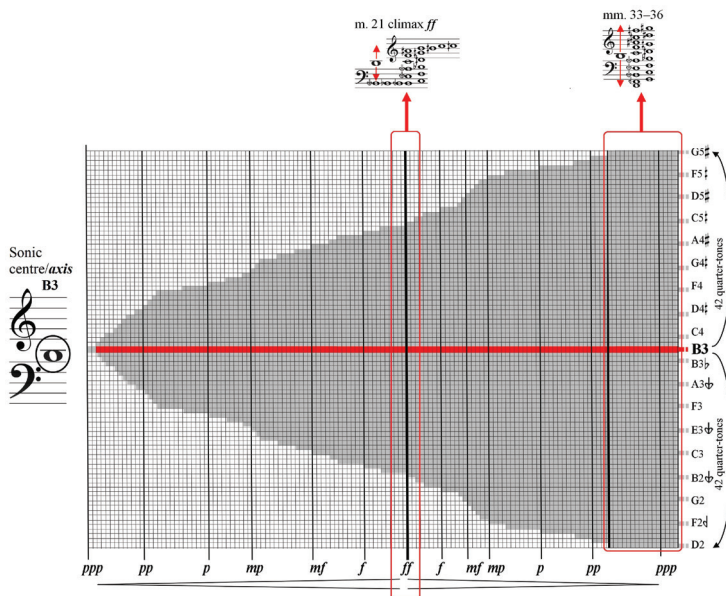
Janulytė’s creative approaches in some sense recall the words by James Tenney, which state that the listener should catch the form (logic) of the composition in the very first minutes in order to just listen so that they can get into the sound the rest of the time.



m. 21, linear representation of *tone cluster*

mm. 33–36, linear representation of *tone cluster*

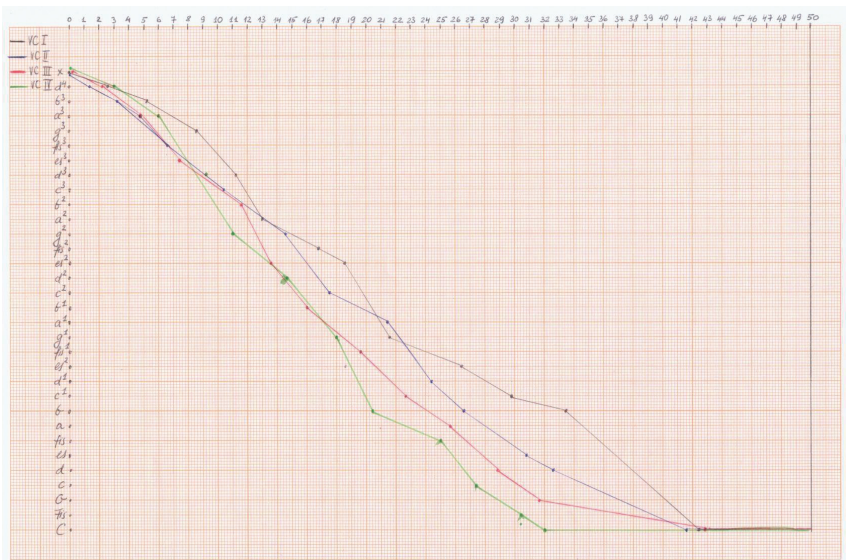
symmetrical reduction in the range of octave around the axis



Example 17: Nakas's *Nude* (2004), introduction, mm. 1–36. Graphic representation of quarter-tone ascension and descension, imitating glissando, from the single tone B3 to the cluster of 19 tones in the range D2–G5# centered around the axis B3



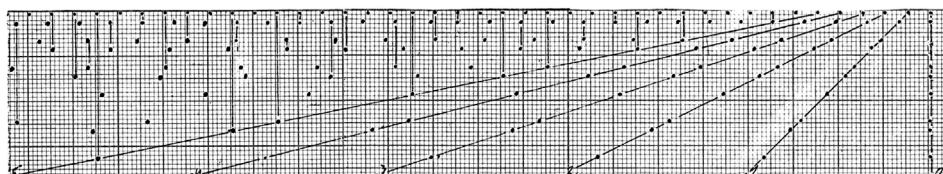
Thus, the initial unison (tone D) splits off, and the voices continue to move further from each other and reach the lowest note at different moments. As in the case of Nakas's *Nude*, Janulytė applies gradually increasing dynamics from *ppp* to *fff* and backwards, arriving at the climax at the 34<sup>th</sup> minute (an approximate golden section of total duration, 50 minutes). Though the descending tones form a G harmonic minor scale, but recording the long-lasting tones, and then repeating them slower, the overall sound results in a dense microtonal texture (see Example 18). However, this kind of microtonality is only perceptible as the result of a glissando yet not fixed or controlled otherwise. One more composition, *Radiance* for mixed and live electronics (2015) follows the technique implemented in *Sandglasses*, with a metaphoric reference to the nuclear explosion. Starting with an octave of tone A (sopranos and altos sing A4, and tenors and basses start singing A3), the groups of voices gradually move up and down musically imitating the process of radiating and splitting. Such process determines the structure of the composition expressed as an overlap of two antiphonal processes of radiation. Though the score uses regular notation, similar to *Sandglasses*, the subtle and non-simultaneous transitions create the microtonal effect. Therefore Janulytė's composing motto obviously resembles the microtonal approach, just like looking through the telescope on the atoms of sound.



Example 18: Janulytė's *Sandglasses* (2010), a graphic sketch representing live performance of four cellos creating gradually descending glissando and forming microtonal texture<sup>54</sup>

54 Graphic sketch provided by composer.

If we want to further discuss the systematic approach, the work by Justina Repečkaitė,<sup>55</sup> a young-generation Paris-based Lithuanian composer, is worth taking a look at. Since 2014 Repečkaitė has continuously composed with quarter-tones that have become an inseparable part of her musical language. According to the composer, music creation is equal to encoding, thus the treatment of microtonal sound in her works varies from, for example, a spectral approach connected with the temporal canon like in *Pulsus Flatus Vox* for ensemble (2014) (see Example 19) to the harmony of illusory spectrum based on arithmetic, not acoustic, calculations (for these calculations Repečkaitė typically employs Open Music software). Fascinated with microtonal sound, Repečkaitė often employs her favourite music intervals such as neutral second and neutral third, like in the ensemble piece *Tapisserie* (2015). Its compositional principle consists of binding different attacks of sound in order to create a timbre, dynamics and rhythm polychromy, while the absence of any harmonic movement results in a stable harmony that helps the listener to hear neutral intervals (neither minor nor major) made possible by the use of microtones. The pre-compositional chart for *Tapisserie* reveals a very strict and diligent organization of music texture while the map of the ensemble piece *Acupuncture* (2014) provides a rational manipulation with Fibonacci numbers (see Example 20).



Example 19: Repečkaitė's *Pulsus Flatus Vox* (2014), a graphic sketch representing the spectral arrangement of tones and polytemporal canon<sup>56</sup>

55 Ben Lunn has pointed out that Justina Repečkaitė's (b. 1989) "music has many similarities to a diamond. With its hard unforgiving shape and geometric perfection, it creates a profound and striking beauty". The composer is very strict in her composing process and accurately chooses every detail and makes calculations. On the one hand, Repečkaitė's music is complicated and intense intellectually, but on the other, the result is clarified and polished.

56 Graphic sketch provided by composer.

The image displays two musical score reductions. The upper portion, labeled 'Acupuncture (2014)', is divided into four sections: A, B, C, and D. Section A (measures 333-500) features a 'solo piano' instruction and includes various rhythmic patterns and accidentals. Section B (measures 429-600) contains complex rhythmic structures with many accidentals and dynamic markings. Section C (measures 571-667) includes a 'vertical' marking and a 'gliss.' marking. Section D (measures 600-667) continues the complex rhythmic and melodic material. The lower portion, labeled 'Tapisserie (2015)', shows a multi-stemmed score with staves numbered 1, 2, 3, 5, 8, 13, 21, 34, 55, and 89. A 'Points' section is located at the bottom, featuring a bass staff with a complex rhythmic and melodic line.

Example 20: Score reductions indicating the main elements of the sound material; above – *Repečkaitė's Acupuncture (2014)*, below – *Tapisserie (2015)*

Now, let's focus on all-encompassing microtonal approach in the works by Rytis Mažulis,<sup>57</sup> the last composer to be discussed in this study. According to Lithuanian musicologist Gražina Daunoravičienė, the “microdimensional” concept is the most suitable for Mažulis's style (Daunoravičienė-Žuklytė 2016, 320). Mažulis's fascination with tone division began in the 1980s and 1990s with spirals of whole-tone scales such as in his canon *The Dazzled Eye Has Lost Its Speech* for four voices (1985) or the computer pieces *Canon aenigmaticus* (1990–1992) and *Clavier of Pure Reason* (1992–1994), which were composed with the structures containing superimposed thirds. Later, Mažulis turned to the micro-world and a variety of semitone fractions. As Daunoravičienė pointed out, a great part of Mažulis's oeuvre, starting with the semitones in *Hanon virtualis* in 2002, “make a picture of a progressively increasing division of a semitone into still smaller microintervals” that are quarter-tones, octa-tones, deca-tones or even *triginta partes de semitone*<sup>58</sup> (Daunoravičienė 2003, 58).

Besides manipulation with small fractions, in 1996, while composing *Palindrome* for computerized piano, Mažulis started to experiment with one-center generated sound structures, composing music derived from a single melodic pattern, or even one note. Being a true admirer of Renaissance polyphony and the sophisticated network of polytempos, Mažulis obsessively uses canon technique and complicated isorhythmic patterns. The impression of chaos created out of a diligently constructed simple order would describe his music laboratory too. For example, *Ex una voce* (2004) is based on a single melody multiplied into 13 parts that are performed at different tempos and create an impression of disorder.

The variety of microtones is exposed in his works like *Sybilla* for mixed choir (1996) employing  $\frac{3}{4}$  intervals and endless canon moving in a circle that is possible to design geometrically. The initial motif of this canon, a pattern, microtonally envelops the central tone; later, the motif is transposed from the tones of a white-key diatonics.

The subtle piece *ajapajapam* for 12 voices, string quartet and electronics (2002) features the intervals of 3.333 cents moving in a very slow glissando, gradually expanding into six-part texture and canonically descending a minor sixth; finally all six lines form one large cluster, dominated by minor seconds.

57 Representing the so-called super-minimalist approach, which is also called the “machinist” approach, Rytis Mažulis (b. 1961) presents laboratory-like creations but does not forget the principles of balanced academic correctness. Fascinated with microscopic sound material, writing music with the limits of a single halftone lets the composer maintain stylistic purity and loyalty to a rational background.

58 Division of semitone into 30 parts.

The use of quarter-tone series and their inversions as well as mensural proportions (6 : 4 : 3 : 2 : 1 : 2... etc.) is typical for Mažulis's *Canon mensurabilis* for six instruments (2000); while *Cum essem parvulus* for eight voices (2001) manipulates using the microtones of 20 cents and polytemporal system that creates a palindrome shape. Again, the focus on polytempo is typical for *Schizma* for 14 flutes (2014), at the same producing microintervals of different size, dividing the semitone into 24–49 equal parts and applying a similar procedure to the time values.

An especially elaborated and sophisticated approach to canon technique and microtonal divisions is brightly presented in one of Mažulis's most recent compositions, *Solipse* for cello and electronic tape (2018), intended for 32 cellos (one live performer and 31 pre-recorded samples). The structure of the composition builds up, let's say, an image of multi-dimensional glissando:

- first, a polytemporal effect is achieved by gradually slowing down the tempo (a map of tempos for live cello part (see Example 21) indicates the strict slowing down of one second every next note; thus the first note continues only 1 second while the final note, numbered as 69, sounds for 10 minutes);
- second, starting with tone C6 the melody descends in subtle distances that are recorded in cents, and the calculation of the required cent amount is based on summing certain note number and cent amount as follows (see also Example 21):

<b>(C6) C</b>	<b>1/0, 2/1, 3/3, 4/6, 5/10, 6/15, 7/21, 8/28,</b>
	<b>9/36, 10/45, 11/55, 12/66, 13/78, 14/91</b>
B	<b>15/5, 16/20, 17/36, 18/53, 19/71, 20/90</b>
B-flat	<b>21/10, 22/31, 23/53, 24/76</b>
A	<b>25/0, 26/25, 27/51, 28/78</b>
G-sharp	<b>29/6, 30/35, 31/65, 32/96</b>
G	<b>33/28, 34/61, 35/95</b>
F-sharp	<b>36/30, 37/66</b>
F	<b>38/3, 39/41, 40/80</b>
E	<b>41/20, 42/61</b>
E-flat	<b>43/3, 44/46, 45/90</b>
D	<b>46/35, 47/81</b>
C-sharp	<b>48/28, 49/76</b>
C	<b>50/25, 51/75</b>
B	<b>52/26, 53/78</b>
B-flat	<b>54/31, 55/85</b>

A	<b>56/40, 57/96</b>
G-sharp	<b>58/53</b>
G	<b>59/11, 60/69</b>
F-sharp	<b>61/28, 62/88</b>
F	<b>63/49</b>
E	<b>64/11, 65/74</b>
D-sharp	<b>66/38</b>
D	<b>67/3, 68/69</b>
C-sharp	<b>69/36</b>

- third, every next cello enters the same pitch C, but at a different tempo that is a second tempo from the previous cello part (i.e. if the first-live cello is marked in seconds 60, 59, 58, 57, 56, 55, ..., then the second cello/1<sup>st</sup> pre-recorded sample starts at 59, 58, 57, 56, 55, ...; the third cello at 58, 57, 56, 55, ... and so on);
- fourth, despite every next cello entering with a slower tempo, the total duration of the performance is equal to the first live cello (i.e. every next cello part is digitally stretched to the original “size”, so its duration in seconds deviates from the original series in seconds).

In total, Mažulis designed a series of 69 notes, descending from C6 to C4#. The duration of the piece was determined in advance when he chose the starting tempo mark 60. Respectively it was possible to slow down the tempo up to 1 (in total 60 different tempos) plus composer divided value 1 into tenth parts and obtained 9 additional tempos such as 0.9, 0.8, 0.7, 0.6 and so on. Thus Mažulis arranged 69 different tempos. The design of the tempo respectively determined the number of notes.



Gradual slowing down: 1 s at every next note

Descending melody, set of cent value

Violoncello *mp* 1 sec

9  $\text{♩} = 52$  -36 10  $\text{♩} = 51$  -45 11  $\text{♩} = 50$  -55 12  $\text{♩} = 49$  -66 13  $\text{♩} = 48$  -78 14  $\text{♩} = 47$  -91 15  $\text{♩} = 46$  -5 16  $\text{♩} = 45$  -20

17  $\text{♩} = 44$  -36 18  $\text{♩} = 43$  -53 19  $\text{♩} = 42$  -71 20  $\text{♩} = 41$  -90 21  $\text{♩} = 40$  -10 22  $\text{♩} = 39$  -31 23  $\text{♩} = 38$  -53 24  $\text{♩} = 37$  -76

25  $\text{♩} = 36$  0 26  $\text{♩} = 35$  -25 27  $\text{♩} = 34$  -51 28  $\text{♩} = 33$  -78 29  $\text{♩} = 32$  -6 30  $\text{♩} = 31$  -35 31  $\text{♩} = 30$  -65 32  $\text{♩} = 29$  -96

33  $\text{♩} = 28$  -28 34  $\text{♩} = 27$  -61 35  $\text{♩} = 26$  -95 36  $\text{♩} = 25$  -30 37  $\text{♩} = 24$  -66 38  $\text{♩} = 23$  -3 39  $\text{♩} = 22$  -41 40  $\text{♩} = 21$  -80

41  $\text{♩} = 20$  -20 42  $\text{♩} = 19$  -61 43  $\text{♩} = 18$  -3 44  $\text{♩} = 17$  -46 45  $\text{♩} = 16$  -90 46  $\text{♩} = 15$  -35 47  $\text{♩} = 14$  -81 48  $\text{♩} = 13$  -28

49  $\text{♩} = 12$  -76 50  $\text{♩} = 11$  -25 51  $\text{♩} = 10$  -75 52  $\text{♩} = 9$  -26 53  $\text{♩} = 8$  -78 54  $\text{♩} = 7$  -31 55  $\text{♩} = 6$  -85 56  $\text{♩} = 5$  -40

57  $\text{♩} = 4$  96 58  $\text{♩} = 3$  -53 59  $\text{♩} = 2$  -11 60  $\text{♩} = 1$  -69 61  $\text{♩} = 0.9$  -28 62  $\text{♩} = 0.8$  -88 63  $\text{♩} = 0.7$  -49

64  $\text{♩} = 0.6$  -11 65  $\text{♩} = 0.5$  -74 66  $\text{♩} = 0.4$  -38 67  $\text{♩} = 0.3$  -3 68  $\text{♩} = 0.2$  -69 69  $\text{♩} = 0.1$  -36

1.016 sec 1.034 sec 1.052 sec 1.071 sec 1.091 sec 1.111 sec 1.132 sec

1.153 sec 1.176 sec 1.2 sec 1.224 sec 1.25 sec 1.276 sec 1.304 sec 1.333 sec

1.364 sec 1.395 sec 1.428 sec 1.463 sec 1.5 sec 1.538 sec 1.578 sec 1.621 sec

1.666 sec 1.714 sec 1.764 sec 1.818 sec 1.875 sec 1.935 sec 2 sec 2.068 sec

2.142 sec 2.222 sec 2.307 sec 2.4 sec 2.5 sec 2.608 sec 2.727 sec 2.857 sec

3 sec 3.157 sec 3.333 sec 3.529 sec 3.75 sec 4 sec 4.285 sec 4.615 sec

5 sec 5.454 sec 6 sec 6.666 sec 7.5 sec 8.571 sec 10 sec 12 sec

15 sec 20 sec 30 sec 1 min 1 min 6.66 sec 1 min 15 sec 1 min 25 sec

1 min 40 sec 2 min 2 min 30 sec 3 min 20 sec 5 min 10 min

Example 21: *Mažulis's Solipse (2018)*, the map of gradually slowing down tempo designed for live cello part

$\text{♩} = 60$

The image displays a musical score for 16 electric violoncellos, labeled e-Violoncello 1 through e-Violoncello 16. The score is written in 4/4 time with a tempo of quarter note = 60. Each staff contains a series of notes with stems and beams, and some notes have small numbers above them (0, 1, 3, 6, 10, 15, 21, 28, 36, 45, 55, 66, 78). Overlaid on the score are several colored lines (red, blue, green, yellow, purple, orange) that connect specific notes across different staves, illustrating the overall form and structure of the composition. The lines generally trend downwards from left to right, indicating a descending melodic or harmonic structure. The red line starts at the first note of the first staff and ends at the first note of the 16th staff. The blue line starts at the second note of the first staff and ends at the second note of the 16th staff. The green line starts at the third note of the first staff and ends at the third note of the 16th staff. The yellow line starts at the fourth note of the first staff and ends at the fourth note of the 16th staff. The purple line starts at the fifth note of the first staff and ends at the fifth note of the 16th staff. The orange line starts at the sixth note of the first staff and ends at the sixth note of the 16th staff.

*Example 22: Mažulis's Solipse (2018), mm. 1–4 graphical reduction of the score presenting the overall form of the composition*



The *Solipse* score is an example of a strongly technologized process of creation as well as performance. Due to very complicated and strict scores, Mažulis has reduced the personality of performer to a nearly mechanical state, while the audience also encounters challenges. Also with the help of the computer Mažulis is able to operate maximally reduced intervals that are hardly perceptible by ear. As Horst-Peter Hesse pointed out, the experiments with specially built psalteries revealed that the  $\frac{1}{12}$ -tone is the limit suitable for practical purpose (Hesse 1991, 214) (Hába too had described the  $\frac{1}{12}$ -tone = 17 cents as the smallest interval in his *Neue Harmonielehre*). However, there is no stop sign for Mažulis, whose sound world is immersed deeply into microscopic tone-divisions up to 1 cent. In *Solipse* Mažulis, in his own words, has achieved the maximal purity of creative mind expression, obtaining a highly hypnotic music process. Moreover, the solid architecture of the score has collected inside the diversity of microtonal manipulations from the adoration of unison and refined transitions to overall glissando forming a microdimensional result.

#### 4 Examples of microtone notation in Lithuanian music

The analyzed music scores by Lithuanian composers provide a diverse vocabulary of symbols indicating the same objects. Up to the end of the twentieth century Lithuanian composers applied their own signs that greatly vary from one another but generally intend to express the same action, for example, a quarter-tone rising or falling. Starting with an example by Kačinskas, in the score of his Trio for trumpet, viola and harmonium (1933) we may see refined ornaments resembling notation by Hába, his teacher from the Prague Conservatory. Starting from the 1970s composers have used different symbols, reflecting a period full of creative research and experiments as well as confrontation with political restrictions.<sup>59</sup> Some symbols were invented by composers themselves (e.g. triangle signs by Lopas, digits with arrows in Germanavičius's scores), while others were related to the established accidentals (like in Juozapaitis's Second String Quartet, or Nakas's piece for saxophone solo).

Around the turn of the twenty-first century, we may notice the use of more unified symbols that mainly come from scorewriter programs. The table

<sup>59</sup> In the 1960s and 1970s Lithuanian composers were partly restrained in becoming acquainted with the novelties in music composition techniques and the processes happening behind the Iron Curtain. The information was typically obtained through attendance to Warsaw Autumn or other creative-based travel. I should mention the fact that Vytautas Barkauskas, after having visited Tallinn in 1963, bought home a copy of Křenek's study on 12-tone composition, provided to him by Arvo Pärt.

below provides a list of symbols for quarter-tone and/or microtone notation applied by Lithuanian composers. While most signs are linked strictly to certain quarter-tones (lowering/raising the pitch by  $\frac{1}{4}$  or  $\frac{3}{4}$ -tone), other symbols suggest free performance of an undetermined pitch (however, it should typically be smaller than a semitone). Among the latter examples I should mention the triangle symbols by Laurynas Vakarė Lopas or the up and down arrows by Marius Baranauskas.

Symbol Composer	$\frac{3}{4}$ -tone lower	$\frac{1}{4}$ -tone lower	$\frac{1}{4}$ -tone higher	$\frac{3}{4}$ -tone higher	Other symbols Remarks
Kačinskas					
Barkauskas					
Juozapaitis					
Lopas					Triangle instead of notehead. Not exact quarter-tone, but smaller than semitone.
Germanavičius					N. – to cancel $\frac{1}{4}$ -tone raising/falling Signs in the scores from 1995 & 1998
Nakas					Manuscript, 1996
					Printed scores
Baranauskas					– to move higher or lower, not in strict quarter-tones.
Narbutaitė					– also for undetermined, but smaller than semitone, raising.
Repečkaitė					
Mažulis					
	Certain pitches and/or intervals recorded precisely in cents				

Table 1. A list of symbols for quarter-tone and/or microtone notation applied by Lithuanian composer

## 5 Conclusions

Finally, let me reinterpret a question by Douglas Keislar, “Why the interest in microtones?” Could it be a search for flexibility in music, a desire “to weave musical narrative,” as editor Noah Kaplan remarked in the introductory text to the English translation of Wyschnegradsky’s *Manual* (Wyschnegradsky 2017)? The evident focus of Lithuanian composers on the coloristic approach of microtones could also be an answer. Thus, summarizing the manifestation of microtones in Lithuanian works, the most common cases represent the ornamentation or inflection of traditional sounds and chord harmonies and the application of transitional tones and special attention to glissando requiring expression of the microtonal composition (among such composers – the discussed examples from ‘70s and ‘80s and recent by Barkauskas, Juozapaitis, Nakas, Germanavičius, Narbutaitė, Baranauskas, Janulytė). On the other hand, few authors maintain a consistent path in creating rationally constructed compositions and yet maintain the energy of expression (such as Mažulis and Repečkaitė).

Paraphrasing Andrew Granade, Harry Partch was a revolutionary who desired “to replace the forms or instruments of Western music,” while others, like Ben Johnston, maintain a connection to established canons “using violins and cellos, sonatas and symphonies” and just wish “to bring clarity to music” (Granade 2007, 297). At every moment, the creator is concerned about not getting lost in technological manipulations, as Mark Swed would say, “to make both radical thinking and avant-garde techniques sound invariably gracious.”<sup>60</sup>

Imagine looking at home movies when the person running the projector suddenly improves the focus. It is a pleasant but definite shock to see how much clearer the images are now, even though we had accepted them before the adjustment. (Johnston 2006, 171)

Thus, Ben Johnston expressed adoration for just intonation in his “Maximum Clarity” essay from 1996 reprinted in his collection 10 years later.<sup>61</sup>

60 This quotation is an extract from a statement by critic Mark Swed describing Ben Johnston: “probably our most subversive composer, a composer able to make both radical thinking and avant-garde techniques sound invariably gracious” (Johnston 2006, xi).

61 This is how Johnston’s quote continues: “This is a very precise analogy to what happens when the players in a musical ensemble clean up intonation. [...] What is actually happening when such ensemble tuning is proceeding well is that the versions of the intervals which have the smallest numbers in the vibration ratios are being selected. This is what just intonation is, at its simplest.” (see Johnston 2006, 171–80)

What if we ally ourselves with Hába's and Schoenberg's view regarding non-harmonics<sup>62</sup> as well as accept the existence of parallel sound-worlds of different tunings? Then the fascination with microtone harmonies may award us with a sense of admiration and enjoyment, like suddenly realizing how hazy the world was before. Let's look through the microscopic lens to peer more deeply into the essence of music.

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62 Calling for creative freedom in his widely known *Neue Harmonielehre* Hába followed up Schoenberg's statement that there are no nonharmonic tones, i.e. "each tone can be combined with any other tone of any tone system" (HÁBA, Alois. 1927. *Neue Harmonielehre*. Leipzig: F. Kistner & C.F.W. Siegel: vi; cited from Hesse 1991, 217).

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*Miloš Zatkalik*

## **Microtonal Music in Serbia: A Newly (Re)discovered Resource**

### **1 Close encounters of the microtonal kind**

I will begin by indulging myself with an anecdotal introduction. Last year (2017), at a conference in Vilnius, I and a small party of five or six composers and theorists, previously little known to each other, spontaneously gathered for lunch in a restaurant. No sooner had the orders been placed that I found myself in the midst of a heated discussion. Dividing the octave into 31 or 72 equal parts... Boston microtonal society... a vocal coach who could sing accurately one sixth or whatever fraction of a semitone... Everyone seemed to know a great deal on the subject. Except me, that is. True, as a composer, I did sprinkle a quarter-tone or two through a couple of my works (some of which I later changed to halftones). I do tell my students there are different kinds of tuning and that the size of the smallest interval is not necessarily a semitone, but generally very little beyond that. Three days upon my return to Belgrade, I ran into my good colleague and friend from Slovenia, Leon Stefanija. He asked me to contribute an article to the volume he was co-editing. The topic? Microtonality, of all things. Coincidence? Very well, but microtonality in Serbia – is there such a thing? Several notable Serbian composers were students of Alois Hába, and they left a handful of quarter-tone compositions that nobody has performed for decades. Have I missed something lately? I randomly asked a few of my composer colleagues. No, they didn't do microtones. Microtonal music in Serbia: a null set. Or is it? I remembered vaguely something I heard from my younger – really much younger, even student – colleagues. There might be more to it than I had thought.

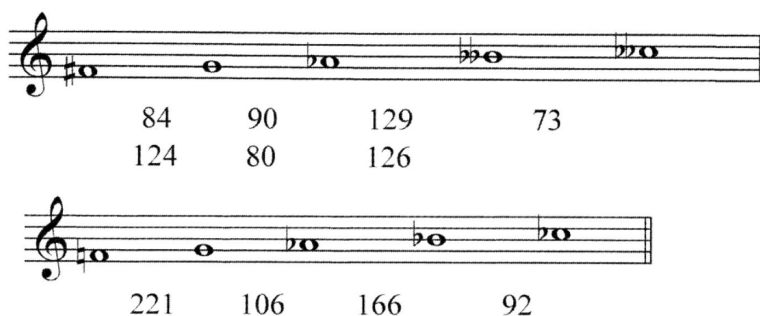
Having done some homework, I realized that writing about microtonal music in Serbia means explaining why during a century and half (roughly speaking) there was so little of it, and then an eruption over the last several years.

### **2 Rooted in tradition**

As was the case with many other small nations, marginalized in various ways, Serbia entered the world of Western art music – roughly in the third quarter

of the nineteenth century – through traditional music, starting with simple and continuing with increasingly more complex harmonizations and arrangements of folk tunes.

As can be expected in a traditional, rural culture, Serbian folk tuning is not twelve-tone equal-tempered (henceforward 12ET). Among many different styles in Serbian folk music and many regional and local “dialects,” I will draw special attention to ancient rural singing. Its “stock” of pitches is generally limited to four or five. Tradition has fixed these pitches, making some of them more stable than others. Tonometric analyses have been only rarely conducted, and I am reproducing a couple of examples from western Serbia.<sup>1</sup>



Example 1: Tonometric analysis of selected folk scales (Golemović 2016, 21)

Numbers represent the size of intervals in cents; two series of numbers reflect the local difference in intonation of the same “scale.” The size of intervals is not haphazard, and within a given locality, it is rendered with a high level of precision. The ancient style of rural singing is frequently heterophonic, as in Example 2 (to which I will return later).

вра - ти ов - це са пре - - - - - ви - је. И!

e, e, e, e

Example 2: Heterophonic singing from western Serbia (Golemović 2016, 67)

<sup>1</sup> Such analyses of traditional pipes can be found in Gojković and Kirigin 1961.

The notation is conventional, and the clue to the precise intonation may be found in tonometric results, as shown above. The intervals are frequently narrower than suggested by notation.

Another important thread of Serbian musical tradition is the chant of the Serbian Orthodox Church based on the system of *echoi* (lit. voices) – modes, or rather a specific combination of modes and melodic formulae, as well as spiritual qualities associated with them. They can be ultimately traced to Byzantine music but have evolved rather differently. Non-12ET is present there as well, although this aspect has not been sufficiently studied.

Thus, the Balkan ear may be “tuned” to non-tempered scales and narrow intervals.<sup>2</sup>

### 3 Then why have so few microtones appeared in Serbia?

Serbian composers had ample non-tempered resources to draw on. They did not do so, not even Stevan Stojanović Mokranjac (1856–1914), the first major composer in Serbian music history. He is praised for his insightful harmonization of folk tunes based on their latent harmonic characteristics, even if it meant deviating from the rules of functional tonal harmony. But his feeling for authenticity did not go as far as to include non-tempered demotic intonation. It is not that he was unaware of it. In his writing about folk music, he did mention a narrow major third, close to minor. Kornelije Stanković (1831–1865), generally credited with being the first Serbian professional composer, actually harmonized some of these songs in minor.

This is not in the least surprising. Serbs, struggling for their national, cultural, and political emancipation and their liberation from the Ottoman and Austro-Hungarian empires, sought to achieve this not only militarily and by asserting their national identity, but also through urbanization, modernization, and adaptation to Western cultural models. This tendency remained prominent throughout a great deal of subsequent history. Building on tradition was a perfectly logical path, but so was the translation of folk music into idioms accessible to a broader, international cultural community.<sup>3</sup> The general level of education in Serbia was still rather low in the second half of the

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2 Teachers of solfege encounter this in the form of systematic “mistakes” in intonation; according to my colleague Gordana Karan (personal communication), they even identify typical differences between various ethnicities living in Serbia, consistent with their respective traditions. Similar problems are familiar to directors of amateur choirs.

3 Serbia is far from being unique in that sense. See, for instance, McClary 2008, in relation to Edvard Grieg. Even the first Serbian melographers tried to provide theoretical underpinnings to the music they transcribed from the perspective of functional tonality.

nineteenth century. The majority of educated Serbs lived in Austria-Hungary and had studied chiefly in various centers in the empire or elsewhere in Europe. European music of the last decades of the nineteenth century and the turn of the twentieth offered virtually no alternative to 12ET.

#### 4 Few does not mean none

Paradoxically, what little microtonality existed in the history of Serbian music before the present century was introduced by Western sources, even if we had microtonality at hand. This was part of the same tendency of assimilating Western culture – only this culture had changed.

Some of the most prominent Serbian composers born in the first decade of the twentieth century studied in Prague, and in the cosmopolitan atmosphere of that city, they came into contact with avant-garde developments in European music. Some of them attended classes given by Alois Hába and actually wrote some quarter-tone music in an afunctional, athematic style close to Hába's own. I will take as an example Dragutin Čolić (1907–1987) who was a member of the first generation of the Serbian avant-garde: a leftist and a member of the Communist Party, he divided art into progressive and reactionary, depending on whether it fostered positive or negative social forces (Cvetković 2007, 27). He was a devoted follower of Schoenberg, and although he mastered the twelve-tone technique, his work was closer to Schoenberg's pre-dodecaphonic music, which was more fruitful for his quarter-tone interests. His *Concertino* for quarter-tone piano and string sextet (1932) was also the first composition of the piano concerto type in Serbian music. According to Sonja Cvetković, the compositional context in which he used quarter-tones include constant variation, motivic transformation, lack of external form, and dynamic impulses entrusted to the motive. In his music, there is a tendency toward a linear profiling of musical material, whereas harmony is devoid of any tonal logic, replete with chromaticism and fourth chords (Cvetković 2007, 25).

Other notable composers from that group include Milan Ristić (1908–1982) and Ljubica Marić (1908–2003); the latter became one of the greatest Serbian composers of all time (but her quarter-tone pieces add very little to her reputation). Finally, there was Vojislav Vučković (1910–1942), a social and artistic revolutionary, a communist killed by the Nazis in World War II. His quarter-tone writing may have been the most advanced of all, but that part of his oeuvre has been lost or destroyed.

After the heavy losses in the war, the country was being rebuilt under the Communist Party. The political situation, with socialist realism as the official aesthetic, may have been an impediment to pre-war avant-garde tendencies, even if Serbia/Yugoslavia was spared the ordeals that some of Soviet artists had to undergo. Even without the political factor, after the initial enthusiasm for European avant-garde, Čolić and other composers of the “Prague group” must have felt the need to find a path of their own. It often meant the restoration of the classical form and softening of atonal acuteness.

Former expressionism gave way to anachronous neoromanticism, with the inevitable folkloric overtone. (Cvetković 2007, 28)

Later, they may have achieved a kind of synthesis of their previous styles and techniques, but they practically never returned to quarter-tone writing.

Especially from the 1960s, the musical scene in Serbia (and Yugoslavia as a whole) was marked by pluralism, to which neither neo-classicism nor continued reliance on folklore nor yet any avant-garde movement were strangers. Some composers attended courses in Darmstadt; aleatory procedures of the Polish School became very influential; an electronic studio was established at Radio Belgrade. None of this produced any significant microtonal music.

The surge of nationalism in the 1990s brought as little good artistically as it did in every other way. Microtonality was certainly not on its agenda.<sup>4</sup> Some of the truly outstanding music from that period lies outside the sphere of this article.

This does not mean, of course, that there is not a single microtone to be found. For the sake of illustration, I will adduce two examples. When Ljubica Marić, after a long hiatus in her creative work, wrote *Asymptote* for violin and strings (1986) using quarter-tones sporadically in the violin part, she did not hark back to her early practice. Quarter-tones are now primarily slight intonational inflections, or passing notes. They may have a deeper meaning as a probe into the microworld of musical tissue, a striving toward the infinitesimal while never, of course, attaining it, just as a curve reaches its asymptote only in infinity. In the linear notes for her compact disk, she compared this to humanity’s struggle to achieve life’s goal.

The second example is by Srđan Hofman (b. 1944) – a leading Serbian composer and professor emeritus of the University of Arts – and his composition *Dolazi!* (It’s Coming!) for string orchestra (1981). The effect is one of very

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4 Mirjana Veselinović-Hofman (1997, 18) used the terms “pseudo-folklore” and “pseudo-orthodoxy”, and in her scathing criticism of such developments she pointed out their extremely simplified and superficial comprehension of tradition, in the factual, compositional and emotional respect, whereby they even impair the original itself.



Neither did theoretical interest in microtonality fare any better during that period. There is no doubt that the most interesting ideas came from Josip Štolcer Slavenski (1896–1955).<sup>5</sup> Slavenski approached microtonality from virtually all possible angles. In his early youth in the Croatian region of Međimurje, he was surrounded with non-tempered demotic intonations (folk and church music); he was in contact with Hába, with whom he argued against a mechanical division of semitones and in favor of natural intonation. He was greatly interested in the harmonic series and the chords and intonations derived therefrom; he viewed music as a universal natural phenomenon and searched for connections between the laws of music and the planetary system (“astroacoustics”), the periodic system of chemical elements, frequency spectra of light, etc. He became aware of the opportunities offered by electronic instruments and used the traonium to experiment with various divisions of the octave. His ideas are scattered throughout various articles and letters, many of them unpublished.<sup>6</sup> No systematic theory resulted, and not even his music was consistent in the use of microtones. No microtones appear in those compositions that are regularly performed and that are chiefly responsible for his reputation. He is known to have written music that does not conform to 12ET, notably *Music in the Natural Tone System*, but I have not been able to locate the score.

Closer to our time, a doctoral dissertation was defended at the University of Arts in Belgrade, which addressed the question of the perception of microtones (Ђорђевић 1996). It had very little to say about microtonal music analytically, historically, or aesthetically.

## 5 Preliminary clarifications: defining the analytic corpus

Writing about microtonality in Serbia would not have been worthwhile were it not for some quite recent developments that alter the picture significantly. The twenty-first century, and particularly the present decade, has seen a proliferation of microtones. We will presently discuss this trend, but first, some clarification is in order. By microtonality, we can mean various things. It is not my objective to work toward a taxonomy of microtonality or produce a general historical survey. For my present purpose, it will

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5 A Croat by birth, with distant German roots, educated in Budapest and Prague, he embraced various identities: Yugoslav, South Slavic, Slavic, Balkan, Eastern European. He spent a significant part of his life in Belgrade, where he taught at the Academy of Music.

6 For further reading, I recommend Živković (2014), particularly pp. 68–80 and 125–34; Peričić (1984), and Mikić (2006).

suffice to indicate two approaches. The first one includes the “classical” quarter-tone music discussed above or any other division of the octave: 31, 53, 72, etc., or dividing an interval other than the octave. In any case, we are adding new pitches to the widely accepted twelve, while narrowing intervals between them.

When we talk about the second approach, we have in mind phenomena such as intonation derived from the harmonic series, just intonation, mean-tone, and other historical temperaments from various periods and from other cultures and traditions. They do not necessarily include narrow intervals, but insofar as professionally educated musicians generally take the twelve chromatic notes for granted, the difference between them and a given non-standard tuning can be expressed in microtones. We could call this “latent microtonality.”

Somewhere between these two lie situations that include pitch bending for embellishing or expressive purposes; extensions or enhancements of effects like vibrato, glissando, or those occurring due to the exigencies of a specific instrument (i.e. some glissandi on woodwind instruments are not viable beyond a quarter-tone); and the intensification of functional relations (e.g. sharpening of the leading tone; the opposite of this can also be a desired effect). Furthermore, microtones can be applied when pitch is a function of more structural parameters of timbre and texture (e.g. Penderecki’s *Threnodia*). I assign such microtones an intermediary position because they may or may not be recognized as new pitch material.

Technically, these distinctions do not seem so important, since everything in our examples is notated as quarter-tones with the sole exception of several sixth-tones in the work of Dragan Latinčić. The question will have some relevance, though, in the context of the underlying poetics of the composers and their motives for using microtones. When they write a quarter-tone sign, they do not always mean the mechanical subdivision of the semitone into quarter-tones.

Though Serbian microtonal music does not offer vast material for research, it is still necessary to circumscribe the range of phenomena this article will include. Some possible venues for exercising microtonality are deliberately left out. In jazz, *blue notes* have always existed, but jazz and blues, and for that matter any kind of improvised music, will remain outside our present concerns. Electronic music may be invaluable for generating any conceivable kind of pitch relation, but apart from considerable technical difficulties that such an analysis would pose, I have not found instances in which an



electronic medium was exploited expressly for that purpose. I will consider, therefore, only written scores (even if they contain electronic layers).

In the subsequent portions of this article, I will try to shed light on certain analytical aspects and the way microtones are introduced and integrated into the overall texture of the piece to discuss their melodic, harmonic, structural, formal, expressive, and programmatic functions.

I will further try to pinpoint the composers' motives for employing microtones, their sources, and the possible models they followed; the effects they envisaged; and the underlying aesthetics. In that, I will rely largely on their own statements.

I will briefly touch upon the broader social and cultural context in which this (micro)burst of microtonality takes place. This will inevitably be done in a perfunctory manner, since proper examination of these circumstances would require additional research.

The composers I am chiefly concerned with were born within the period spanning between the late 70s and early 90s, most of them in the first half of the 1980s (could we call them millenials?!). It is remarkable that in the oeuvre of their colleagues who are just a few years older, whose doctoral studies predated theirs by two or three years, microtonality plays a minor role or no role at all. The majority of the works herein discussed were written as doctoral projects at the Faculty of Music in Belgrade, the only place in Serbia where such a program of studies existed until recently.<sup>7</sup> This may seem like a too narrow selection, but to the best of my knowledge, there is very little microtonal material outside that scope. I am not considering Serbian students who studied abroad and remained there or who left Serbia at a very early stage of their careers, with one exception (Đuro Živković) that I will account for in the appropriate place. Having precisely doctoral projects to deal with has several advantages. First, for most of their creators, they are their most accomplished works so far. Next, the doctoral composition is accompanied by a rather substantial written paper providing an analytical, theoretical, and aesthetical framework. Finally, some of them are accessible online, from the electronic repository of doctoral projects and dissertations maintained by the University of Arts in Belgrade. The following list names these composers, their birth years, affiliations (where applicable), the titles of their doctoral compositions, and the year in which the project was completed. Other compositions that I will take into account were chiefly written during the composers' doctoral studies.

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7 The doctoral program in composition at the Academy of Arts in Novi Sad was accredited in 2015, and it has not yet produced significant results.

- Draško Adžić (b. 1979), assistant, Faculty of Music, University of Arts in Belgrade: *Arhajski prizori – šaputanja i krici za vokalno-instrumentalne ansamble* (Archaic Scenes – Cries and Whispers for vocal-instrumental ensembles) (2017).
- Milan Aleksić (b. 1978), assistant professor, Academy of Arts, University of Novi Sad: *Povratak* (Return), for orchestra and narrator, based on the Eighth Book of *Odyssey* (2015).
- Stanislava Gajić (b. 1980), assistant, Academy of Arts, University of Novi Sad: *Putovanja i razgovori* (Travels and Talks): song cycle for soprano, tenor, flute and string quintet; lyrics by Dimitrije Kokanov (2014).
- Ana Kazimić (b. 1985), *Muerto de amor* – Dance Fantasy for vocal-instrumental ensemble and electronics (2016).
- Dragan Latinčić (b. 1982), assistant professor at the Faculty of Music: *Batal* – Preludes for string orchestra (2013).
- Nina Perović (b. 1985), lecturer at the Faculty of Music, University of Montenegro in Cetinje:<sup>8</sup> *Ritus* – Ritual Songs for women’s choir, chamber orchestra, piano, percussion and electronics (2015).
- Vladimir Trmčić (b. 1983), assistant professor, Faculty of Philology and Arts, University of Kragujevac: *Late Autumn* – A Landscape for alto flute, two harps and two accordions (2016).
- Dorotea Vejnović (b. 1986), lecturer, Academy of Arts in Novi Sad: *Kraljice* (Queens) – Chamber Fantasy for vocal-instrumental ensemble, female voice and electronics (2018).
- Nikola Vetnić (b. 1984): *...of Uruk the Sheepfold* for Chamber Ensemble, Singer and Narrator (2016).

The list also includes Lazar Đorđević (1992), assistant at the Faculty of Music and doctoral student at the same institution. A few of the younger colleagues of the abovementioned composers will be mentioned briefly later.

## 6 Microtones: where, when, how? An analytic approach

I will begin analytical considerations with a rather sweeping statement: more often than not, microtones are a subsidiary phenomenon, subordinate to “regular” tones and “second-class citizens” in the tonal worlds of the composers in question. Like all such generalizations this statement will need to be qualified – and significantly so – but for the time being, let me illustrate this

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8 Her professional career is associated with Montenegro, but she completed doctoral studies in Belgrade.

with some typical situations in which microtones are used. They can be part of neighbor-note figures or serve as passing notes between the pitches that are a semitone apart in 12ET, as in Examples 4 and 5.

Example 4: Gajić's Travels and Talks, first song On Suffering

Example 5: Kazimić's Muerto de amor, mm. 14–19

Vladimir Trmčić uses microtones with some consistency in his doctoral composition but practically only in the context of glissando. Up to a point, it is also a technical, instrument-specific matter.

Example 6: Trmčić's Late Autumn, mm. 12–16

In the majority of compositions under discussion, microtones are meant to be minute inflections, pitch-bending devices that enrich melodic phrases rather than being their principal components. When used more extensively, they may become (or are on the verge of becoming) an important embellishment, as is occasionally encountered in Ana Kazimić's work. This, however, rarely approaches the melodic richness, subtlety and nuances, as found, for

instance, in Indian classical music.<sup>9</sup> In this, as in a number of pieces by other composers, the melodic function of microtones is usually associated with recreation of archaic and traditional melodies: the question that will be discussed in the next section of this article.

The effect of microtones can be coloristic in nature. Pitch becomes a function of parameters that in the given musical language carry more structural weight (timbre, texture).

The image displays a partial score for the piece 'Memoria in aeterna, reh. F' by Đorđević. The score is arranged in a standard orchestral format with the following parts from top to bottom: Percussion 1 (Rat, Cym), Percussion 2 (B.D., Gong), Accord, Violin I, Violin II, Viola, Violoncello, and Contrabass. The music is written in 3/4 time and features a complex microtonal system. Above the notes, various performance instructions are provided, including dynamics (ppp, mp, mf) and specific microtonal parameters such as SP (Semitone), ST (Scale Tone), ORD (Octave Ratio), and ASP (ASP arco). The score shows a progression of microtonal intervals and dynamics across the measures, with some parts featuring triplets and other rhythmic markings.

Example 7: Đorđević's *Memoria in aeterna, reh. F* (partial score)

9 I am mentioning India because Ana Kazimić herself draws such parallels, mentioning the fact that in Indian music, dozens of scales can be constructed on a single "tonic".

The way Lazar Đorđević uses microtones in his *Memoria in aeterna*, Concerto for accordion and chamber orchestra, recalls *Klangfarbenmelodie* (we will see similar situations in Živković's work). They typically appear in conjunction with a wide range of techniques (in string instruments, *sul ponticello*, *sul tasto*, *alto sul tasto* and *ponticello*, tremolo, various types of vibrato, and harmonics and in wind instruments air sounds, half air sounds, key clicks, and many more, frequently with gradual transitions between different states) contributing to the coloristic effect. They generally do not constitute a part of melody or harmony (in the usual sense) but in the context of this piece, such coloristic effects do acquire a thematic significance. It is important to mention that when an event assumes a more motif-like shape, then microtones are absent. They can also be a logical outgrowth of the extensively used glissandi (in accordance with the above-mentioned gradual transitions): indeed, we can think of microtones in this context as a way of "digitalizing" glissando. Microtones are typically used in rather rare texture, so that their pitch-bending effects come through.

Even though the predominant treatment of microtones assigns them the role of inflections of "regular" pitches, from rehearsal YY they become involved in harmony, and they are included in the closing chord.

The image displays a partial musical score for the closing chord of Lazar Đorđević's *Memoria in aeterna*. The score is arranged in a system with seven staves. The top two staves are for Violin I (vni) and Violin II (vni). The next two staves are for Viola (vle) and Violoncello/Bass (vc.). The bottom two staves are for Cello/Bass (cb.). The music is written in a key signature of one flat (B-flat major/D minor) and a 4/4 time signature. The score shows a series of notes with dynamic markings: *mp* (mezzo-piano), *ppp* (pianissimo), and *p* (piano). There are also slurs and accents over the notes, indicating phrasing and emphasis. The notes are primarily sustained, creating a rich harmonic texture.

Example 8: Đorđević's *Memoria in aeterna*, closing chord (partial score)

More emancipated and promoted into harmonic constituents are microtones in certain passages in *Archaic Scenes* by Draško Adžić.

**E**

Viola

Violoncello

Contrabbasso

Example 9: Adžić's *Archaic Scenes*

An instance of using microtones within extended instrumental techniques is found in Milan Aleksić's *Return*. As will be shortly demonstrated, in his piece microtones are more numerous and belong more to the core pitch material than was the case in the previously mentioned compositions.

Cl.

*pp*

Example 10: Aleksić's *Return*, 5<sup>th</sup> movement

Two composers from our list, Latinčić and Vetnić, require in their scores microtonal scordatura. Thus, Latinčić employs ten violins, nos. 5–8 tuned a quarter-tone lower; a similar procedure applies for violas and cellos, the one double bass remaining with regular tuning. This secures the constant presence of microtones, sometimes with a “mistuning” effect.

Most of the time, however, the individual lines are devoid of microtonal motion.

An interesting function of microtones is shown in Example 12. The melodic line being centered on D, the  $\frac{1}{4}$ -sharp F represents a third which is neither minor nor major.

Example 11: Latinčić's Batal (partial score)

Example 12: Kazimić's Muerto de amor, mm. 49–54

This neutral third may have something to do with the fact that the tempered major third is noticeably wider than the natural one, and we will remind ourselves of this major/minor uncertainty mentioned earlier in the article, in the context of folk music. In addition, by suspending the major/minor dichotomy, the composer may have positioned herself further from Western European tradition (though she herself does not offer this explanation). In this example, the  $\sharp C$  is obviously meant to be a sharpened leading tone, “a leading tone plus.” Indeed, microtonality is well suited for the task. In our harmony classes, we have learned that chromatic alterations create “artificial leading tones”; accordingly, quarter-tone chromaticization can replicate this process one level down or constitute a functional enhancement. This said, we can embark on a more detailed examination of the effects of such enhancements.

Let me begin by quoting from Ana Kazimić's explication of her doctoral project (although this quotation might sooner belong in the next section). The composition in question is based on the poem with the same title by Federico García Lorca:

The powerful emotional charge of Lorca's verses imposed a need for specific changes as a permanent striving for something vague and perhaps unattainable. From this proceed, apart from the work on timbre [...] constant tension and restlessness of tones, owing to which they abandon the tempered system and expand their fields of living and acting on microchromaticism. (Kazimić 2016, 33)

Obviously, she recognized microtones as an expressive asset. Tension and release, so fundamental for experiencing music, can reach new heights. Feelings of anxiety, uncertainty, and ambiguity, of subtle, barely perceptible changes: we can think of any number of expressive uses to which an imaginative composer can put microtones. This potential is yet to be exploited. It can be of special value in music with an extramusical program, or at least with substantial extramusical references, as the majority of these compositions are. With Kazimić, it was Lorca's poem. Stanislava Gajić bases her work on poems by contemporary Serbian poet Dimitrije Kokanov, and her explication cites a vast number of extramusical references. Among the principal ones is the myth of Orpheus, whose inebriated state is musically rendered with a contribution from microtones.

224  
Ten. *mp* од мор-ских ри - ба до - ма - њих — *mf* гле - дај са - да стра-шни мој

Example 13: Gajić's *Travels and Talks*, third song Solace

However, this example points back to my general observation about microtones being of secondary importance. Even though Kazimić herself underlines this programmatic use of microtones, there are actually very few of them. There are other situations in which dense chromaticism somehow invites further intensification with microtones, yet they barely appear. In her explication she mentions:

The motion of an augmented second, replaced, when melody moves in the opposite direction, with a major or even minor second, thus thinning out and condensing the meta-space of this augmented interval into the compressed and dense space of a minor second. (Gajić 2015, 36)

Yet, she stops short of compressing it further into a quarter-tone. The last movement frequently employs glissandi, or notes with indefinite pitches,



and microtones could have played a similar expressive role. They could have been included for purely formal reasons: their appearance would have been consistent with their constant (albeit infrequent) use throughout the composition; yet they are totally absent from that movement. Of course, I am not by any means trying to be prescriptive: I am not saying “she ought to have used.” My speculations about where microtones could or could not have been used simply mean that I was following a certain logic that would justify a more liberal use of microtones. The fact that the composer did not follow the same logic certainly does not denigrate her achievements; it merely corroborates my initial assumptions about the extent of the use of microtones. Her priorities are different. They lean more toward various modes, scales, and tonal centers, which she explains in detail (e.g. Gajić 2015, 17). Her logic – inasmuch as I could infer it from the score – stipulates that the clarity of modes (as, for instance, octatonic scale at the end of the first song) and pitch centers should not be obscured too much. The modal sound is primary; quarter-tones are expressive distortions, possibly exaggerations, as necessitated by the text. It is no accident, then, that in the summary of her compositional methods she does not mention microtones.

Another characteristic example is Draško Adžić, who himself underscores the microtonal aspects of his composition in the accompanying text. Yet, out of the four pieces that make up the whole, only one of them contains microtones.

Ostensibly, there should be no doubt about the subordinate role of microtones in a piece that clearly projects a tonal center, such as String Quartet No. 1 *Rumination* by Dorotea Vejnović. Examples 14 and 15 reproduce the first and the last page of the score, indicating G major as the “tonic”; tone G retains some of its prominence in the four intervening pages. The tonal effect is perhaps intensified by the traditional transposition at the fifth (see Example 16; cf. cello m. 21 and Vn. I at the beginning of Example 14), and allusions to the subdominant and dominant in the bass near the end of the piece. However, the use of microtones may sometimes acquire possible structural significance or give rise to more elaborate, possibly narrative interpretations. Thus, the beginning, the way I hear it, is meant to create uncertainty and ambiguity by alternating minor, major, and in-between. Elsewhere I have argued (Zatkalik 2017) that creating ambiguity in order to resolve it is a goal-projecting and goal-directing strategy of some post-tonal composers. In this case, the path towards clarification contains a false clue: in m.13, this alternation ends, seemingly settling in the minor mode. However, minor is (historically, as well as in the overtone series) less consonant than major, and the

establishment of G minor affects only the lowest layer (cello), the first violin trailing behind with its resolution into D, even as the D in viola is abandoned for C-sharp. These factors significantly diminish the resolving power of this event and leave us waiting for the proper resolution.

Adagio  $\text{♩} = 56$

Violin I  
Violin II  
Viola  
Violoncello

pp  
p  
pizz. pesante  
mp

sul tasto  
molto vib.

6  
ord.  
p  
pizz.<sub>3</sub>  
pp  
sfz  
mp  
molto vib.

11  
rit.  
mf p  
f  
mp  
a tempo  
pizz. φ  
arco s.p.  
sub. f  
arco  
f pp  
mp  
sfz  
p  
pp  
mf p  
pizz.<sub>3</sub>  
pizz. φ  
arco  
f  
arco s.p.  
pizz. φ  
arco  
pizz. φ  
arco  
- sul D -  
arco φ

Example 14: Vejnović's String Quartet No. 1 Ruminations, first page, mm. 1–16

We can extend this idea of ambiguity-to-be-resolved or obfuscation-to-be-clared beyond the minor/major equivocality. The entire referential chord is somehow blurred round the edges, lacking intonational sharpness.

Taking G major as the principal tonal reference, we can identify a number of neighbors clustering around its major third; microtonality allows not only B-flat, but also B-flat raised or lowered by a quarter-tone as its lower neighbors, and C as its upper (witness the prominence of C, especially in second violin). Likewise, C-sharp, E-flat and their microtonal inflections surround the referential D. Since in this context we are likely to hear microtones as tiny inflections rather than pitches in their own right, I find them particularly conducive to the blurring effect. On the other hand, given the aforementioned microtonal effect on space, we can disregard whole-tone distances as true neighbors. Initially, such blurring does not affect the tonal center G, as the composer apparently wants to maintain a certain level of stability and clarity, analogous to the establishing of the home key in a tonal composition. Its leading tone/lower neighbor F-sharp comes with a vengeance in mm. 26–27 (after a brief introduction of G-sharp in m. 25 as the upper neighbor). In m. 37 another quarter-tone neighbor appears, and there are some other instances, but on the whole, G is less affected by blurring than the other two notes of the chord, which suggests the possible intention of the composer to maintain a relatively sharp focus at least on the pivotal intonation G, if not on the whole referential chord.

The image displays two systems of musical notation for a string quartet. The first system, measures 17-22, shows the Violin I, Violin II, Viola, and Violoncello parts. The Violin I part has a dynamic marking of *poco a poco s.p.* above it. The Violoncello part has a *gliss.* marking above it. The second system, measures 23-28, shows the same four parts. The Violin I part has dynamic markings *s.p.*, *molto s.p.*, and *al niente* above it, and a *ppp* marking below it. The Violin II part has a *pp* marking below it. The Viola part has a *pp* marking below it. The Violoncello part has a *pizz. pesante* marking below it.

Example 16: Vejnović's String Quartet No. 1 Ruminations, mm. 17–22

## 7 Microtones: whys and wherefores. Poetics, aesthetics, ideology: rooted in tradition (bis)

In the preceding pages, I have tried to examine the use of microtonality, to assess the effects of microtones primarily as they could be inferred from the scores: I have only sparingly used the evidence provided by the composers themselves. My intentions were chiefly analytical. It is time to delve deeper into their motives for using microtones. I will probe into their creative poetics, their aims, and how microtones fit into what they were trying to achieve.

I will again begin with a sweeping generalization: the key word is archaization. We could formulate it also as the evoking of ancient traditions. The mere titles of some of these works tell us that much: *Archaic Scenes ...*; ... *Uruk ...*; *Kraljice* (an ancient Serbian ritual); *Ritus*. Other titles may not be so revealing but will become so further in this article.

When I said traditions (in plural), I indeed meant the plural. Diverse traditions, a broad range of traditions. This leads us to another major (perhaps the most important) aspect of their creative work: an openness to a wide variety of influences and a readiness to incorporate these influences in their music.

I have already drawn attention to Milan Aleksić, one of the most consistent microtonalists. His starting point is ancient Greece; the *Return* in the title is the return of Odysseus, and its text is based on the Eighth Book of *The Odyssey*.<sup>10</sup> What his research attempts to show is the affinity between the Homeric and Serbian epic traditions, treating the latter as an offshoot of the former. Since, musically speaking, Serbian tradition is better preserved; it also serves as a proxy for the ancient Greek one. Both Serbian and Greek traditions, as we well know, are replete with non-tempered intonations.

Searching for folk music is an archeological task.<sup>11</sup> What can be heard and transcribed today is but a wreck that has survived the tsunami of ubiquitous modernization. (Aleksić 2015, 38)

Aleksić performs this archeological task, but his relationship to folk material is personal, subjective, and he does not hesitate to incorporate diverse Serbian/Balkan traditions: the epic tradition of *gusle*<sup>12</sup> is naturally at the

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10 To be precise, he uses the Serbian translation of Alessandro Barrico's adaptation of *Iliad*, which includes portions of *Odyssey*.

11 Notice how different this is from the circumstances in which Slavenski grew up, surrounded by the living folk intonations.

12 One-stringed chordophone that typically accompanies the singing/reciting of epic poetry throughout the Balkans.

forefront, but he also takes recourse to Dinaric and eastern Serbian singing. Heterophony (Example 17; cf. Example 2), dissonant (in the Western sense) intervals treated as stable, characteristic rhythms, and more: such demotic features inform Aleksić's composition.

Example 17: Aleksić's Return, beginning: heterophony

Aleksić is not only aiming at an evocation of some kind of imaginary folklore: he tries to emulate exact procedures and recreate folk models and formulas (Aleksić 2015, 38–9). Elsewhere he talks about reviving Serbian/Greek tradition, whereby all parameters are affected including structure, form, rhythms, and choice of instruments, even reproducing the Aristotelian formal organization of the tragedy (Aleksić 2015, 51). Microtones naturally enter into the picture as part of that recreation.

There is another angle to his microtonality. Starting from Ancient Greek foundations, he raises the questions of the harmonic series, pure intervals, and Pythagorean tuning,<sup>13</sup> and he even offers a very brief overview of the history of tuning systems and of various possibilities of notating microtones. Such considerations are not completely unknown to other composers from our lot, but here they figure much more prominently than anywhere else, except in Latinčić.

As might have been expected, Aleksić also establishes a dialogue between the ancient and modern. Ligeti's micropolyphony and spectral<sup>14</sup> music are

13 Of his fourth movement he says, "I use the harmonic and chordal structures based on the natural Pythagorean harmonic series ... which is in essence in microtonal relations" (Aleksić 2015, 43).

14 His fourth movement is based on the harmonic series with the low E as fundamental, as in Gerard Grisey's *Partiels*. Coincidence? Otherwise, there is a growing interest in spectral music, with Vladimir Korać (1986), assistant at the Faculty of Music, at the forefront, primarily in his *Event Horizon* for

cited among his influences, and some unlikely connections are discovered in the process, such as affinities between Lutosławski's last phase and ancient Serbian folk music (Aleksić 2015, 44–6).

In order to obtain the full picture of how Aleksić contextualizes his music – with significant repercussions on his understanding of the role of microtones – we need to have a look at the concluding part of his doctoral essay. He sees both music and the society in which it is created as being in deep crisis. Music has become a “commodity like any other” and a “market niche of the contemporary world, rather than an image of leading ideas and intellectual and emotional content of the society in which it is created.” Further on, he states that:

The long journey commencing with the European Enlightenment has come to an end, and apparently, the circumstances in which music exists today are similar to those before this great movement, especially pre-Baroque. Modern music lives today in very small groups of connoisseurs and music lovers, and this circle is no wider than it was in the seventeenth century, notwithstanding today's enormous accessibility of information. (Aleksić 2015, 74–5)

He talks about the fragmentation of styles and absence of a single leading school or idea.

Abrupt and swift changes in the world have deprived music of its centuries-old language, a system of sophisticated communication in transmitting its ideas. (Aleksić 2015, 74–5)

The relevance of this for microtonality lies in the concluding paragraph, where he underscores his aims to swerve from the tempered system and standard scales, traditional rhythmic, melodic and harmonic solutions, and self-reinforcing codifications.

I believe that one possible way out of the deep crisis of music creation lies in the specificities of folk, improvised, or highly personal, local musical practice [...] not relying on tradition [obviously meaning European ‘mainstream’ tradition] or a ‘school’ ... but must be rooted in the individual, personal, and local. (Aleksić 2015, 74–5)

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chamber ensemble and electronics. We cannot discuss it here, although spectralism is for obvious reasons relevant for our subject.

This is a strong personal statement, providing perspective to his microtonal forays, and to many other facets of his creative achievements.

Ana Kazimić in her *Muerto de amor* starts with the poetry of García Lorca. Herself an accomplished flamenco dancer, she employs a range of procedures proper to Andalusian musical tradition. Significantly, she insists on flamenco as an amalgam of various traditions. Moreover, the flamenco tradition is refracted through the verses of a modernistic poet. The process of amalgamation is thus carried further; the traditional is fused with the modern.

I haven't restricted myself to specific scales, although the melody has a modal touch and displays similarities with certain Indian scales, with [...] Arabic maqam, Locrian mode, and Spanish Phrygian mode: generally speaking, with modes used in the cultures that helped shape the flamenco art. (Kazimić 2016, 32–3)

The basic pitch material is, therefore, not necessarily microtonal, and – as we have already established – microtones are there to embellish the melodies, emulating the practice of flamenco singers. Another characteristic statement she makes relates to incorporating melodic-harmonic features of flamenco into the procedures of art music, more precisely, the procedures derived from the dodecaphonic way of thinking (Kazimić 2016, 34). And since that way of thinking is 12ET in the extreme sense, this again points to the tempered system as the basic resource, with microtones as additions. There is no contradiction here. Assimilating a wide range of influences and incorporating the ancient into the modern is what many younger composers strive to achieve.

The idea of inclusiveness looms large in the already discussed composition by Stanislava Gajić. The variety of technical procedures is matched with a very wide range of extramusical references: the text is by a contemporary author of a younger generation, Dimitrije Kokanov, inspired by the older author Danilo Kiš, and by the Orpheus myth, plus an enormous number of other cultural references. Ancient traditions, spiritual and secular, hold a prominent place. As her text epitomizes the striving of a number of other composers, I will quote from it extensively.

In the composition *Travels and Talks*, I use melodic patterns based on segments of the melodic formulae of Serbian Octoechos, as well as our folk musical patterns from Bačka [a region in the Autonomous Province of Vojvodina] and eastern Serbia; there are, in addition,



musical idioms characteristic of older types of instrumental popular music, quarter-tone layering and the like. I endeavor to conceive a music that will, in a new way, lend an acoustic shape to the forever hidden musical worlds of ancient times reaching far into the past, while gathering particles of the most diverse idioms that have accumulated on our soil throughout the centuries. In that sense, I seek inspiration, both in content and in technique, in the musical achievements of some of my paragons, such as Ljubica Marić, Iannis Xenakis, György Ligeti, Maurice Ravel, and Isidora Žebeljan. In the process of composition I have tried to explore modalities of work with various musical styles, compositional procedures, approaches, and harmonic solutions, and in this way, by experimenting, to reach a unique, original expression, setting the archaization of my musical language as the basic element that has the power of absorbing all differences and discords, and amalgamate them into a unified musico-poetic language. (Gajić 2015, 13)

Octoechos is a recurring subject in her text, where she explains at some length how its melodic patterns found their way into her music (Gajić 2015, 22–3; 44–5); so are a number of other traditions, folk music from various regions: Serbia, Armenia, and Argentina (Gajić 2015, 32). Of course, let us be reminded that the title contains the word “travel.” She concludes by saying:

[T]his system [referring chiefly to Octoechos and Serbian folk music] can be primarily linked with compositional techniques called the archaization of musical language, for it is through the refraction of the above-mentioned patterns through the prism of my musical ideas that a new musical system is created. This system creates an acoustic image that constitutes a network of interwoven musical thoughts connecting the ancient past with the present, but also with a distant future. Every present contains the entire past, thus creating an all-comprising, infinite, never-interrupted present moment, the only moment in which we exist. (Gajić 2015, 44–5)

The first quotation (mentioning her model composers) again indicates that ancient traditions and folk music are not the only sources of inspiration. She is well aware of the achievements of European art music and ready to embrace them. Stanislava Gajić’s choice of composers is consistent with this: Ljubica Marić was not only among the first to introduce quarter-tone music into Serbia, she also based the larger part of her subsequent work on



Orthodox spiritual tradition and to some extent folklore, with occasional microtones. Ligeti cherished a lasting interest in both folklore and tuning systems different from 12ET, being throughout his career increasingly dissatisfied with the latter. Thus, references to folk music or to ancient civilizations are partly direct and partly refracted through the prism of composers with similar preoccupations. From the point of view of microtones, it is particularly interesting how Gajić draws a parallel between herself and Xenakis and his *Oresteia*. She says:

Unlike Xenakis who in *Oresteia* used melodic phrases with quarter-tones along with the syllabic treatment of text, creating in this way a timeless description of the epic, ancient, ritualistic experience, I enriched with quarter-tones both the melismatic melodic phrases of vocal parts, and the brief melodic phrases in the flute, wishing to create a poetic, lyric image of the inexorable suffering that love brings. (Gajić 2015, 14)

And her Armenian inspiration is not so much Armenian as Luciano Berio's (Loosin Yelav, from *Folk Songs*; Gajić 2015, 32).

For his part, Draško Adžić particularly emphasizes mythological aspects, which prompts him to include a number of anthropological references as well as Jungian archetypes. *Archaic Scenes* takes as its primary focus the exploration of the multiple modes of transposing archaic samples into music. The four pieces that make up the composition are devoted, respectively, to two mythological beings, one Slavic and one Irish, and two places associated with them. He discusses folk music from the Balkans, which inevitably brings up the subject of non-tempered intonation.

Archaization is the foothold of his composing. He draws attention to the characteristics of the most ancient and primitive layers of folk singing and enumerates his previous compositions in which he attempted their artistic transposition, citing specifically his *Symphony I: Four Scenes* for symphony orchestra for the use of folk-inspired, non-tempered pitches (Adžić 2017, 6–7).

As is already obvious, he, like his colleagues, will not limit himself to a single tradition. Not only does he juxtapose Serbian and Irish folklore, he invokes many other influences. He refers, for instance, to the traditional Japanese *No* theater, and in the typical blending of ancient and modern, he finds analogies between the *No* and Balkan traditions on the one hand, and expressionism on the other. Expressionism, more precisely "pagan expressionism," for its part, is naturally related to Stravinsky (Adžić 2017, 2). Ancient Greece enters

into the picture both as a universal source of ancient, pagan inspiration, and through (again) Xenakis's *Oresteia*, complete with microtones.

Dragan Latinčić talks about the dialogue of cultures (Latinčić 2013a, 3). He starts from the carpet-weaving traditions of the Balkans and Middle East (the title *Batal* is associated with these traditions) and fuses them with certain localities from the city of Belgrade, but ultimately his attempt is:

[T]o translate the musical language and selected motifs from the cultural, historical, and spiritual experiences of the East into the musical language and experience of Western civilizations (Latinčić 2013a, 6).

As I have already indicated, he is unique in his use (albeit very scant) of microintervals other than quarter-tones; he is one of the two composers with whom the presence of microtones is continual throughout the composition by virtue of microtonal scordatura, but probably his most outstanding achievement is his theoretical elaboration of microtonality, which I will yet have to address.

The ancient world that Vladimir Trmčić conjures is Chinese landscape paintings, from the twelfth century and earlier. His aim is to explore relationships between music and painting (Trmčić 2013, 2), and he refers to Claude Debussy, Toru Takemitsu, and especially to Olivier Messiaen's treatment of color as the constituent element of music. His use of quarter-tones is practically only apparent in the context of glissando, something to add color and atmosphere.

## 8 Two special cases

Probably no one has pushed the limits of the use of microtones further than our next two composers, Nikola Vetnić and Đuro Živković.

With Nikola Vetnić and his *...of Uruk the Sheepfold*, we continue our conversations with ancient civilizations. It is Gilgamesh in this case, and he states that his goal is "to situate the old Babylonian narrative in modern musical surroundings." Recognizing this as anachronism, he justifies it by attributing anachronistic, timeless qualities to the character of Gilgamesh himself (Vetnić 2016, 31). Drawing on a book by Peter van der Merwe (1989) as a source of information on the possible characteristics of music of that time and place, he talks about translating certain methods and manners of ancient musical practice into the acoustic space of modern composition, but insists that:

[O]f all performing techniques and procedures van der Merwe discussed in his book, I chose only microtonality and built it into the very foundation of the pitch structure of the chordophones. In that way, I avoided naivety and associations with popular clichés which, in my opinion, would have been inevitable if the vocal parts had conformed with van der Merwe’s description of ancient Mesopotamian singing. (Vetnić 2016, 28)

He is not unique in that his use of microtones is “overdetermined”: it is archaic, as we have seen, and at the same time results from convoluted mathematical operations. Within the framework of this article, it is impossible even to scratch the surface of these operations.<sup>15</sup> This applies generally to his musical material, of which microtones are an essential part. He obtains by such procedures a series of chords, which are assigned certain roles within the composition, thus creating a kind of protofunctional harmonic system (Example 18).



Example 18: Vetnić’s ...of Uruk the Sheepfold, chordal structures (Vetnić 2016, 36)

He applies scordatura on the guitar, “mistuning” certain strings by quarter-tones. Rather than being embellishments or expressive gestures, microtones are thus “cemented.” But the deep microtonal roots of his musical language are part of yet another strategy. Whereas “justification” for the use of microtones is sometimes sought in extramusical content, Vetnić uses microtones, along with some other devices, as an “anti-programmatic” device. He wants to draw special attention to the music itself, not to allow it to “slip” into the background for the mere recitation or chanting of the text. Along with the texture saturated with dissonances and the relatively unusual scoring<sup>16</sup> producing occasionally sharply aggressive sound, this is meant to play a crucial role in establishing the musical layer as equal to the literary one (Vetnić 2016, 24).

15 In order to generate his musical material, he takes for instance, two series of numbers, Fibonacci and Lucas, subjects them to certain operations, such as dividing by specified numbers, using the remainders instead of the original series, grouping the members of the resulting series into “cells”, taking the sum of the cells as yet a new series etc.

16 Comprising three electric guitars, two acoustic guitars, five-string electric bass guitar, four cellos, harpsichord, marimba, vibraphone, and a drum set.

Unlike many of his colleagues to whom – whatever their explicitly stated intentions were – microtonality is secondary, with Vetnić microtonality becomes a norm; at a certain point (Vetnić 2016, 41) he even feels he needs to justify the absence of quarter-tones by drawing attention to the fact that his harpsichord is a 12ET instrument. Likewise, he explains that in the vocal part quarter-tones are replaced with semitones to lower the technical demands on the singer (Vetnić 2016, 47).<sup>17</sup>

One composer stands aside our analytic sample. Born in 1975 in Serbia, Đuro (also spelled Djuro) Živković was educated partly in Serbia and partly in Sweden, where he now resides. None of his major works was written before he left for Sweden.<sup>18</sup> By these criteria, he does not belong to the present analytical sample. I am nonetheless including him, not only because of his advanced use of microtones and his overall high achievements. Namely, it has been pointed out that:

Živković fits into the existing social and cultural paradigms since he openly respects and cultivates ‘Serbian traditions’, embodied in the Orthodox religion [...] in a state where the influence of the Church is extremely strong. (Milojković 2012, 84)

Although Živković lives in Sweden, it is very important to consider his work in the domestic context, since:

[It] corresponds with the dominant cultural practices in our midst [...] in spite of the composer’s foreign engagement, the most significant social relations that his work creates are those with a Serbian cultural context. (Milojković 2012, 86)<sup>19</sup>

For Živković, microtonality arises from a collusion of several factors. By now, the relevance of these factors for microtonality will have become clear. The initial one was Serbian folk tradition, or rather traditions, for he draws on various facets of traditional music: ancient heterophonic singing, *gusle*, and

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17 The issues he has with performers seem to be rather serious. He refuses to have his works performed in Serbia citing precisely the serious problems he encounters in finding mutual language with them (Vetnić 2014).

18 His career has been remarkable. His compositions are commissioned and performed by prestigious ensembles, he has won numerous awards, and the crown of his career so far is the 2014 Grawemeyer Award. He taught for a while at the Royal College of Music in Stockholm. He is also a professional violin player and improviser on the violin and piano.

19 This was written before the Grawemeyer Award. Naturally, interest in his music has greatly expanded since.

wailing for the dead (an ancient tradition that hails from pagan times).<sup>20</sup> Among his sources of inspiration he also cites church bells (think of their unusual frequency spectra!), and church singing. Concerning the latter, he wants to create music out of the very short ornaments (it is understood that they would contain microtonal inflections), which are usually left unnoticed by an average listener (Živković 2015). In addition, his penchant for improvisation may account for some microtonality in his compositions.

What largely permeates his work is his striving toward wholeness and integration. Although he does not make this link himself, I will conjecture that including microtones is a gesture towards totality. Obviously, in the literal sense, it is impossible to include *all* pitches, but if you can go along that path so far, so far he will go. This points to a spiritual, almost mystical aspect to his work, to which I will shortly return.

Finally, Živković is interested in Ancient Greek philosophers/mathematicians/acousticians, mentioning, in particular, Pythagoras and Archytas. He thinks of them in terms of mathematical relations in music, but also of the metaphysical and ethical quality of their ideas and the unity between harmonies: astronomy, music, and humanity.<sup>21</sup>

Obviously and typically, microtones in his compositions create folklore association, in accordance with the aspects of folklore being evoked (Example 19).

Taking as an example his *Serenade* for strings (2002), we can listen for heterophonic singing, comparable to what we have previously identified in Aleksić's work. In the same composition, sections replete with microtones stand beside those from which microtones are absent, and this contrast becomes a form-defining factor. Microtones can be integral to motivic structure: in places such as shown in Example 20, microtones are clearly more than mere decorations. Juxtaposing elements containing  $\frac{1}{4}$  steps and those that do not go beyond  $\frac{1}{2}$  steps (Example 21) may be seen as a microstructural reflection of the large-scale distinction between microtonal and non-microtonal passages.

20 This area of his interest predates microtonality. In his *Two Dirges* for soprano, viola and piano (1997), one could feel almost palpably the need for non-tempered tuning, for some crude intonation. A dirge is halfway between speech – highly emotionally charged – and music; therefore, it is imprecise with respect to pitch. He makes use of *Sprechstimme*; piano trills in the low register where pitch is barely distinguishable, and yet he shies away from writing down any non-12ET intonation.

21 This may have some connections with the *Diffitone* project, whereby harmonic progressions are derived from combination tones. This is not part of his microtonal world, but since it involves the questions of just intonation and pitches derived from harmonic series it is connected with a system different from 12ET, hence at least latently microtonal. It is extensively discussed, with a complex mathematical apparatus, in Živković 2015.



Example 20: Živković's Serenade, reh. 10 (microtonal motives)

Example 21: Živković's Serenade, non-microtonal (partial score)

Microtones contribute to super-dense, “layered polyphony,” nor would I exclude their coloristic effects, such as we have mentioned in connection with Đorđević and which can be clearly perceived, for example, in the first pages of *On the Guarding of the Heart*.

Owing to microtones, stepwise motion can be slowed down, allowing very gradual expansion of musical space or registral shifts (as particularly clearly seen on the first two pages, Example 19 above). We could compare this to an image of the musical space enlarged under a microscope, or, in temporal terms, the moment of musical time stretching out towards infinity.

A link can be established with the strongly pronounced spiritual side to Živković’s thinking about music (and otherwise). The titles like *The Mystical Sacrifice*, *White Angel*, *Ascetic Discourse*, *Unceasing Prayers* or *I Shall Contemplate* testify to this. It is probably stated with the greatest clarity in his comments on the Grawemeyer Award-winning *On the Guarding of the Heart* for chamber orchestra and piano. His spiritual habitus is associated with Eastern Orthodox mystical texts concentrated around the idea of *philokalia*: the love for the good and for beauty, and the need to guard one’s heart against evil. This includes self-examination, self-improvement, and striving for perfection. In addition, as he says in a 2017 interview, he insists on “trying to squeeze yourself and art together to get the essence. I think that fighting for the essence [...] is the most important in the creation of art.” Thereupon, if I be granted free rein to speculate, microtones may be an outward manifestation of his probing the “subatomic” level of musical substance, which, in turn, proceeds from his quest – desperate, since unattainable – for the essence of music.<sup>22</sup> Comparisons with Ljubica Marić are viable in this respect.

Even though he became involved with questions like difference tones and tuning systems, Živković was, on the whole, not so much experimenting with microtones *per se*, but he had certain aesthetic, philosophical, spiritual goals, and in microtones he found (one of many) means to attain them.

For the sake of completeness, I will consider, very briefly, microtonality as an object of recent theoretical and historical interest. This is chiefly restricted to the composers’ explications of their own compositional aims and methods

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22 In his interviews and online texts, Živković (2017 & 2018 & n. d.) repeatedly expounds his religious and philosophical views in relation to his music. He sometimes offers descriptions like: “The sound must melt walls in the hall, the audience should stop breathing, and every single atom and particle of time should condense in the true unfading light, in the eternal life, in hidden mystery, in everlasting exultation, in ineffable reality, and will come close to the incomprehensible face.” He would even provide verbal “translation” of music: “The piano comes in and it says, ‘Stop. Concentrate. Guard your heart’... the music is saying, ‘Pay attention on yourself. Focus on the essence of your life.’”



of achieving them. They may touch on purely theoretical issues, but they are not intended to be theoretical or historical studies. Dragan Latinčić, in his doctoral essay (2013a) and his two books (Latinčić 2015 & 2017) is an exception. He draws from Greek, Arabic, and mediaeval sources, engages in lengthy discussions of Mid-Eastern and Ancient Greek tuning systems, relationships between Greek modes and Arabic tetrachords, and more. His mathematical apparatus is impressive, and his rather convoluted text is a *tour de force* of demonstration that various phenomena from different domains may be connected with or reduced to a kind of common denominator. Quoting from Dionysius of Halicarnassus that rhythm and harmony are one and the same thing, he recognizes philosophical implications that we, in turn, recognize as akin to Marić's and Živković's work. This notwithstanding, his terminology is sometimes vague, his concepts poorly defined, and there is confusion between technical, metaphorical, and the everyday sense of words. He sometimes takes metaphorical representations of natural phenomena and treats them as scientific facts or applies uncritically a set of rules proper to one domain to a different one. His writings are a laudable undertaking but ultimately fall short of being a genuine theoretical contribution; even so, they remain essential to his endeavors as a composer.

The only other example worth mentioning is again the text accompanying a doctoral project, this time by a harpsichord player Svetlana Stojanović Kutlača (2012). Her keen interest in French Baroque, its expressive potentials and philosophical foundations, led her to consider the tuning systems proper to that period.

## 9 In conclusion

However scant the use of microtones was throughout the history of Serbian music, the situation has radically and perhaps abruptly changed in this century. We can narrow down this period to the present decade and narrow it even further to the last several years, when the use of microtones has become almost a matter of "political correctness." Not a few composers seem to feel bound to pledge allegiance to microtonality.

Given their sporadic previous use, microtones can be treated as a relative novelty in Serbia. This is probably the reason why some composers seem to exercise caution in using them. It has been noted that in the history of music certain innovations were first introduced in program music, where extra-musical program served as a kind of alibi (think of Monteverdi's tremolo or various orchestral solutions by Berlioz). The compositions from my sample

generally have a strong program component, and this may have “emboldened” the composers to use microtones. Some of these composers, it is true, use them more boldly than others. In any case, the preferred manner of usage is melodic, and when used in that context they tend to be embellishments, devices to enrich melody; less commonly, they are part of the scales or pitch collections that constitute the core pitch content. Microtones in such situations amount to more than mere decoration, becoming a resource for creating melodic subtlety and nuance, or for heightened emotional expression, sighs, or anxiety. Quarter-tone harmony is rare and only in the case of Vetnić we can observe something like a protofunctional harmonic system emerging. Accordingly, they often possess little structural weight, and weak form-defining power. The microtonal aspect of a given composition is, as a rule, less strictly regulated (if at all). A case in point is Ana Kazimić, who explains elaborate procedures of serial and other types of pitch organization, but nothing of the kind is applied in relation to microtones.

Microtones are found in conjunction with various timbral devices (e.g. Đorđević), with noise (see Milojković 2012 regarding Živković). The microtonal swerves are then not so much new intonations: they are a coloring device, something that I tentatively compared with *Klangfarbenmelodie*. Finally, in works by Kazimić and Vejnović, I believe I have sensed an effect of creating ambiguity, uncertainty, or indecision, especially in contexts that bear some traits of functional tonality. There are possible dramatic or narrative implications to it.

If we are looking for a single most obvious common denominator of all composers that formed our analytical corpus, it will be archaization, or their interest in all things ancient, traditional, ritualistic, and mythological. The readers need simply refer back to the list of compositions to assure themselves of the importance of Serbian/Balkan rituals, ancient styles of singing, the epic *gusle* tradition, or Eastern Orthodox spiritual heritage; of ancient Greek, or more broadly Mediterranean, Middle Eastern, Mesopotamian civilizations; or even more “exotic” ones (Trmčić).

This seems to be a broader trend than microtonality. Even when not using microtones, some composers, such as Milorad Marinković, are deeply devoted to building their works upon the foundations of tradition – Orthodox liturgical chant in his case. Dorotea Vejnović could perhaps be named in this context, since her *Kraljice* is very much concerned with tradition and its translation into modern terms, but the use of microtones is minimal. Conversely, the minority of composers who rightfully belong to these

generations (by birth or by schooling) but do not insist on tradition also do not use microtones.

Of course, the composers from our sample do not by any means want to be stuck in the past. They are creative and inquisitive; they are all keen on creating something original or unique. Since almost all of them are recent doctoral students, they were channeled toward research. Therefore, a more precise formulation would be: what they are onto is a dialogue between the past and the present, incorporating the past into the present.

Which brings us to our next point. Microtonal forays may be done routinely, whether or not directly serving the main idea of the work, or being even incidental to it. Sometimes – to put it simplistically – the impression is one of “what have I not tried yet,” or “let’s see how it works.” In more sophisticated terms, it is part of a widespread tendency to integrate a large number of approaches. They explore various possibilities of pitch organization, and their research endeavors lead them toward all manner of modes and scales, with or without pitch centricity, to serial writing; they will invent algorithms for generating their materials or structures and combine tonal and atonal passages; quarter-tones are just another thing to be included. Or, if the melodic line is richly embellished, if it avails itself of glissandi or of any number of traditional or extended instrumental techniques or *Sprechgesang* in vocal parts, quarter-tones come as a logical consequence. This is part of this all-embracing attitude that accounts for the assimilation of so many diverse traditions. In addition – and this is a feature of microtonality that they unwittingly utilize – it may bridge the gap between art and science. It is highly artificial, resulting from mathematical calculations and sometimes cutting-edge technology capable of producing it, and at the same time ancient, primordial, unadulterated by civilization.

Whereas archaic evocations are regularly cited in connection with microtones, it is less frequently that one comes across the stance such as Milan Aleksić takes. Namely, he is highly iconoclastic against 12ET, calling it unmusical and claiming that its use on keyboards has done the greatest damage in the history of music. The natural acoustic eco-system, the natural dwelling place of music over thousands of years, has been replaced by a rigid, essentially unmusical system (Aleksić 2015, 40). However, an attempt at a detailed, in-depth study of microtonality is found only in Latinčić.

Some possible approaches to microtones are notably absent. Even though Serbia owes its first true contact with quarter-tones to Alois Hába, hardly anyone ever mentions him, let alone composers such as Ivan Wyschnegradsky.

Certainly, in the twenty-first century, the prospect of going back to Hába does not seem particularly appetizing. However, nobody has taken any interest in American microtonal tradition, either: in Harry Partch, Lou Harrison, or some more recent ones like Kyle Gann, in American microtonal societies, or in the Mexican microtonalist Julián Carrillo. Moreover, even though there is no doubt that every one of our composers is aware of the evolving tuning systems and of the relatively late inception of 12ET, in their minds – I believe I can infer that much – the Western canon is regularly associated with equal temperament. Blending past and present is prevalent, but the past never assumes the shape of, say, Nicola Vicentino and his archicembalo.

Throughout this article, I have placed an equal sign between microtones and quarter-tones. It is obvious that most of the time, our composers' idea is not quarter-tones *per se*, a further equal subdivision of the 12ET, but rather the most convenient way of notating pitch inflections. They will speak about microtonal deviations and non-tempered tuning, but the notation always looks like an instance of 24ET. Stanislava Gajić describes certain effects inspired by Ligeti's Concerto for Violin and Orchestra, but she does not attempt to emulate his minute work with non-tempered pitches. Ana Kazimić (personal communication) claims that during the process of composing, she heard inflections precisely, a  $\frac{1}{3}$ ,  $\frac{1}{4}$ , or other value, but the strict quarter-tone notation was a matter of convenience. Latinčić is the only one who expressly calls for a sixth-tone.

Thus, the briefest possible microtonal formula would be:

- inclusiveness, with particular emphasis on blending the old and new;
- hence (partial) archaization;
- hence microtones;
- hence quarter-tones as their approximation.

In the history of Serbian music, the same factors are involved in the existence and non-existence of microtones. A small nation, catching up with the big world while riding the wave of nineteenth-century romantic nationalism, felt that it had to dispense with certain aspects of its tradition to become more compatible with the trends in modern composing – the trends in which all our composers were educated. Coarse, dissonant, “out-of-tune” rustic sound had to be sacrificed. When modern composing became something else, being part of it meant, for some composers, trying to transcend the barriers of twelve chromatic tones. Hence Ljubica Marić and other students of Hába.

Interpretations of history seem in hindsight relatively straightforward. On the other hand, I can certainly see diverse, even conflicting factors behind current trends. The creators of the works we were chiefly concerned with are mostly at early stages in their respective careers (Živković excluded). In the ever harsher struggle for survival, they were looking for their own niche, and several of them found it in the uncharted (in the context of Serbian music) territory of microtones. This, at the same time, amounts to a kind of generational identification, a sign of recognition. Taking recourse to tradition is in a specific way overdetermined. Although at this moment I cannot reliably discuss broader issues within our society, it is safe to say that retraditionalization is a facet of many areas of life.<sup>23</sup> Microtones are, in that context, an aspect of our heritage hitherto unexplored. At the same time, freely availing oneself of traditions, one's own or those of others, is a phenomenon by no means unique to this country. All these composers under discussion are active participants in the globalizing world, adept at the unprecedented levels reached by modern means of communication. They share today's wide interest in world music. Being inheritors of postmodernism, they feel they have the entire history of music at their disposal. My encounters of the microtonal kind from the beginning of this article were not coincidental. There is a growing interest, only people younger than myself recognized it before I did.

It is seldom a rewarding task to pass value judgments. Yet, I will venture to offer a very brief and very general assessment of microtonal achievements in Serbia. It is beyond any doubt that for the composers who constitute the canon of Serbian music history, who are held in highest esteem, microtones are barely relevant, if at all. No single work that can be labeled as a Serbian masterpiece contains such pitch material. I would argue that this statement could hold true for many other cultures, including North American, notwithstanding their microtonal advancements.

For the younger "microtonal generations," it is safe to say that their overall achievements can be assessed quite high: there are plenty of talent and superb technical skills to go around. Microtones, up to a point, set them apart; they lend them their specific voice, but they do not make the decisive contribution to the quality of most of their works. Nor do their works constitute a significant contribution to microtonality in general.

And the future? As we have seen, most of the composers herein discussed are in the early years of their careers. We cannot say whether they will, having

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23 Some social and political implications of this, related to the music of Đuro Živković, are discussed in Milojković 2013.

completed their doctoral studies, continue to pursue the same, or seek new modes of expression, or even make radical reversals. In my long teaching career, I have seen all these events. What we know for certain is that a number of younger composers follow the lead. Thus, Jug Marković, who has recently acquired his master's degree in composition, uses microtones (*Vokativ* for orchestra), whereas in his sextet *Mother Tongue* the use of quarter-tone signs nearly equals other signs. He does not specify any intention of recreating tradition, but the title of the work is suggestive, and he does talk of his fascination with certain objects from the past (personal communication). He also holds a degree in archeology. Damjan Jovičin, currently a master student in composition, has already used microtones, and his colleague Igor Andrić intends to introduce them in his master project, citing specifically Ljubica Marić's *Asymptote* as an influence (personal communication). In a discussion on these matters, my colleague Tatjana Milošević,<sup>24</sup> professor of composition at the Faculty of Music in Belgrade, has agreed with the observation that inserting microtones has recently become a matter of course. Possessing no crystal ball, I cannot speak beyond this.

To the best of my knowledge, this article is the first attempt to survey microtonality in Serbia. While I take certain pride in being the first, I am also fully aware of the many aspects that have not received adequate treatment or any treatment at all. A more in-depth consideration of the social and cultural context of recent microtonal developments may be in order. Each of the works discussed, and a number of those left out, could be subject to thorough analysis, perhaps resulting in some reevaluation of my initial judgments about the use of microtones. The same holds for the sporadic use of microtones in the second half of the twentieth century. The issue of performance, perception and reception of such music has not even been touched. And if all along I have not been showing sufficient enthusiasm for the cause of microtonality, I do heartily recommend it as a subject of further research.

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24 She helped me procure some of the scores, and I use this opportunity to express my gratitude.

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- провенијенције, те у инструменталној, камерној и оркестарској музици акустичког типа у савременој западној уметничкој музици (покушај заснивања једне аутономне стваралачко-композиторске концепције)” [Batal: Preludes for String Orchestra. The Application of Micropolyphony: a) In Instrumental Mid-Eastern and Balkan Music of the Folk Provenance; b) In Instrumental, Chamber and Orchestral Music of the Acoustic Type in Modern Western Art Music (Towards an Autonomous Creative Composer’s Conception)].” Doctoral artistic project. Belgrade: University of Arts.
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*Gabrielius Simas Sapiega*

## **Microtonality in the Post-spectralist Context: Microintervallics in the Compositions of Gabrielius Simas Sapiega and Mārtiņš Viļums<sup>1</sup>**

### **1 Introduction**

In the compositions and musical research of the second half of the twentieth through the early twenty-first century, the problem of microintervallics emerges as the issue of an innovative creative perspective or utopia. Even though in the second half of the twentieth century most composers were clearly influenced by pre-existing musical traditions, the desire to “update” and move forward created appropriate conditions for the formation of hitherto unexpressed musical views, the changeover of the elements of the language of music, and re-interpretation of musical material. The entire musical context of that period was strongly affected by philosophical ideas brought to the foreground, including the relationship of artist-creator and their creation, a work of art, as one of the most prominent. That was one of the greatest ideas which affected the field of twentieth-century music as well as other fields of art, such as the visual arts or the emerging phenomenon of performance art. The avant-garde composition was characterized by the integration of historical reflections and, increasingly, of the newly developed theories closely related to the philosophical angle. From the very beginning of the twentieth century, each artist, when talking of their works, could not avoid a discourse on topics such as the aesthetics they professed, the fields of investigation, the experiences diluted by philosophy. Such trends encourage to take a broader view of the manifestations of microintervallics in music, that is, from the analytical as well as from the philosophical and aesthetical viewpoints.

The author of this article was inspired to investigate the manifestations of microintervallics and to present his insights from his personal practice of composing music: the creative search for the expansion of the sound dimension, a wish to get better acquainted with the origins of the phenomenon, the works of other composers, theoretical studies, and the possibilities of expression opened by them.

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Although the issue of microintervalics was most often raised by avant-garde composers, the origins of the phenomenon can be detected much earlier, such as in the Pythagorean theory of music or in Arabic modal structures. The very term microintervalics appeared relatively recently, as a link with Edgard Varèse's compositions: its explanation remains pragmatic and laconic, and the meaning indistinct and rather vague.

For analysis of the phenomenon of microinterval music in twentieth and twenty-first century music, a mere method of analytical research does not suffice. Such fields of vision make us deviate and evaluate the relationship between creator of art and the very work of art as an object, the direction of whose interpretation is determined by a historically changing relationship between the creator and their work. Therefore, from that viewpoint, all the interpretations are materialistic as "an objective thing next to other objective things of the world" (Šliogeris 2017, 7).

The works of twentieth-century composers, the philosophy professed by them, and analytical studies become an important starting point for the emergence of new compositions and their investigation. The issue of microintervalics in the discourse of musicology was increasingly actualized until it became unavoidable, a seemingly naturally perceived part of the contemporary music matter, a philosophical viewpoint – the specificity of an aesthetic relationship between the creator of art and a work of art. Therefore, it is very important to update and expand the context of the research on microintervalics using the influence of the past music and the ideas and strategies revealed by the creation and philosophy of the twentieth and twenty-first centuries.

In the music of the twentieth and twenty-first century, microintervalics has been disseminated in a wide range of forms (formalistic, extramusical, timbral, the broadening or updating of a whole tone scale, the restructuring of a traditional musical form, etc.). All those changes are likely to be inseparable from the historical, aesthetic-philosophical, and musical structure development. Therefore, the main problem is how the quality of expression of a microintervalics-based composition (functions and meanings) has been changing over the last century and what the prospects are of its getting established in contemporary composition.

In this article, the manifestations of, and the changes in, microintervalics in the twentieth and early twenty-first century music will be analyzed from the viewpoint of the development of the language of music and the structure and expression of the composition as well as from the philosophical viewpoint.

One of the main goals of this article is to investigate the manifestations of microinterval music and the strategies of its use in the fields of the avant-garde

and twenty-first century music composition. To achieve the goal, three main objectives have been formulated:

1. to review the definition and the problems of the microinterval;
2. to analyze and summarize the microinterval processes in twentieth and early twenty-first century music, to establish the stages of their development, and to evaluate them from the theoretical, historical, and philosophical viewpoints, and
3. based on the outcomes of the analyzed works, to localize the works of the twentieth and twenty-first century composers in the field of conversion of microintervalics.

## 2 The definition of microtonality and related problems

*Microtonality, microinterval, or mikrotone* is a twentieth-century phenomenon in music associated with the works of Julián Carrillo, Alois Hába, or Charles Ives (Griffiths et al. 2001). On looking more deeply into the term, it becomes apparent that it was first used as an interface with the works by Edgard Varèse. The term was rather pragmatically explained in the *New Grove Dictionary*:

Any musical interval or difference of pitch distinctly smaller than a semitone. (Griffiths et al. 2001)

In the *Encyclopedia Britannica*, it was defined in a broader sense and in a rather laconic manner, and the entry was formulated as a single common concept: *microtonal music* or *microtonality*. Even if the titles were different, the definitions were somewhat similar:

Microtonal music, music using tones in intervals that differ from the standard semitones (half steps) of a tuning system or scale. (Nettl 2016)

Both definitions were not really precise in terms of the meaning of the word combination, as the concept of *tonality* is related to the tonal system. Therefore, the term *microtonality* would be more apt for such cases when variations of the tonal system in a creative process using microintervals or microchromatic systems are meant. Due to the established use of the term, it shall be used in the article without specifying its meaning too much, as that would call for a separate study.

Another microtonality-related term, widespread and well-established in the literature, is *microtone*, which could be more clearly called a *microinterval*. Attention should be paid to the fact that a microtone is a term defining a single meaningless sound. Any interval or sound in music is contextualized by other sounds that surround it. In other words, the human ear mainly identifies the differences between sounds only in a context (from the interval viewpoint). That is reaffirmed by the definitions presented both in the *New Grove Dictionary* and in the *Encyclopedia Britannica*: “a music interval.” The problematicity of the concept was dealt with in the monograph by Gražina Daunoravičienė-Žuklytė, which seemingly attempts to eliminate the previously predominating term and emphasizes the aspect of intervalism.<sup>2</sup>

A microtone (Greek *mikros* + Latin *tonus*) in the direct sense of the word is “a small tone” or “a small sound”; it is a kind of a musical metaphorical abstraction, indistinct and controversial, and does not actually define its own nature, as, when speaking about respective “dimensions” of the sound, we can define them only in relation to another tone. In his paper “Kritische Anmerkungen zur Komposition mit Kleinstintervallen” (Gieseler 1988, 172), Walter Gieseler proposed the abandonment of misleading concepts and presented the terms which reflected the aspect of this relationship: *microintervals*, or the *small intervals* (*Kleinstintervallen*).

The very term *tone* in music, in the correlation of the historical and theoretical aspects, maintains a rather distinct controversy by its metaphorical character:

The interval equal to the sum of two semitones and hence referred to as a ‘whole tone,’ usually perceived as a major 2nd; in equal temperament, the sixth part of an octave. (Drabkin 2001)

When viewing the concept of tone through the prism of historicity, attention should be paid to the fact that, in the Pythagorean system of tuning,

2 In the chapter “The World of Microdimensional Music by Rytis Mažulis,” Daunoravičienė argues: “The ideology of musical microdimensions (and the etymology of the concept) [...] emphasises the radical minimalisation of the relationships of different phenomena of the compositional material realised in time – pitches (intervals), gradation of durations and dynamics, etc.” (Daunoravičienė-Žuklytė 2016, 320). Here the author adopts the extended perception of microdimensional music, proposed by composer Mažulis, which covers more than the concept of microchromatics proposed by Kholopov, i.e. the microintervalics is attributed the following aspects: rhythm, timbre, and dynamics. One can suggest that Mažulis, as well as Daunoravičienė, could have been fascinated by the theory of conceptualisation of musical space by American musicologist David Lewin, where musical space covers three dimensions: the parameters of pitch, rhythm, and timbre, each of them structured and classified by module (more about Lewin’s theory: LEWIN, David. 2011. *Generalized Musical Intervals and Transformations*. New York: Oxford University Press).

the *pure tone* was the “excess” of two perfect fifths above the octave, that is, counting from sound  $c$ , interval  $c^1-c^2$ , whose ratio was 10 : 9. In other words, in just intonation, tones of two sizes existed: the main one (the same size as the Pythagorean pure tone) and the small one (a version between the main tone and the major third with a ratio of 10 : 9).<sup>3</sup> Consequently, in the music of Antiquity, a major second was regarded rather as a wider gap between the parts of a stretched string than a *semitone*,<sup>4</sup> and its finer division was perceived as the sum of two *semitones*. Thus, if the most important and starting point in Antiquity was a *tone*, then any finer *semitonic* segmentation of a sound was related to the transgression (lat. *transgressio*) of microintervals. Moreover, the emphasis on the differences of a *semitone* suggested an obvious conclusion: microintervalics could not be the only and ideal archetypal term for those musical phenomena. Microintervals, given the existing *semitone genos*, can be divided into microintervals (intervals smaller than a semitone) and macrointervals (intervals larger than a semitone).

The term *microchromatics* was first used in the works of Russian musicologist Yuri Kholopov (1976) to define the types of “interval *genos*” (Холопов 1976, 589) and were applied to all microtonal systems: the old (*enharmonic genus* – γένος ἑναρμόνιον – Greek) and the modern ones (Alois Hába’s quarter-tone system). The concept of microchromatics helps to avoid inaccurate derivatives, such as *microtonality* or *microtonics*.

Thus, upon reviewing the most prominent contemporary works on microtonality and the problems caused by it, we conclude that microtonality is not a precise and universally applicable concept to define the types of interval *genos*. Therefore, next to it as the most widespread (especially in the analysis of the Hába system), the generic term proposed by Kholopov, that of microchromatics, shall be used in my article. The term microtone, which also calls for revision, shall be replaced by the semantically and structurally more precise term *microinterval*.

### 3 Strategies of analysis

In the search for tools to systematize, unfold, and summarize the theoretical aspects of microintervalics, this section presents a summarized taxonomy of correlations between the historical space, musical space, and analytical aspects.

3 Based on the definition of a tone proposed by the *New Grove Dictionary* (Griffiths et al. 2001).

4 A semitone is meant.

Musical space, also known as microdimensional music, is a rather new concept that has been taking root and squeezing into the spheres of perception and analysis of contemporary music:

[T]he concept of macrodimensional music summarizes the minimalization of the principal relationships (intervals) of material elements of the art of sounds. (Daunoravičienė-Žuklytė 2016, 321)

Such perception of musical material goes beyond the limits of perception itself; that is, most of the *micro* and *macro* processes used in microdimensional compositions are not heard by the audience. Therefore it is automatically perceived that the consciousness of such a radical composer becomes immersed not in the contemplation of audible sounds but rather interacts with certain traditions or theories. Given all those aspects, we need to emphasize, and the conclusion suggests, that such musical material cannot be analyzed or perceived from an unambiguous aspect of the contemporary theoretical viewpoint. For that reason, before analyzing microchromatic compositions, we shall first review them in an appropriate context, that is, in the interaction of time and thought, and the ideas of the period.

First, we should first identify the microinterval composition trend stages in twentieth-century musical practice. For that purpose, we can use targeted periodization proposed by musicologist Vitalija Mockutė-Aleknienė (Mockutė 2009):

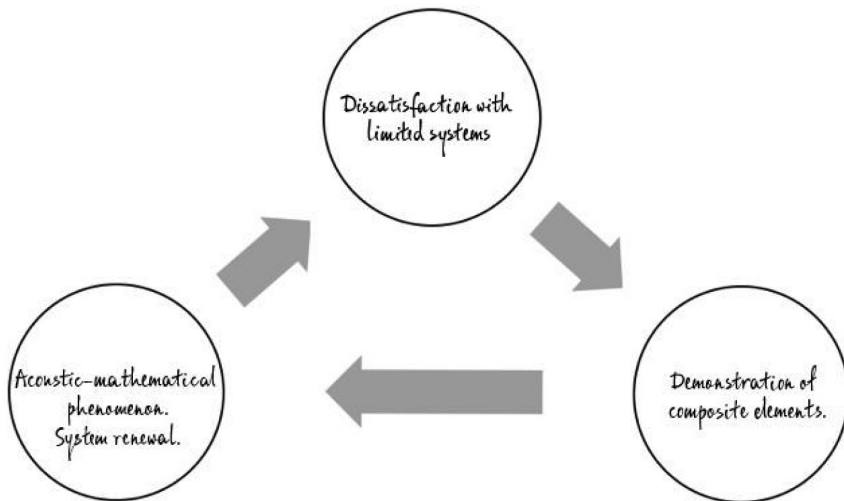
- the late nineteenth century to 1920: a period of grave dissatisfaction with the limited possibilities of semitone systems (Ferruccio Busoni, Richard H. Stein, Jörg Mager);
- 1920–1925 to WWII: the decline of aesthetic categories, the progress of microintervalics, and the significance of demonstration of compositional elements (Georgy Rimsky-Korsakov, Charles Ives, Alois Hába, Ivan Wyschnegradsky);
- since 1945, an acoustic-mathematical phenomenon, based on the updating of the equal temperament, when an octave is divided into more than 12 parts (Adriaan Daniël Fokker, Björn Fongaard, Ton de Leeuw, and composers of spectral music).

This exploration of a modernist identity can have rather strong links with the revival of the ancient musical theoretical systems, a return to what musicians attempted to eliminate for centuries, that is, the sound of “impure” or untampered, tuning.



Such a historical resurrection of the *micro* compositional principles for a new life can be summarized as a vicious cycle, rotating in the composer's persistent search for the revival of the compositional principles for new sound material without abandoning any of the three stages,<sup>5</sup> since the objectives and aspirations remain the same and unchanging in the consciousness of the creator; as Greek philosophers used to say, the identification and contraposition of the two modes of the contact of man and the thing:<sup>6</sup> *doxa* and *epistēmē* (ἐπιστήμη).<sup>7</sup>

All three stages can be presented in a schema of circulation of the trends of microinterval compositions, when each stage becomes exceptionally important and significant, even beyond the touchline of history, and simultaneously forms a new context but is not eliminated from the general one.



Scheme 1. A scheme of the circulation of the trends of microinterval compositions

If the first angle that a microinterval composition, like any other work of art, has to be evaluated from, is an aspect of circulations of historical trends, then the second one is slightly deeper and better defines the aspect of the

5 We mean the above identified historical stages.

6 In this case, a work of art.

7 A doxic contact does not require any particular efforts of man, i.e. the mode of everyday active or passive experience. While *epistēmē* is mainly characterised by a well-known saying "to find out, to understand, or to get acquainted", i.e. it presents the opposition to the doxic contact. Accordingly, an *epistēmē* individual overcomes the illusions and anonymity of the everyday experience. A new qualitative and unique view on things emerges that is called "theory" by Greeks.

phenomenon itself and of its communication in a closed circle of ideological metabolism. For a similar reason, Yayoi Uno Everett (2004) presents “a network of communication and meanings,” which helps to give meaning and to stabilize respective relationships between the “encoder” and the “decoder” (see Scheme 3). Everett notes that:

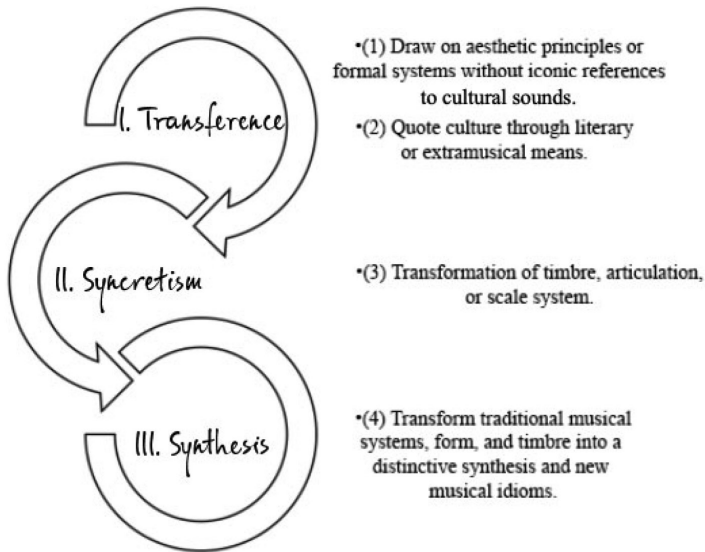
[I]n exploring of various “filters,” therefore, it is important to note that the reading of music becomes multivocal and cross-cultural in the very task of exposing (but not necessarily reconciling) the positions held by composers, audiences, theorists, musicologists, and ethnomusicologists. Their strategies and focal points provide perhaps isolated, yet complementary, perspectives in exploring the interplay of cultural dimensions that shape our understanding of the hybrid art music repertoire. (Everett 2004, 14)

If we take those ideas into account, we face a rather acute and important problem: in the analysis of various relations, and it is clear that they are only a few, the issue of cultural syncretism or, in other words, the aspect of synthesis in the reality created by humans and the essence of the thing remains unanswered. Thus, syncretism here becomes the process of diffusion of cultural elements which initiates changes in both value and form:

Syncretism assumes an approximate measuring of the degree of compatibility between musics, and prediction of the typical direction of resulting change. (Nettl 1955, 107)

All those aspects, especially when we want to properly evaluate and analyze microinterval music, become important starting points from the perspective of the theoretical angle of music, the totality of relationships, and the network of complexes.

Everett proposed seven categories (two of them left aside in this article), based on the inculcation of compositional strategies and summarized in three principal aspects – (I) transference (transfer), (II) syncretism, and (III) synthesis, with several existing subspecies, applicable only to the area of exotic music. In the present paper, only five are used and revised by retaining the essential principles (the abandoned categories are suitable for thorough investigation of the integration of ethnic instruments into contemporary musical compositions).



*Scheme 2: Categorization of microinterval inculcation in a musical composition (based on Yayoi Uno Everett model, published in Everett 2004, 16)*

Through the theory of music space analysis by David Lewin and the model applied to microchromatics, upon in-depth study of the interaction of the relationship of a person and a work of art, and by confirming a network of communications and meaning, further in my article I intend to analyze microinterval compositions by revealing them and ascribing them to one of the three principal aspects in accordance with the principle of inculcation of compositional strategies. In order to do so properly, I will introduce the historical-theoretical context which will abstract the predetermining strategy of evaluation of relations and their correlation prescribed by the content of a work of art. To each of those aspects, given its specificity and the correlations of relationships, including those already mentioned, other methods of analysis will be applied: transference – modal analysis; syncretism – spectral and modal analysis; and synthesis – modal and spectral analysis and the reductive relationship correlation of those analyses in order to properly disclose the “drama” of microintervalics: gigantomachia in the situation of hominized thingness.

#### 4 Dissemination of microintervalics in the second half of the twentieth through the twenty-first century

After WWII, European music culture acquired a new face: the new musical systems did not focus only on microintervalics, which in essence was a very distinct and unexpected turn in the first decade of the twentieth century, but on the contrary, they turned towards an even more unexplored and newly discovered area – the postwar avant-garde, which became a field of serialization of musical parameters and the search for new electroacoustic opportunities. The quarter-tone, without rejecting the contribution of the previous theories into music, was still rather popular in the contexts of the matter of contemporary music and functioned in the creative practices of the outstanding composers of the twentieth century:

- Pierre Boulez (1925–2016) in the second version of his piece *Le Visage nuptial* for soprano, alto, female choir, and orchestra used quarter-tones<sup>8</sup> as those that were heard distinctly and clearly and were easily distinguished from the ordinary ones. In the end, he took the composition back after its performance and decided to never again use them (Zeller 2003, 56).
- Iannis Xenakis (1922–2001) also used quarter-tones, although the most characteristic use of them in his compositions was indefiniteness when performing *glissando*.
- John Cage (1912–1992) used microintervals in his compositions for prepared piano (e.g. *Sonatas* and *Interludes*, 1946–1948) in a rather aleatory manner: when playing the instrument, unpredictable microintervals were extracted. That was one of the ways to escape from the equal tempered tuning (as opposed to Partch) (Zeller 2003, 56).

Karlheinz Stockhausen (1928–2007) developed the system of equal division in his electronic piece *Studie II*, where all the sounds were equal to the same proportion  $\sqrt[25]{5}$  (Fritsch 2007, 118).<sup>9</sup>

Luigi Nono (1924–1990) starting to use microintervals in his compositions rather late. He first used microintervals (quarter-tones) in the string quartet *Frammente – Stille – An Diotima* (1980) and later followed the manifestations of the use of other types eighth-tones, and sixteenth-tones (e.g. an orchestral piece *A Carlo Scarpa, architetto, ai suoi infiniti possibili*, 1984).

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8 The composition was performed in 1957.

9 That means that an interval with the ratio 51 (the octave with natural major third) is divided into 25 intervals with equal ratios of a frequency (slightly higher than a semitone).

György Ligeti (1923–2006), like everyone else, tried to use microintervals. A quarter-tone became a starting point for him. Interestingly, in his explanatory notes for *String Quartet No. 2* (1968), he left it to the performers' discretion to produce microintervals of unestablished sound, much smaller in size than quarter-tones. In his later works, another principle of the use of microintervals stood out: exploitation of different tempering systems (e.g. supposed tone temperament in *Passacaglia ungherese*, 1978, and just intonation system in *Violin Concerto*, 1990–1992).

Further dissemination of microintervals can be highlighted in the main post-war musical trends, such as *Musique concrète*, *Electronic Music*, *New Complexity*, and *Spectral Music*. The second half of the twentieth century moved in the direction of the search for new aesthetics: microintervals became naturally perceived as part of contemporary music.

When analyzing the works of avant-garde composers, it is possible to retrospectively identify some traits typical of the aesthetics and techniques of microinterval music. Following proposals made by Austrian composer Georg Friedrich Haas (b. 1953), we can identify four basic typical aspects approaching the dissemination of microintervals (Haas 2003, 59):

1. the use of regular pitches typical of a chromatic 12-sound system in equal tempered tuning. The method is closely related to the equivalent octave subdivision which produces a number of larger or smaller pitches than the 12 sounds, for example, 19 equal tones in equal tempered tuning, which consists of 19 equal distance sounds in the octave, or 10 equal tones in an equal tempered tuning system consisting of 10 different pitch sounds in the octave;
2. the use of a pitch system through natural harmonic series and a series of the component overtones;
3. generation of harmonic beats impulses using very small, but still audible intervals;
4. the use of microintervals through aleatoric composition principles, when microintervalism manifests itself in different random ways, such as corresponding piano preparation,<sup>10</sup> percussion sounds, glissando, or ad libitum retuning of the instrument strings.

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<sup>10</sup> We mean the cases when the composer leaves it to the performers' discretion to prepare the instrument and does not prescribe the conditions of the process and the outcome.

Therefore, it is very important to take a critical view of such a classification of microintervals as a processual action in a musical composition. Seeing and knowing some cases of microchromatic music having recently emerged, especially due to the increase in research and the appearance of new musical contexts, the division must be extended:

5. the use of a well-known tuning system, for example, Pythagorean tuning, exploitation of a tone tuning system elaborated by the composer themselves or a system belonging to some other than European tradition;
6. the establishment of a pitch hierarchy by means of overtone configurations from the (instrumental) spectrum re-synthesis;
7. the use of microintervals as a structural means;
8. predominant exploitation of non-specific microintervals as the diversification of the coloristic relief.

## 5 Manifestations of microtonality in spectralist compositions

The most prominent turn towards the integration of microintervalics took place after the Group L'itinéraire<sup>11</sup> had formed in 1973. It produced a new conception of aesthetics in the search for timbral modulations. Such a feature of aesthetics could be regarded as not merely aesthetic, but as a certain philosophical view on a musical composition or the sound itself. The movement was well known under the name of *la musique spectrale* or the French spectralist school (Dufourt 2000, 88).

The term spectrum used in music can in principle be described in many different ways, but in our case, we mean sinusoidal waves (partials). Each sinusoidal wave is characterized by frequency, amplitude, and phase. FFT (fast Fourier transform) shows which components are included in the spectrum when the sound is split into its sinusoidal elements (Sethares 2005, 15). In other words, all those elements became basic for the representatives of spectralism in shaping the spectrum. On the other hand, even if the aesthetic views of each spectralist from the Group L'itinéraire were seemingly clear, a contradiction also emerged: not all the representatives of all the styles understood the meaning of the term of spectralism in the same way:

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11 The group consisted of Hugues Dufourt, Gérard Grisey, Tristan Murail, Michaël Levinas, and Roger Tessier.

They always call our music *spectral*. Neither I nor Gérard Grisey are responsible for that ascription, which seems very inaccurate to us. (Murail 2005, 149)

However, the majority continued using the concept in that way; no concepts that would be more precise or better defining the creative features of the French spectralist school came up.

Based on Claes J. Biehl's work *Microtonality in the Post-spectral Era*, several essential features characteristic of spectral music can be identified:

- the development of a new language of music based on the scientific knowledge of acoustics and psychology (technological methods);
- scepticism with regard to compositional models (critique of serialism);
- emphatic centrism of the sound/ timbre as a "live organism" (a naturalist view);
- the establishment of a pitch hierarchy, the properties of which were formed by a series of overtones as the main reference point.

One of the fundamental reference points in spectral music is the overtone series. According to Gerald Resch, one of the essential differences between the compositional techniques of Partsch and the spectralists and the work with overtone series is the choice of a more "biomorphic" model by spectralists (Resch 1999, 17). Usually those techniques include FFT spectral (instrument) analysis, which seeks to establish the hierarchy of partial tones, the fields of formants (i.e. partial tones possessing a strong acoustic energy in the spectrum), frequencies, pulsation, noise limits, and elements of sound saturation or distortion. Such information received from the analysis is used in the resynthesizing of the spectrum to distribute partial tones between different instrument combinations. Since these elements define the sound timbre, that "orchestration technique" allowed the spectralists to resynthesize anew and to engage in timbral composition.<sup>12</sup> The predominating and forming harmony in spectral music was perfectly illustrated by Tristan Murail's term harmony-timbre. The emphasis placed on the significance of timbre and its inseparable link with harmony was a striking feature of the musical material of both Murail and other spectralists. Thus, in essence, Murail himself manipulated the fact that there was no difference between the two concepts of timbre and harmony. The composer himself frequently used resynthesis

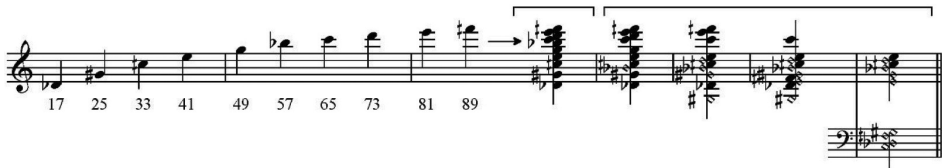
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12 One of the most prominent examples was the composition *Partiels* by Gérard Grisey, based on the spectrum resynthesis. The spectrum was formed from sound E extracted by trombone.

since those operations provided corresponding hybrid structures; there the spectrum of resynthesis of the timbral characteristic mutually interacted with the construct of harmony.

When such composers as Grisey and Murail started to apply spectral analysis, in the course of time, the use of one instrumental sound during the analyses did not suffice: the “production” of spectra artificially generated by algorithms began, that is, FM and RM/CT.<sup>13</sup> Those were the three principal techniques used for pitch generation. The other three techniques were applied in composition: harmonic, inharmonic, and subharmonic.

The concept of harmoniousness, inharmoniousness, and subharmoniousness predetermines the harmonic properties of the overtone series. In the context of spectral music, the concept of harmoniousness means a spectrum whose only elements are integers. An inharmonic spectrum manifests itself in elements which are not mere integers. In other words, between the natural ratios or partial tones, there are other sounds as well. For example, the spectra of most of percussion instruments are inharmonic. Another spectrum development technique is subharmony. It is a technique that inverts a row of intervals from the overtone series – in such a case, large intervals appear in the high register, and the smaller ones, in the low one (Examples 1 and 2).

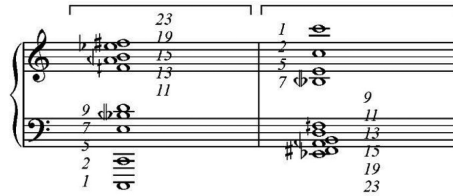


*Example 1: A gradual progression from harmonic to increasingly inharmonic spectra*

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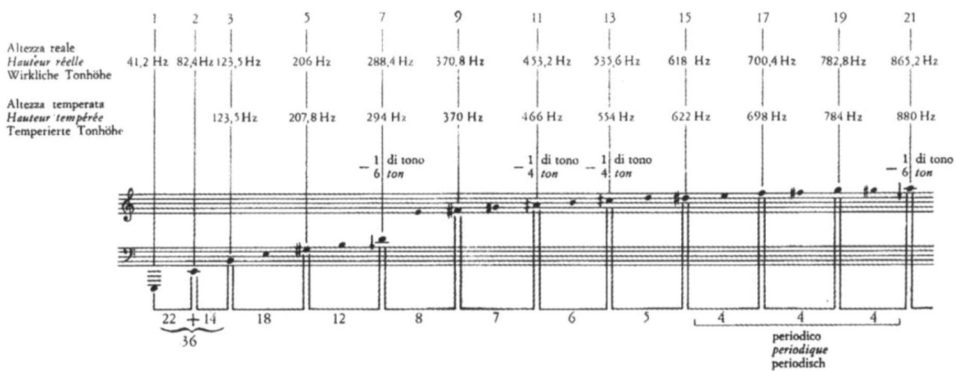
13 FM – frequency modulation, RM – ring modulation, CT – combination tones.





Example 2: Harmonic and subharmonic spectra

To summarize the regularities of the techniques of spectral theories, we can conclude that spectral techniques, in essence, generate hierarchical ratios of microinterval pitches which manifest themselves in different shapes: natural intervals of the overtone series, components of the spectrum produced by instruments, or pitches formed by means of algorithmic procedures. In other words, in their compositions, spectralists use microintervals – a consequence of corresponding analyses and calculations employed in composition.



Example 3: Spectrum of Grisey's *Périodes*, decoded and reflected in the score (Baillet 2000, 419)<sup>14</sup>

On the other hand, unlike the techniques of Partch or Johnston, which strongly focused on the relationships of the microintervallic pitches, spectralism became a trend of music in which microintervallics became incorporated into the very musical parameters and their processes. Neither Grisey nor Murail paid much attention to the precision of microintervals; discrepancies

14 As we can note, the spectrum made a rather large impact on the structure of the musical composition: Sn (natural harmonic series), Sh (pitch series), Si (interval series (microintervals) between successive pitches).



to avoid the opposition and an internal dramaturgical conflict between the association of “impure” sounding music. When viewing such a phenomenon from an objective side, one property very important for post-spectralists emerges: the spectrum as a reference point, and not the main predominating element, when re-interpreted, functions as a declared aesthetic angle of the perception of a music sound.

## 6 Microtonal practices of post spectralism (Viļums, Sapiega)

To present examples of the application of microtonality in early twenty-first century composition practices and incorporate the author’s theoretical and practical experiences, in this section, analyses of compositions by Mārtiņš Viļums and Gabrielius Simas Sapiega will be discussed from the viewpoint of microintervalics.

### Mārtiņš Viļums’s *Gāw ēk-dād kard* (2001) for mixed choir

Mārtiņš Viļums (b. 1974) is a Latvian composer and musicologist whose work features post-spectralist music composition techniques and the micro-sonoristic technique he developed. Very distinct creative principles typical of the composer manifest themselves on the scale of multiple sound, as a form, internal sound hierarchy, and articulation as well as in the aspects of the musical texture “coloring.”

A composition the distinctly reflects all those features is *Gāw ēk-dād kard* for a 24-voice choir. Like most spectralist compositions, this one is also characterized by another meaning having been given to the timbre, articulation, or the tone series modulation.

On reducing the score of the composition and identifying the main elements of the pitches of the mode, the technique of a symmetrical mode transposition becomes evident. This mode transposition technique was unique in the compositions of spectralists as well as in the modal microchromatics system developed by Hába.



Example 5: Symmetrical mode transposition

Another very distinct and obvious feature of spectralism, which in Viļums's composition is used to give another meaning to the harmony of the sound of the musical space, is the employment of a harmonic series from sound F in which microinterval manifestations (as  $S_1$ ) cannot be avoided:

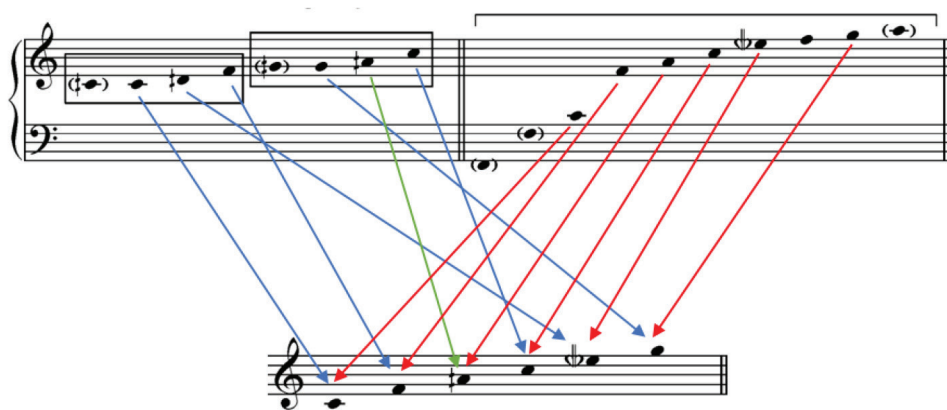


Example 6: The space of overtones

When viewed more attentively, the modal structure of Viļums's composition features some essential, exceptional features as well as strategies for the use of microintervallics:

- the symmetrical mode transposition closely interacts with the space of overtones and produces a common condensed modal outcome;
- from the intercultural musical viewpoint, the functioning of the mode and its interaction with all the other elements of the language of music have close allusions to the old Arabic modes;

as seen from the examples, both Hába and Viļums “link” two symmetrical modes through the ratio of  $1\frac{3}{4}$  tone.



Example 7: Harmonic space

In such a post-spectralist musical composition, the issues of mode and other elements, such as, form, harmony, sound articulation, microchromatics, timbre, and dynamics, are incorporated. All those parameters join into a single musical texture and thus express the essential features of the aesthetics typical of Viļums's compositions, which suggest an intercultural context similar to that found in the archaic music of Arabian countries: poetic expression and the implications of supramusical phenomena.

Due to the interaction of distinctly polyphoned elements of the language of music and the use of transpositional symmetric modes, Viļums's composition clearly features the principles of polychordism typical of Hába's theory when several elements of the language of music composed of two modes overlap simultaneously and merge into one qualitative object, such as a mode or a chord saturated with microintervalics. Here the issue of form cannot be avoided and can be directly related to both a different meaning being given to each element of the language of music treated as a "live" and constantly mutating, changing, and developing cell as well as to the sphere created by harmonic spaces of giving meaning to sonoric fields, with the verticals of sound conveying/consolidating individual parts of the composition.

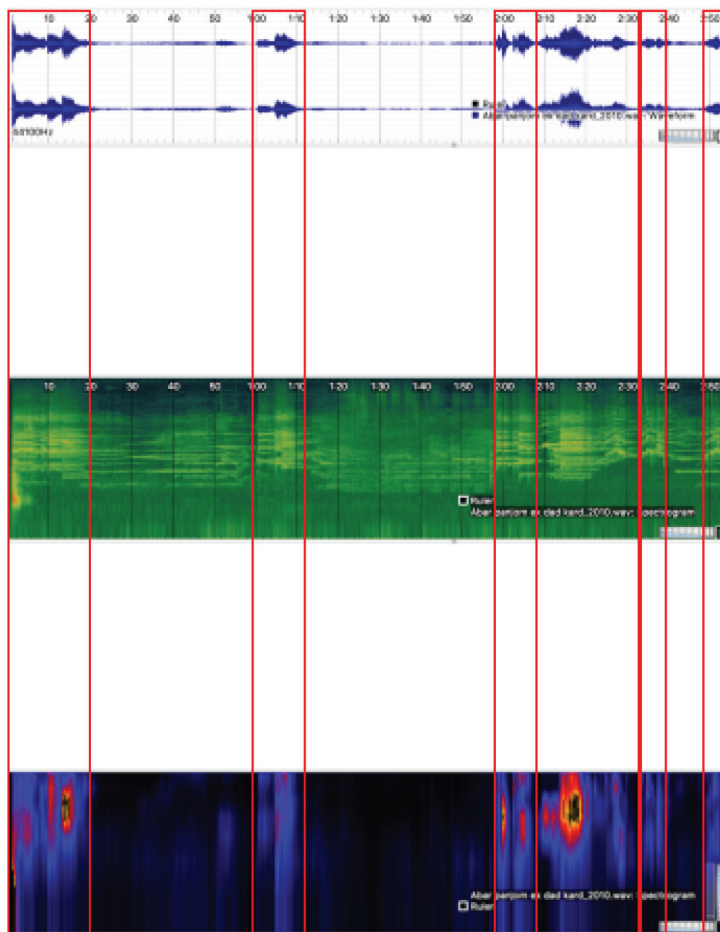
Thus, *Gāw ěk-dād kard* features a combination of several transformed intercultural characteristics: the Pythagorean system of sound perception and order organization is not merely a mathematical order saturated with calculations, but it is also a kind of philosophical, doctrinal idea of musical composition and human life. It is very important to understand that the composition also highlights the context of the perception of makam<sup>18</sup> and the music composed in it: the aspect of combining, exposing, and conveying poetry and the elements of the language of music as units of literature. In other words, the interpretation of a closed system, as well as of harmony is brought to the foreground as a harmonic, spatial matrix that conveys the structural and aesthetic nature of the sound. All that is transferred by the transformation of intercultural thought to the dimension of internal sound and there differentiated through the characteristics of articulation: the relationships of the figure-texture-noise enabling a composer to write compositions saturated with microintervalism. Microintervalics plays an important role in the formation of sound colorings typical of Viļums's compositions, that is, the main sound articulation principles: rearticulation of the main characteristics of sound and the timbral, dynamic transformation achieved/modelled through different strokes or other specific techniques of performance.

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18 A modal system of traditional Arabian music.

Thus, if we look at the analysis of the composition, we will notice features typical of syncretism: the common development and merging of two philosophical and musical views, which creates a new angle of observation retaining the essential features of the former ones, inevitably related to the qualities of sound and their rearticulation characteristics created by the strategy of the use of microintervals.

The manifestation of that syncretism can be conveyed by corresponding angles of observation and the aesthetics professed by the author:



*Example 8: Microcyclic and metamorphic timbre correlation; control of the internal properties of the timbre through compositional techniques*

The essential principles that become evident in this musical example include syncretism when the object hominization occurs; that is, both artificial and natural elements of the language of music are equally involved in the micro-interval relation of the desubstantializing sound and its properties.

### Gabrielius Simas Sapiiega. *Aux charmes ignorés* (2018) for symphony orchestra

*Aux charmes ignorés* (Nepažintas grožis) for symphony orchestra is the recreation of a traditional musical system, the form, and the timbre of the sound by new musical idioms. The composition is based on the sound organisation systems typical of spectralism, while unusual combinations of different instruments complement the colour palette of the orchestra with the timbre and the development of sound masses. In the process of composition, Gabrielius Simas Sapiiega (b. 1990) made use of two starting points – transformation and syncretism – seeking to give meaning to and express the phenomenon of synthesis when the traditional musical systems, forms, and timbres are recreated into new musical idioms.

All the movements of the composition are based on the inhaling-exhaling-rest parameter favored by spectralists. The rest parameter in the composition is implemented by a regular, periodic E harmonic spectrum. Intensity and its tides are manifested through the transition and inharmonic spectrum in which the harmonic spectrum most closely approximates and converges with the natural tone row overtone series.



Example 9: Harmonic spectrum from sound E



Example 10: Reformed harmonic spectrum from sound E, forte dynamics

In *Aux charmes ignorés*, the re-formed spectra move in equivalent directions towards one another by the transition technique, the spectrum changed in the aspect of dynamics.

The harmonic spectrum in the composition is modulated into an inharmonic spectrum. The inharmonic spectrum in the composition appears only a few times. Before “disappearing” for the last time, it is seemingly erased in noise as well as the harmonic spectrum started in it (bar 1).

The timbral modulations in the composition are performed by means of a spectral analysis, when from the same sound as the main spectrum sounds are removed merely by changing the instrument playing technique, and eventually the instruments and the main sound.

The image shows a musical score for four systems of staves. The first system is labeled 'Harmonic' and the second system is labeled 'Inharmonic'. The score illustrates the transition from a harmonic spectrum to an inharmonic spectrum through modulation. The first system shows a harmonic spectrum with a clear intervallic structure. The second system shows an inharmonic spectrum with a more complex, non-intervallic structure. The transition is marked by a dashed line and a bracket in the second system.

Example 11: Harmonic spectrum for modulations from the common sound

The techniques employed for the spectrum modulations: double-bass – *pizz.*, *sul pont.*, and *ordinario*. The spectrum in the composition is also regarded as a mode, that is, a modal variant of the spectrum able to form harmony.





Example 12: The chord distinguished from the modal spectrum (notes with black note-heads are added only after it sounds. The sounds of the spectrum are also reduced)

The fundamental measures in the exploitation of microintervalics include:

1. Pitch: trills between tiny intervals or glissando.
2. Volume: between crescendo and diminuendo.
3. Rhythm: the exchange of long-short values.
4. Timbre: changes in the pressure put on the strings of the violin or between a specific and non-specific sound.

A low timbre was imitated by different combinations of instrument groups which tried to extract the very diverse sonoric/colorist texture of *an attack* and its microinterval composition, and in some places, a distinct *pulsating* cloud of sound was used through the integration of microintervals. By gradually changing the composition, the color and the function of microintervals was changed: from “supporting” the spectrum to the expansion of the harmonic plan.

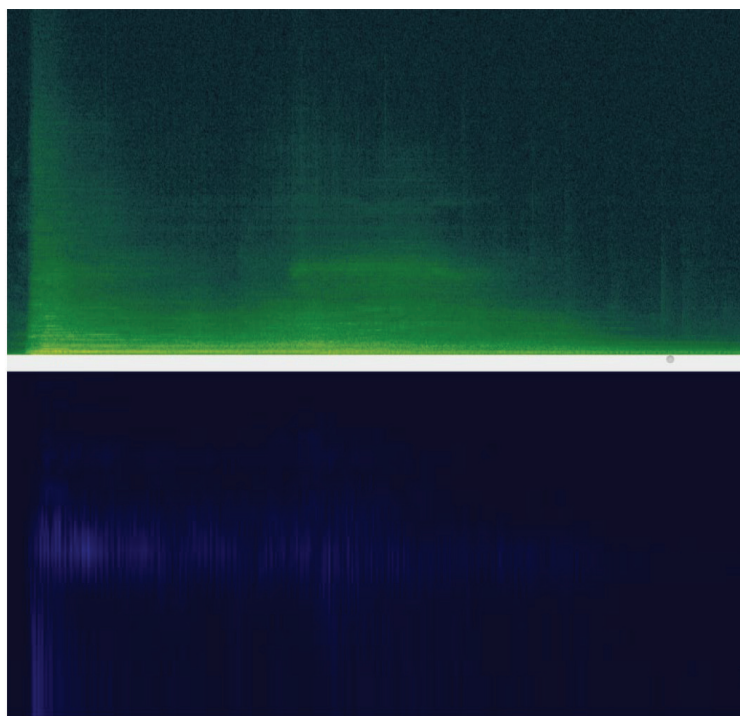
All the dramaturgical material of the composition was organized on the following principles:

- *sound* and *perception* composition principles, microintervalics;
- the priority of timbre in the orchestra: the interaction of composite (complex) sounds creates new ones;
- new perception of music time: rehearsal/process (not only consonances, but also the composition of the same instruments is meant);
- development of sound masses, noise inclusions.

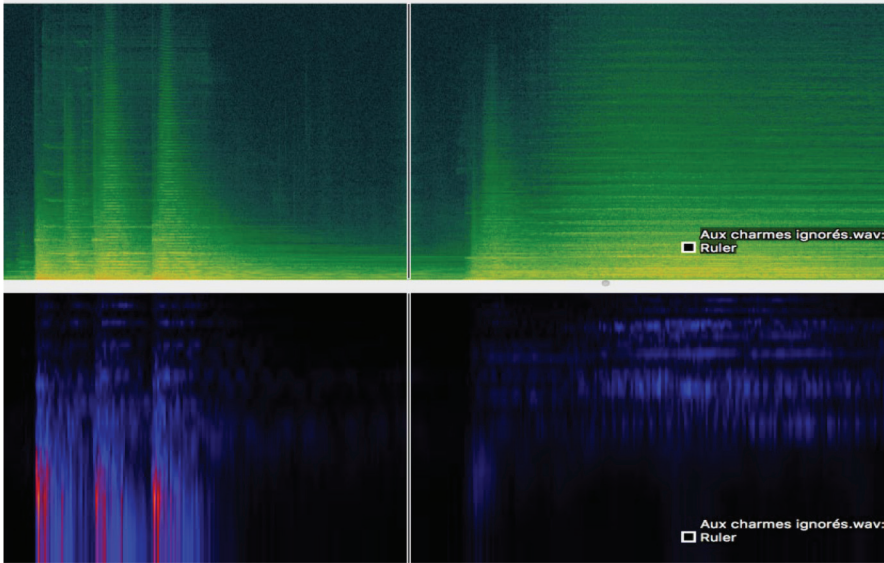
Thus, we can see that, in the process of composition, [dramaturgical material] developed towards the aspect of the humanization of the musical sound

phenomena. That is a rather thin boundary, shimmering in the middle of the action of the very relationships between elements, developing towards contextualization and the mechanical destruction method. The destruction manifests itself in the aspect of the purest academism, which can be regarded as more classical than the “classics” themselves. Specifically, in *Aux charmes ignorés*, the two aspects aptly defined by Šliogeris (the thing and art) are manipulated as undisputable and predicated as an indisputable, turned into a classic and an inspiration to the sensibility and intellectual conflict by “hanging” a work of art and leaving it in the great “Between”: spontaneity is receptive, and receptivity spontaneous. In that case, the totality of the elements of the language of music of the composition and the expressed image do not relate as a finite form of the thing. Microchromatics functions as a “form of shapeless intelligence”.

The conversion of the chaos of relationships can be noted through the spectral analysis of the musical composition and the analysis of the melodic range of the spectrum.



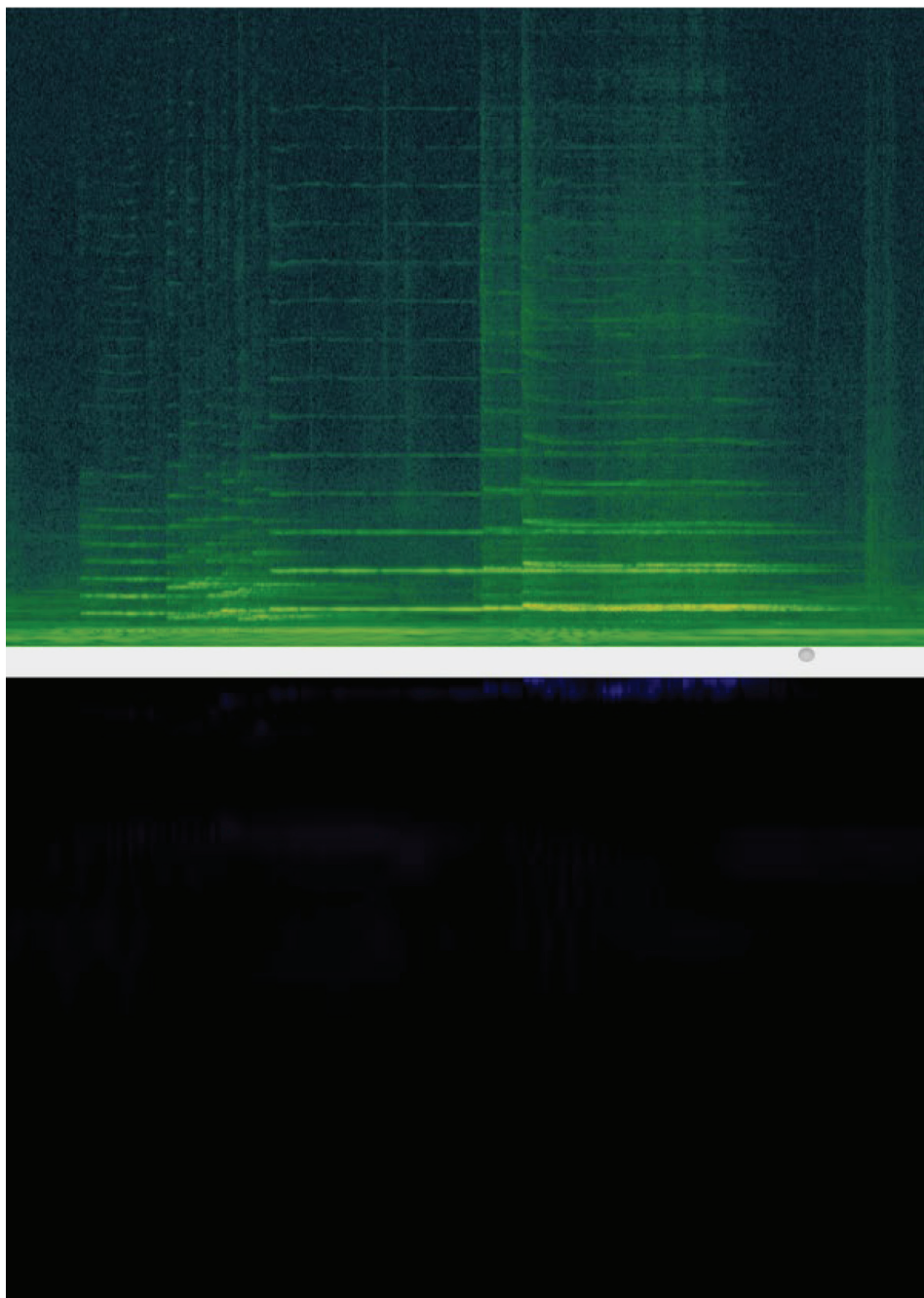
*Example 13: The first attack of the composition, not resonating specific sounds*



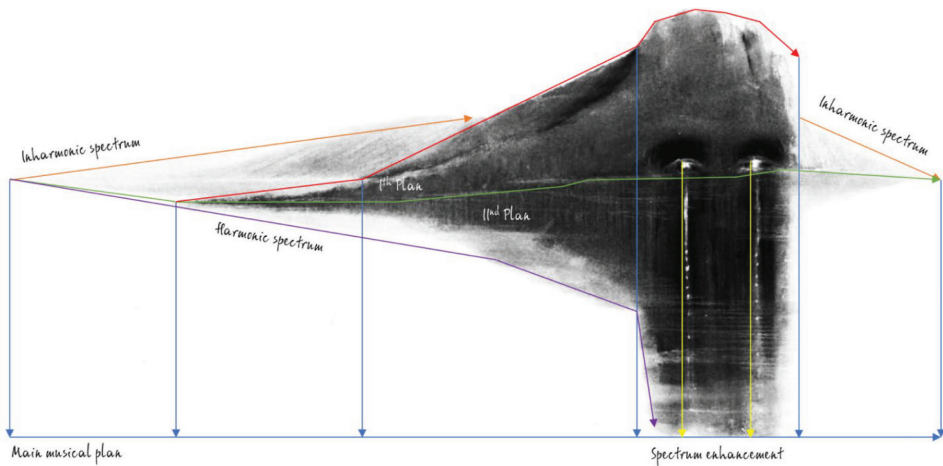
Example 14: The spectrum obtained from the attack. Transformation of a sensual object

We can conclude that all the microintervalics, which seemingly experience a merger of the being with the preservation of its own identity, is transformed into the being – the image of the sensual world penetrating into the greatest *nothing* – the fluctuation between existence and non-existence, form and amorphousness, harmony and noise, sensual harmony and anti-sensual noise. The conversion of microintervalics and modes, having experienced aspects of transformation, reveals the main feature – the aspect of the imperfection of beauty – the contours of the themes of the very works of art as the being and a drama of pure relation, rising above mode and harmony.

Thus, the use of microintervalics and the creation of various philosophical idioms in a musical texture introduces some main aspects for updating the quality of sound. However, before identifying those aspects, it is very important to view the form of a musical composition and the reference point forming the strategies of the use of microintervalics in a post-spectralist creation.



*Example 15: The anthropomorphic sound properties highlighted*



*Scheme 3: The strategy of use of the spectrum saturated with microintervals in Aux charmes ignorés<sup>19</sup>*

From the strategy of use of the spectrum saturated with microintervals, we can very clearly see one of the most distinct features typical of post-spectralists: the spectrum as a point of reference, however, an aspect not fully controlling the compositional process, as was typical of spectralists. As can be seen, the authors who chose the stylistics of post-spectralism acknowledged the spectrum as much as it generated creative material such as that found in the mode, chordics, and microintervals typical of contemporary music, the principles of orchestration.

Microintervals in a musical composition, and especially in post-spectralist music, can manifest itself in different ways. We can identify several main features and functions of microintervals:

- 1) Direct manifestations of microintervals:
  - a. microintervals directly obtained from the spectrum function as precise calculations in the composition;
  - b. the precisely calculated microintervals are simplified to such meanings that would be much more convenient for the performer to play;

<sup>19</sup> In the background: painting *Peace* (1903) by Mikalojus Konstantinas Čiurlionis (1875–1911).

Gabrielius Simas SAPIĘGA

1<sup>th</sup> attack

Inharmonic spectrum enhancement

Improvement of the impression of micro-intervals - indirect manifestations of micro-intervals.

Spreading of spectrum sound

Example 16: Sapięga's *Aux charmes ignorés*, mm. 1–5.  
Re-interpretation of the spectrum

Example 17: Sapiega's *Aux charmes ignorés*, mm. 91–5

- c. Compound microintervals can be omitted, and simpler ones can be written instead, even if not of the same sound.

Example 18: Sapiega's *Aux charmes ignorés*, mm. 51–5

2) Indirect manifestations of microintervals:

- a. By using different sonoristic means and playing techniques, partly controlled manifestations of microintervals are derived for the outcome of the sound quality;

Example 19: Sapiega's *Aux charmes ignorés*, mm. 61–5

- b. By using different sonoristic means and side sounds, such as noises, indirect manifestations of microintervallics are obtained, hardly defined, or controlled in a musical texture.

Example 20: Sapiiega's *Aux charmes ignorés*, mm. 16–20



- 3) By means of different orchestration techniques, especially those typical of spectralism, such a quality of sound is derived which would presuppose the quality of sound of the compositions saturated with microintervals.

Example 21: Sapiega's *Aux charmes ignorés*, mm. 81–5

Such a method of the microintervallic regeneration in musical compositions provides for a broader understanding of microintervals and for both the comparison and development of new musical and the composer's philosophical and aesthetic fields as well as their updating in a musical texture. Microintervals, especially in the creations of the post-spectralists, manifests itself in different ways and is developed by several techniques which both contribute to the disclosure of the intervallic nature of the musical composition and move away from the initial point of their use.

## 7 Conclusions

1. Microtonality is a musical phenomenon with deep traditions in Occidental and Eastern cultures, re-actualized in the early twenty-first century and provided with a new meaning. The very concept of microtonality is not

precise and is not universally suitable to describe the types of interval *genos*. Therefore, in the article, the generic term microchromatics, proposed by Yuri Kholopov, is used. The microtone, a term which also deserves correction, is more accurately represented by the semantically and structurally more precise term microinterval.

Based on the historical and analytical investigations carried out during the research, the use of the term can be defined through the identification of semantic and exploitative properties:

- *microinterval* – the ratio of two pitches, with emphasis on the *semitone* *genos* when the interval is smaller than a semitone;
- *microchromatics* – a system of pitch organization, based on the application of microintervals;
- *microtonality* – a compositional structure based on the principles of tonal music, when microintervals are used merely as a means to update the quality of sound.

Given the prevalence of the term microtonality in the discourse of the principles of music composition and musicology (Griffiths, Lindley, Zannos, Fox Strangways, etc.), the concept was not rejected during the research and was used for the definition of the microchromatics-related musical phenomena.

2. Upon reviewing the manifestations of microchromatics in the process of the history of music, we gained certain insights into the evolution of the concept of the phenomenon in question as well as into the changes in its understanding and transformation in the twenty-first century:

- in the past musical cultures: the organization of pitches in microchromatic structures was rather a number expressing the relationship and ratio of the pitch hierarchy on the principle of both philosophical and structural thinking;
- in twentieth-century avant-garde: microsystems were regarded as the structural aspects of intercultural transformation by expanding the established tonal systems, based on the theoretical works on the old music, as well as by going into the heart of merely structural “micro” musical sound parameters and exposing them in the musical texture;
- in the music of the twenty-first century: a micro-system is understood not only as a sonoric means of expression and a system of pitch organization, but also as a new aesthetical-philosophical concept: a musical sound is equated with the concept of a “live organism” and

emphatic centrism, and attempts are made to extract both the “micro” and “macro” parameters and processes hiding in the sound.

In the summary and evaluation of the dissemination and the changes in microtonality from the qualitative and quantitative viewpoints, we conclude that it was specifically in the twentieth and the early twenty-first century that the phenomenon acquired new features and angles of viewing, while the changes that occurred can be regarded as *a conversion of microtonality*.

3. Microsystems became established both in the avant-garde and twenty-first century music contexts. When viewing such phenomena from the compositional perspective, a merely analytical viewpoint does not suffice: we must approach a corresponding phenomenon – the thing, that is, the work of art – in which microintervals or microchromatic systems are exploited both in the direct (analytical) and figurative (philosophical) sense. The affected works by the conversion of microtonality as the being of a substantial individual: that is not just the implementation of the idealized schemas of the thing, but also the direct expression of the meanings of the thing (the work of art).

The disclosure of a corresponding perspective explains a very important prerequisite for the conversion of microtonality, typical of twentieth and twenty-first century music, and simultaneously its outcome: through his creative and theoretical research, the author deals with the issue of the identity of the work of art and expresses authorized contact with microsystems. One of the principal aims which became established in microtonality conversion-affected music is the identification of the work of art with its existence, that is, a desire to change the classical concept of a work of art and its structure from the viewpoint of the perception of pitches and the organization of their internal/external ratios.

4. Based on the categories of the intercultural music analysis technique proposed by Everett, upon the review of twentieth and twenty-first century microinterval music and the analysis of specific compositions, we can argue that, over the period in question, three manifestations of conversion and possible techniques of analysis were functioning: transference, syncretism, and synthesis. In the analysis of the chosen compositions, the compositional aesthetic-philosophical and analytical strategies were identified and the essential features were named due to which corresponding opuses were ascribed to the specific micro-system conversion categories. All that contributed to the application and consolidation of Everett’s categories in the context of microtonality conversion. The types of twentieth

and twenty-first century microtonality conversions, their characteristic features, and the composers in whose compositions the appropriate expression was found are presented below:

- *transference* means aesthetic principles or a formal system without explicit references to corresponding direct cultural sound; highlighted musical illustrativeness of microintervals without cultural quotations; literary or extramusical quotations; an aspiration to “revive” and “update” the sound; microchromatics as a structural modal element limited by the tradition of tonal music and musical material as well as pre-tonal music practices – Hába, Carrillo, Partch;
- *syncretism* means changing the meaning of timbre, articulation, or the tone series through the exploitation of microintervals; the perception of musical sound as the integration of a “live organism” and systemic “micro” structures; the integration of microchromatics into musical processes as a potential systemic side effect; and a rotating circle of the Oriental and Occidental viewpoints: between the recording of becoming and being – Grisey, Murail, Viļums;
- *synthesis* means recreation of a traditional musical system, form, or timbre by new musical idioms; the functioning of microchromatics as a form of amorphous intelligence; the conflict between sensuality and intelligence; the totality and expression of the elements of the language of a musical composition no longer corresponds to the finite form of the thing; an over-modal, harmonic, and thematic contour – Saariho, Sapiiega.

The final and comprehensively consolidating cycle of the conversion of microprocesses reveals the musical compositions affected by the aspect of transformation as the most radical oppositions: the substantial existence of the thing and the form from the shapeless, non-substantial material of a pure relationship, that is, amorphous intelligence opens up to sensual things against the background of the pseudo-reality of the amorphous pure relationship in which the form is shaped from the amorphous reality of the pure relationship. The process enables the transformation of micro-systems into the final completion of conversion or open up opportunities for the formation of its new varieties.

5. The microintervalics in a musical composition, and especially in post-spectral music, can manifest itself in various ways. Several key features and functions of microintervalics can be identified:

- 1) direct manifestations of microintervalics:
  - a) the microintervals obtained directly from the spectrum function in musical compositions as precise calculations;
  - b) the precisely calculated microintervals are simplified to the meanings that are much more convenient for the performer to play;
  - c) compound microintervals can be omitted, and more simple ones written instead of them, although not of the same sound.
- 2) indirect manifestations of microintervalics:
  - a) through the use of different sonoric means and playing techniques, partially controlled manifestations of microintervalics are obtained for the outcome of the quality of sound;
  - b) through the use of different sonoric means and side sounds as noises, indirect manifestations of microintervalics are obtained, difficult to define, and control in the musical texture;
- 3) by means of various, and especially typical of spectralism, orchestration techniques, such a quality of sound is obtained which presupposes the quality of sound of the compositions saturated with microintervalics.

The identified specific manifestations of the microtonality conversion and the notional meanings of functionalism hiding inside it can be used for further studies of microinterval music when analyzing the compositions affected by the conversion of micro-systems, and in the reflection of all that, the relationship of an artist with the work of art and art itself. Although the aspect of the microtonality conversion in the analyzed historical, theoretical, and specific musical examples is related not merely to the exploitation of specific musical material, but also to the chaos of relationships, other abundant systemic inclusions of microintervalics may stimulate further research and to even more precisely specify and define the angle of viewing the conversion of microtonality.

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**II.**

**CONTEMPORARY PRACTICE  
OF COMPOSING AND  
PERFORMING OF MUSIC WITH  
MICROINTERVALS**



**Agustín Castilla-Ávila**

## **Writing Microtones for Guitar**

In this article, I would like to present my ideas in a personal and biographical way. I will describe the situation of microtonal guitars I found as I decided to create a 36-division system and to compose for it. I will write about the decisions I made as a guitarist and a composer.

First, I would like to explain a few ways to obtain microtones on an ordinary guitar. They are:

1. by manipulating the tuning pegs using any microtonal interval;
2. by bending the string (like in blues guitar music);
3. by plucking between the left hand and upper nut (so that the proportions of the fret divisions are inverted) and
4. by using special scordatura changing the strings.

### **1 Practical problems with different microtonal guitars**

There is a wide range of microtonal guitars using either fixed frets, movable frets, or fretless systems. They also provide a wide range of microtonal scales like equal divisions, just intonation, or Arabic or Middle Eastern scales (or any microtonal scale from any culture). I find all these instruments, especially those built in the twentieth century, to be very fascinating. But if we take a look at some microtonal guitars (i.e. John Catler's), most guitarists might find a practical problem with them: they have to deal more or less with a new instrument. They need to acquire a new one (which in many cases is more expensive than an ordinary one) and learn a specific technique for it. It means a great amount of money and time invested for a very small repertoire written for those instruments. In my own case, still as a guitar student at the Conservatorio de Sevilla back in the nineties, I was not planning to specialize in microtonal guitar repertoire. My aim was to be able to include some microtonal music in my programs. As we see in those guitars, the microtones are produced from fret to fret. I had to find my own way to produce the microtones effectively without changing my instrument or my technique: from string to string.

## 2 The guitar in sixths of a tone

I tried out several microtone intervals in different registers (i.e. quarter-tones, eighth-tones, or thirds of a tone on different equal strings) and I must say that the ones I prefer the most are the sixths of a tone (especially using six G strings). By doing so, all six open strings remain within a tone (from sixth to first strings: F-sharp minus a third, F-sharp minus a sixth, F-sharp, G minus a third, G minus a sixth, and G). On most of the microtonal guitars, playing open strings is the same as on ordinary guitars. Having the microtones between the strings gives a special resonance, which I personally like very much. This system using six equal strings is very open to tuning.

In the solo pieces *Tres Momentos Microtonales*<sup>1</sup> and *Sakura*<sup>2</sup> I use six G strings tuned at sixths of a tone from string to string. This allows a kind of bass and melody in a very effective way. In the same way, but with six bass E strings, the piece *Il Velo di Iside*<sup>3</sup> is written. This work explores both the microtones in a low register and high-registered microtones produced by plucking between the left hand and upper nut.

After composing within the register only a little more than an octave and a fifth,<sup>4</sup> I chose to enlarge the register by using two guitars – one with all E strings and the other all Gs, both tuned at sixths of a tone. The result is not only around two octaves and a half, depending on the guitar, but also a colour contrast; a set of six high E strings sound much sharper than one of the six G strings. *Das klingt sehr mikrotonalisch*<sup>5</sup> is an example of my compositions for two microtonal guitars.

In order to have both the ordinary register of the guitar and all the microtones in between and its authentic resonance, my choice was to write *Rubaiyats*<sup>6</sup> for

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1 Agustín Castilla-Ávila, *Tres Momentos Microtonales* (2001), <http://www.youtube.com/watch?v=sTl6U9LkWG0>, played by Joseph Mirandilla (University of Santo Tomás, Manila, Philippines, July 31, 2012).

2 Agustín Castilla-Ávila, *Sakura* (2012), <http://www.youtube.com/watch?v=M3RGjUDowec>, played by Joseph Mirandilla (University of Santo Tomás, Manila, Philippines, July 31, 2012).

3 Agustín Castilla-Ávila, *Il Velo di Iside* (2013), a recording from an album *Possible Worlds*, vol. 3, played by Giacomo Fiore, Spectrapol Records (Bellingham, Washington, USA), 2014, <http://spectrapolrecords.bandcamp.com/album/possible-worlds-vol-3>.

4 Since from the sixth string to the first one there is only five sixths of a tone, the range depends on a guitar.

5 Agustín Castilla-Ávila, *Das klingt sehr mikrotonalisch* (2006), <http://www.youtube.com/watch?v=kH0i3DurLbk>, played by Cecilio Perera and Emerson Salazar (Solitär Saal, Universität Mozarteum Salzburg, Austria, January 25, 2008).

6 Agustín Castilla-Ávila, *Rubaiyats* (2008), <http://www.youtube.com/watch?v=xjd-zEXorXo>, played by Sara Hilger, Mariana Salgado, Barbara Giusto, Emerson Salazar, Pedro Izquierdo and Agustín Castilla-Ávila (Bösendorfersaal, Universität Mozarteum Salzburg, Austria, October 26, 2008).

six microtonal guitars, each of them consisting of six times each strings with the same 36 division tuning.

Most of the guitarists who played my microtonal pieces had no experience with this kind of music. Since the frets are not manipulated, it has been easy for all of them to adapt their playing to this system. This is one of the biggest advantages of it. I have not yet written for any of those microtonal guitars with a special fret system for two reasons. On the one side, microtonal guitar music is just a small part of my work. And on the other side, I believe there is still much to develop with scordatura microtonality. What I find most fascinating about it is the resonance of the instrument. I use this kind of guitar as a bridge between contemporary music and music from different cultures, where microtones are used (Arabic, Japanese, etc.).

This scordatura microtonal system is very flexible and can be easily adapted to established microtonal systems on other instruments (quarter-tone piano, quarter-tone accordion, etc.). In the composition *Canto de Nezahualcóyotl* for quarter-tone marimba and quarter-tone guitar (2018), I again used six third strings tuned at quarter-tones having a G on the first string (see Example 1).

The image shows a musical score for two instruments: Marimba (Mar.) and Guitar (Gtr.). The score is divided into two systems, starting at measure 5 and measure 8. The Marimba part features melodic lines with various rhythmic patterns and microtonal intervals. The Guitar part features chordal textures and melodic lines, often with a '5' indicating a fifth fret or similar microtonal adjustment. Dynamics include *pp* and *p*.

Example 1: Castilla-Ávila's *Canto de Nezahualcóyotl*, mm. 5–11

Sometimes I composed using variations to this system in different pieces and combine it with different ways to obtain microtones. In *Tres Tristes Tríos*,

I distribute the sixths of a tone among three guitars without changing the strings at all (Example 2).

MODERATO ♩ = 70 ca.

The score consists of three guitar parts and a right-hand part.   
**GUIT. 1:** Fingerings ⑥ ⑤ ④ ③ ② ①, notes -1/3 -1/6 0 -1/3 -1/6 0.   
**GUIT. 2:** Notes 0 -1/3 -1/6 0 -1/3 -1/6. Instruction: 'FIX CAPOTASTO ON FRET 1'.   
**GUIT. 3:** Notes -1/6 0 -1/3 -1/6 0 -1/3. Instruction: 'FIX CAPOTASTO ON FRET 2'.   
**RIGHT-HAND:** Includes 'RIGHT-HAND INDEX TAPPING (HAMMERING)', 'TAPPING (HAMMERING) RIGHT HAND IS MAINTAINED AT THE MOMENT OF HAMMERING', and 'RIGHT-HAND INDEX TAPPING (HAMMERING)'. Dynamics include 'pp', 'ppp', and 'SEMPRE pp'. Performance markings include 'TAMBORA' and 'SIMILE'.

Example 2: Castilla-Ávila's *Tres Tristes Tríos*, mm. 1–9

In other compositions like *Die Nacht der Wellen* (2015) or *Hurrian Song* (2015), two strings are tuned very low (using ordinary strings) in order to get three consecutive ones with distances of sixths of a tune. In the case of *Die Nacht der Wellen*, the strings (from sixth to first) follow: D, D + 1/6, D + 1/3, G, B, E. In *Hurrian Song* the scordatura follows: E, E + 1/6, E + 1/3, G, B, E. While in *Cerises* for solo guitar (2018), the tuning follows: E, B - 1/6, G - 1/3, C-sharp, G-sharp - 1/6, D-sharp - 1/3.

### 3 Notation: Transcription or tablature?

One of the big problems of writing with the use of this microtonal guitar I had to challenge was the notation. Since most guitarists are familiar with different kinds of tablature, I created one indicating the string and the fret (the head of the note to indicate ordinary, harmonic, percussive, etc.). It is very neutral as there is no strong association between the notes and the sounds produced. I used this system in compositions such as *Tres Momentos Microtonales* (Example 3).

Using transcription is a possibility for the guitarist to learn the piece quickly. It depends on the textures – thick textures are much better for the performer when they are transcribed. But here the association between the written note and its sound might be a bit confusing for players, as they must recognize the notes in completely new positions. I used transcription in compositions such as *Sakura* (Example 4).

**ANDANTE MOSSO MA MOLTO FLESSIBILE**

MICROTONAL GUITAR (6 STRINGS)

4 5 4 5 4 5 4 5 7      0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7      UN POCO RALL.      0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7      UN POCO RALL.

6 5 4 3 2 1      1 2 1 3 1 4 1 5 1 6 2 3 4 5 6      1 2 1 3 1 4 1 5 1 6 2 3 4 5 6      1 2 1 3 1 4 1 5 1 6 2 3 4 5 6

*mf*      *p*      *mf*      *pp*

7 7      0 1 2 3 4 0      0 1 2 3 4 0      12 12 12 12 12 12      RUBATO      A TEMPO      RUBATO      A TEMPO      1 0 2 0 3 0      1 0 2 0 3 0      12      mp

6 5 4 3 2 1      6 5 4 3 2 1      6 5 4 3 2 1      1 2 3 4 5 6      1 2 3 4 5 6      1 2 3 4 5 6      1 2 3 4 5 6      6 5 4 3 2 1      6 5 4 3 2 1      1

*pp*      *mf*

19      12 12 12 12      RUBATO      A TEMPO      RUBATO      A TEMPO      6 5 4 5 4 5 4 5 7      0      p

1 2 3 4 5 6      1 2 3 4 5 6      1 2 3 4 5 6      1 2 3 4 5 6      1 2 3 4 5 6      1 2 3 4 5 6      1 2 3 4 5 6      1 2 3 4 5 6      1 2 3 4 5 6      1

*mp*      *mf*      *p*

26      UN POCO RALL.      A TEMPO      UN POCO RALL.      A TEMPO      DECISO

7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7      7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7      7 6 7 6 7 6      7 6 0

2 1 3 1 4 1 5 1 6 2 3 4 5 6      1 2 3 1 4 1 5 1 6 2 3 4 5 6      3 2 3 2 3 2      3 2 1

*mf*      *pp*      *pp*      *mf*

Example 3: *Castilla-Ávila's Tres Momentos Microtonales*, mm. 1–32

MICROTONAL GUITAR

MODERATO ♩ = 70 ca.

*f* UN POCO LIBERO

UN POCO MENO MOSSO

*mf* A TEMPO

HARM. 5 HARM. 4 HARM. 3<sup>°</sup> HARM. 4 HARM. 3<sup>°</sup> HARM. 7

HARM. 12 HARM. 5 HARM. 4 HARM. 3<sup>°</sup> HARM. 5 HARM. 4 HARM. 3<sup>°</sup> HARM. 4

MISTERICOSO

*mp*

Example 4: Castilla-Ávila's *Sakura*, mm. 1–17.

Concerning the notation, I mainly focused on practical aspects to help the performer learn the composition. Sometimes I provide an ossia line with the sounding pitches, (or at least some of them), especially when I use this system in chamber pieces or in pieces with singer, like in *Dos Sonetos* for mezzo-soprano and guitar (Example 5).

#### 4 Prepared guitars and other ways to get microtones on the guitar

As a composer, I also like the guitar microtones produced by plucking between the left hand and upper nut. By doing so, the resonance body of the instrument is avoided. I am not at all against the evolution of the instrument (especially concerning the volume) since the Torres guitars around 1850. But when I listen to these very powerful guitars today, I have the feeling that we have lost the intimate character of them. This is the aesthetic reason why I keep writing intimate guitar pieces “without” resonance body. Sometimes I also use preparations – preferably with guitaristic elements such as fix capodastre on the 10th fret or a cloth under the strings – so that the sounding part of the string will be connected to the upper nut like in the composition *Caged Music 3* (Example 6).<sup>7</sup>

7 Agustín Castilla-Ávila, *Caged Music 3* (2006), <http://www.youtube.com/watch?v=bCKGTO4yIVE>, played by Atheneum Guitar Trio (Atheneum Conservatory, Athens, Greece, May 5, 2012).



M-S. *p*  
 fue que se a-par - tó de su pre - sen - cia. su a-mo, y no le ha

Gtr. C.IV *f* Harm. 12 *mp* *p*

M-S. *f* *pp*  
 lla - ba, y es-to-sien - te: mi-rad has-ta do lle -

Gtr. *mf* *mp* *f* Harm. 7 Harm. 7 *p*

Example 5: Castilla-Ávila's Soneto II: A la entrada de un valle from the cycle Dos Sonetos, mm. 39–48

• = 70 ca.

SOURCE-HEADED NOTES  
 TO BE PLOCKED BETWEEN  
 CAPOTASTO AND UPPER NUT  
 (THEY WILL NOT SOUND AS WRITTEN)

QUIT. 1  
 WITH CAPOTASTO  
 ON TENTH FRET *p*

QUIT. 2  
 WITH BLU TAP  
 ON THE STRINGS *mp*

QUIT. 3  
 WITH A CLOTH  
 UNDER THE STRINGS *mp* TAPPING

CROSS-HEADED NOTES  
 TO BE HAMMERED (TAPPING)  
 UN POCO MARCATO

Gtr. 1 *mp*

Gtr. 2 *mp*

Gtr. 3 *mp*

Example 6: Castilla-Ávila's Caged Music 3, mm. 1–2.

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**Zoran Šćekić**

## Introduction to the Five Limit Intervals Harmony

The main structural difference between any equal tempered scale and just intonation system lies in dimensions. Equal temperament is linear or one-dimensional systems, while just intonation can have as many dimensions as we choose it to have.

Just intonation based on 2-limit intervals is one dimensional, 3-limit intervals forms a two-dimensional intonation system, 5-limit intervals forms a 3D system, 7-limit forms 4D system, 11-limit forms 5D system, etc. Compared to each other, both systems have their advantages and disadvantages, but in terms of harmony, the most important difference between these two systems, besides the sound of the intonation itself, is the different way of handling the chord inversions. Equal temperament provides all possible chord inversions, which are restrained only by the stylistic rules of the harmony, while within the just intonation system it is not so. Since just intonation is an n-dimensional system, in order to work within one, it is necessary to choose the limit of the intervals and that very choice defines the restrictions on handling the chord inversions. Choosing the prime factor of the intervals, arbitrary sets the interval borders and raises the question of the interval tolerance. Correlation between interval limits and chord inversions defines the main subject of this paper which partially makes an introduction to my book *Five Limit Intervals – Theory & Praxis*.<sup>1</sup>

A C dominant seventh chord with tension nine or C7(9) consisting of tones C–E–G–B-flat–D is one example where a higher limit interval decreases the number of inversions. C7(9) consists of 1, 4/5, 2/3, 5/9 and 4/9 within 5-limit intervals, while within 7-limit intervals the dominant seventh would be the one of 4/7. The dominant seventh of 5/9 generates inversions with the root on G and E, which is the G minor chord with tension eleven and thirteen or Gm(11,13) and E half-diminished seventh chord with tension flat thirteen or Em7-5(b13). The dominant seventh of 4/7 cannot be used within Gm(11,13) for the minor third between G and Bb is a minor third of 6/7 and not a minor

1 Chord groups and syntonic shift are some of the areas covered in the book *Five Limit Intervals – Theory & Praxis*, self-published in 2013 in Croatia. Most of the figures and examples used in this paper are from this book. All compositions analyzed in the last chapter of the book are available on the CD album *Just music* published and distributed by Ravello Records and NAXOS.

third of  $5/6$ . The interval of the dominant seventh can be determinate by the chord construction as well.

In order to have  $C7(\#9)$  with a major triad in the upper structure, the only solution is to use the dominant seventh of  $5/9$  because only the tension sharp nine of  $5/12$  makes the major third of  $4/5$  with the chord a perfect fifth, and the only dominant seventh that makes a perfect fifth with  $5/12$  is the dominant seventh of  $5/9$ , so the chord will generate all inversions with the following construction within 5-limit intervals: 1,  $4/5$ ,  $2/3$ ,  $5/9$  and  $5/12$ .

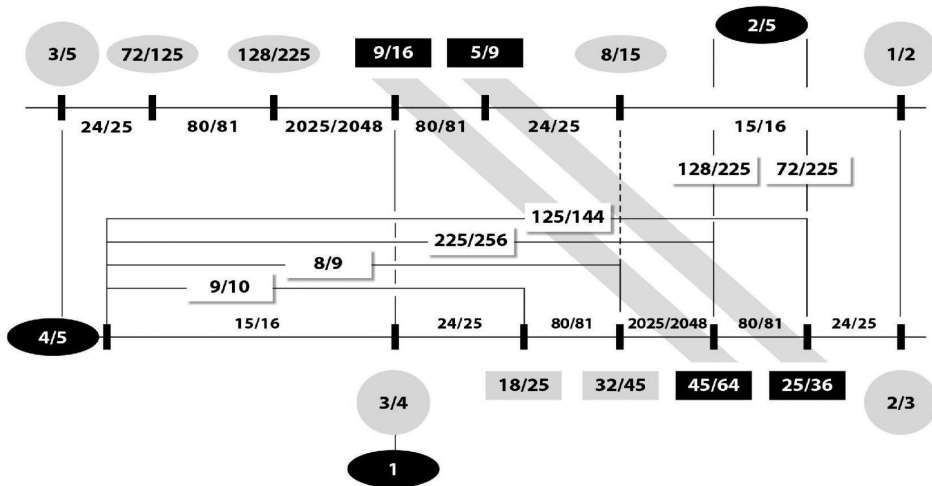
In order to have  $C7(b9,13)$  with the major triad in the upper structure, only the tension flat nine of  $12/25$  makes minor third of  $5/6$  with the major third of  $4/5$  allowing these two tones to form A major triad with tension thirteen of  $3/10$ . In order to keep all other inversions of this chord possible (A minor triad and B-flat half diminished triad), only dominant seventh that makes minor third of  $5/6$  with tension flat nine of  $12/25$  is the dominant seventh of  $72/125$ . The chord will maintain all possible inversions, just like in equal temperament and the following chord construction will be again within 5-limit intervals: 1,  $72/125$ ,  $2/5$ ,  $3/10$ , and  $6/25$ .

The interval of the major or dominant seventh and the major or minor second can be dictated by the chord progression as well. Simple chord progression, like the subdominant–dominant–tonic in the key of C major, could have these voices: (G–E–C–f–a) followed by (A–E–b–f–g) resolving in (G–D–b–e–c) or written with esymbols  $Fmaj(9)/A$ ,  $G7(9,13)$  and  $Cmaj(9)$ . In order to maintain all inversions with major or minor triads in the upper structures and to keep the same tone “f” in the subdominant and in dominant chord, the only solution is to use the dominant seventh of  $9/16$  because only F of  $3/4$  and G of  $2/3$  makes a perfect fifth with the root of 1.

From examples like this it is possible to conclude that only 5-limit intervals can maintain free usage of chord inversions in the same way as equal temperament does. Establishing the area of zero tolerance for interval alteration between  $5/6$  and  $3/5$  generates an area of interval tolerance where every smaller or bigger interval becomes the subject of alteration and must be interpreted as a minor or major second, which is a major or dominant seventh.

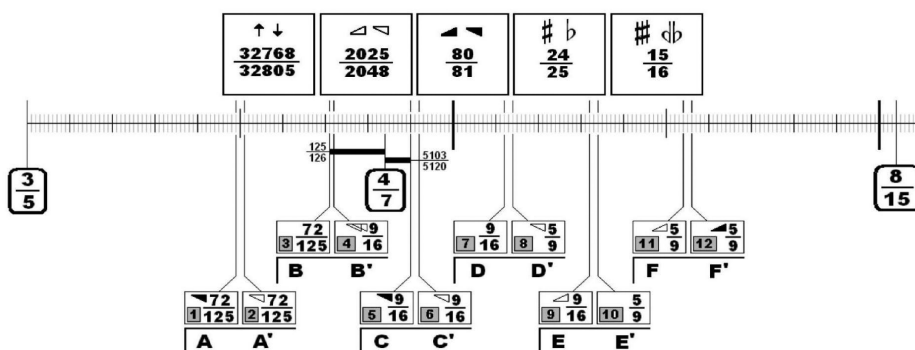
Diminished and augmented chords expand the area of tolerance to the area between  $3/4$  and  $2/3$  where every interval is interpreted as an augmented fourth or diminished fifth. Construction of the major chord with the diminished fifth or augmented fourth that makes a major third of  $4/5$  with the dominant seventh of the chord have an immense number of possibilities. Four different possibilities of dominant sevenths ( $72/125$ ,  $128/225$ ,  $9/16$  and

5/9) in an augmented or diminished chord are given in Example 1 along with four different major seconds (9/10, 8/9, 225/256 and 125/144) directly generated by the choice of dominant seventh. Since all intervals are 5-limit intervals and the border of the intervals is respected as mentioned before, all inversions are possible. That enables the construction of a chord consisting of two different dominant sevenths.



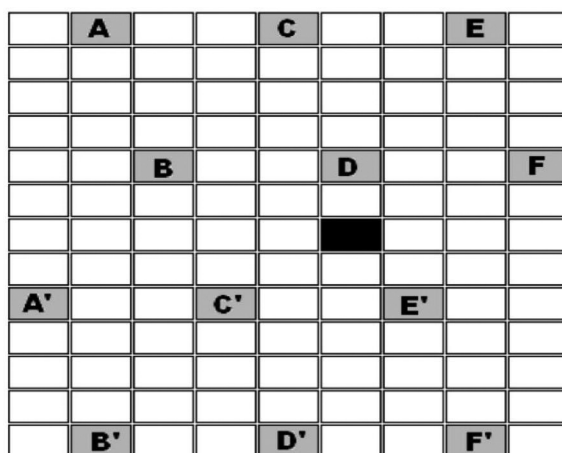
*Example 1: Four different dominant sevenths and major seconds and two different augmented fourths and diminished fifths*

A dominant augmented chord with intervals 1, 4/5, 18/25, and 72/125 generates a major second of 9/10 between the major third and augmented fourth. Since all the inversions are possible, the augmented fourth of 18/25 generates a dominant seventh of 5/9 with a major third raised above for an octave. This is one of the many examples where the dominant chord can have two different dominant sevenths, that is, 72/125 and 5/9. Section A (Example 2) shows symbols for microtonal sharps and flats, 12 different dominant sevenths within 5-limit intervals and their linear position within the interval of 204 cents between major sixth of the 3/5 and major seventh of the 8/15. Respecting the interval border and placing alterations only within the area of interval tolerance makes all possible chord inversions available and therefore each of them provides an additional dominant seventh interval in the augmented or diminished chord construction mentioned above. Different dominant sevenths have different sound and different function as well.

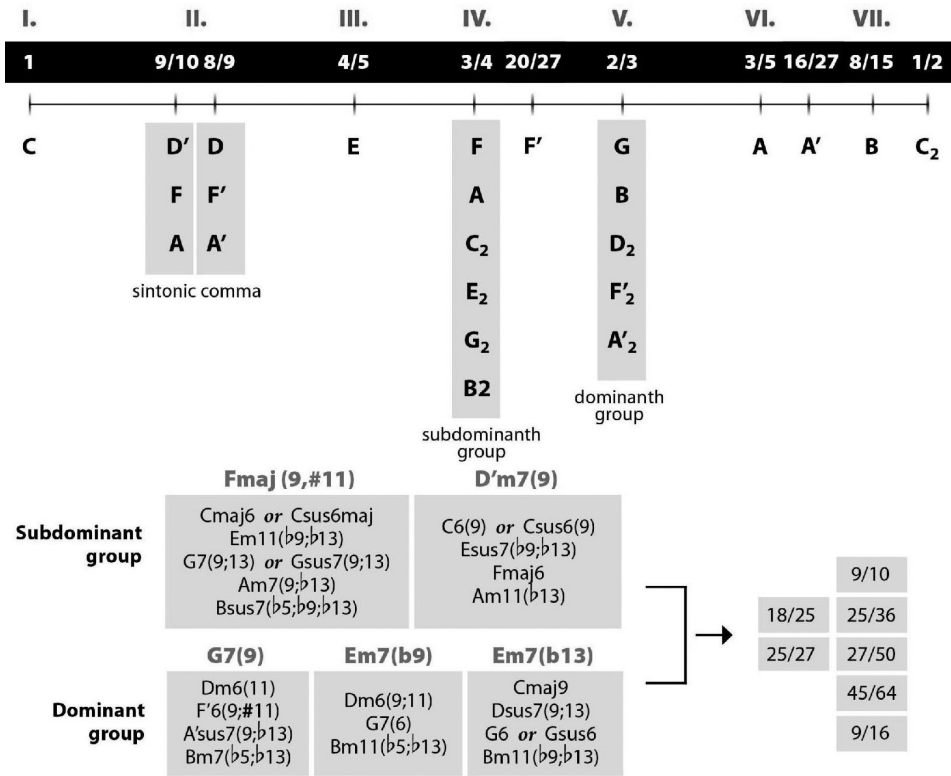


Example 2: Twelve different dominant sevenths marked with letters and five different accidentals

Example 3 presents all 12 dominant sevenths within 5-limit lattice. Dominant sevenths, marked as A, C, E, B', D' and F', enable modulations and chord progressions to a remote area of the 5-limit lattice in relation to the dominate sevenths, marked as D or E', for example. A 5-limit interval harmony can be organized into a three major chord group structures in order to enable all possible chord inversions. The first chord group structure makes a 5-limit interval harmony of the 1st order and it consists of a subdominant and dominant chord group. Example 4 shows all possible inversions in relation to which tone of the chord group is considered to be the root. A harmony of the 1<sup>st</sup> order covers the area of diatonic changes within the range of one key.



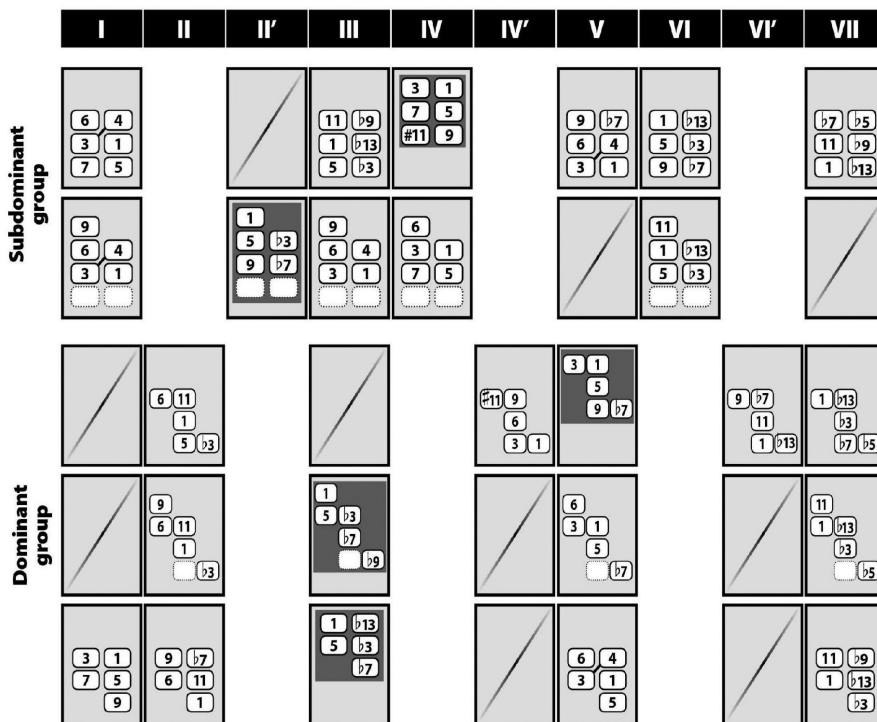
Example 3: Position of twelve different dominant sevenths within 5 limit lattice. Black field marked as 1/1



Example 4: Tonality defined with 7 degrees, 10 tones and all possible inversions of dominant and subdominant chord group structures

Within 5 limit intervals tonality is defined with 10 different tones or pitches. These 10 tones are: 1, 9/10, 8/9, 4/5, 3/4, 20/27, 2/3, 3/5, 16/27, and 8/15. Example 5 shows all dominant and subdominant chord inversions within the 5-limit lattice.

The 5-limit interval harmony of the 2<sup>nd</sup> order covers construction of altered chords and modulation. There are two basic altered chord groups as shown in Example 6 with all possible chord inversions in relation to the tone of the chord group, which is considered to be the root and written with sharps and flats as shown in Example 2 above.



Example 5: All inversions in five limit intervals harmony of the 1<sup>st</sup> order within 5 limit lattice

SUBDOMINANT CHORD GROUP STRUCTURE

P	X
Q	Y
R	Z

X (1,3,5,7,9,-#11)  
 Y (1,3,5,7,13)  
 Z (1,3,4,~b7,~9,13)  
 P (1,b3,5,b7,9,b13)  
 Q (1,b3,5,~b9,11,b13)  
 R (1,4,~b7,~b9,~b5,b13)

DOMINANT CHORD GROUP STRUCTURE

P	X
Y	Z

X (1,3,5,b7,9)  
 Y (1,b3,5,11,13)  
 Z 1,3,6,~9,#11)  
 P (1,3,b7,b5,b13)  
 R (1,4,~b7,~9,b13)

ALTERED CHORD GROUP STRUCTURE

P	X
Q	Y
R	Z

X (1,3,5,b7,#9,-#11)  
 Y 1,3,5,~b9,#11)  
 Z 1,3,~b7,~b9,#11,13)  
 P 1,b3,b5,~7,~9,b13)  
 Q 1,b3,6,~7,11,b13)  
 R 1,~b5,6,~9,11,b13)

ALTERED CHORD GROUP STRUCTURE

Z	
P	X
Q	Y
R	

X (1,3,5,b7,#9,13)  
 Y (1,3,5,6,~b9,#11)  
 Z (1,b3,5,b7,~#11,b9)  
 P (1,b3,b5,~7,11,b13)  
 Q 1,b3,6,~9,11,b13)  
 R (1,~b5,6,~7,~9,11)

FREE CHORD GROUP STRUCTURE

P	X
Y	

X (1,3,5,b7,~b7,#11)  
 etc. ...

Example 6: 5-limit interval harmony of the 1<sup>st</sup>, the 2<sup>nd</sup> and the 3<sup>rd</sup> order with all inversions



If we take, for example, tone X from the second altered chord group to be considered as the root, the chord construction would be made of these intervals: 1, 4/5, 2/3, 5/9, 5/12, and 3/10. Within the 5-limit interval harmony of the 1<sup>st</sup> and 2<sup>nd</sup> order, every possible chord has all possible inversions. The 5-limit interval harmony of the 3<sup>rd</sup> order or free chord group structure can generate chord structures which cannot be used for all possible inversions and that is why the harmony of the 3<sup>rd</sup> order is to be considered with special care.

Certain diminished or augmented chords with dominant sevenths, as shown in Figure 2, can be a part of the 2<sup>nd</sup> order harmony or a part of the 3<sup>rd</sup> order harmony. Chord constructions that respect interval tolerance and interval borders have all possible inversions at their disposal, even if they belong to the 5-limit harmony of the 3<sup>rd</sup> order.

A dominant seventh chord with tension b13 of 16/25 on the other hand, belongs to the 3<sup>rd</sup> order harmony but it cannot be used for inversions any longer since intervals between 16/25 and 1/2 is not major third of 4/5. A minor chord with a major seventh (1, 5/6, 2/3 and 8/15) is another example of the 3<sup>rd</sup> order harmony where inversions have been restricted since 8/15 and 5/12 do not form a major third of 4/5.

Another subject of the 5-limit intervals harmony that needs to be considered with special care is syntonic shift. The interval of 80/81 or syntonic comma can occur in many different cases of chord progression within all three orders of the 5-limit intervals harmony. Three basic types of syntonic shifts are: direct syntonic shift (DSS), indirect syntonic shift (ISS) and simultaneous syntonic shift (SSS).

Every chord progression consisting of more than one chord group is a necessary subject of syntonic shift.

Example 7 is part of the composition *Strong Man*, mm. 17–32. The piano is tuned according to the following ratios:

$$F = 1$$

$$F\# = 9/10$$

$$G = 8/9$$

$$G\# = 5/6$$

$$A = 4/5$$

$$A\# = 3/4$$

$$B = 20/27$$

$$C = 2/3$$

$$C\# = 16/25$$

$$\#D = 3/5$$

$$D\# = 5/9$$

$$E = 8/15$$

Four kinds of noteheads are used in the analysis. Normal noteheads are used for the notes from the actual piano score. Diamond noteheads are used for the rest of the notes from the possible chord group. Slashed noteheads are used for the notes that could be part of the maximal chord group structure according to piano tuning, regardless of tonality group. Cross noteheads are used for the tones that are not considered to be a part of the chord group, but rather as an approach to the next note. Chord symbols are given according to normal noteheads. Four different types of sharps and flats, as introduced in Example A, are used only with notes and alphabet chord symbols, but not with the numbers within the chord symbols. The 5-limit lattice diagram placed above the chord symbol is given according to the chord group written with normal and diamond noteheads. Black fields in each diagram represent the root of the chord group according to chord symbol.

The image shows two systems of musical notation for 'Strong Man' (mm. 17-32). Each system consists of a treble clef staff with notes and a piano accompaniment in a grand staff. Above the treble clef staff, there are 5-limit lattice diagrams for dominant and subdominant groups of F. The first system (mm. 17-23) is labeled 'Analysis' and 'Piano'. The second system (mm. 24-32) is also labeled 'Piano'. Chord symbols are provided for each measure, including Fmaj, Csus/G, C/G, F9, Bbmaj9, C7(6:9), Fmaj, Bbmaj, C, F, Fmaj9, Bb/F, Fmaj9, F/C, C, Bb, and C7/Bb.

Example 7: Ščekić's Strong Man, mm. 17–32 with harmony analysis

The first three bars of Example 7 are written within the dominant group. According to Example 5, the first chord group is an inversion of the dominant minor parallel, the one with the tension (b13) and with the root on the 1<sup>st</sup> degree. The second chord group is an inversion of the same chord group with the root on the 5th degree with the omitted major third. The next chord group is the same inversion but with omitted fourth. If we add slashed noteheads (syn. B-flat and E-flat) into a chord group, the structure of the chord group will become altered. That is the possibility that we have, according to the piano tuning. The next chord group, the one in m. 19, is the same chord group as the one in m. 17. The chord group in m. 20 belongs to the subdominant group, and since the transition from one group to another necessarily produces syntonic shift, this is the place where it should occur. In this case it consists of a syntonic comma lower, or regarding inversions, higher intervals between G (8/9) and B-flat (3/4) or G and D (3/5). Both cases are examples of indirect syntonic shift. Both shifts are in different voices and the one from G to D is delayed by the use of the note C in between. That is why it is not so easy to hear the micro-modulation within ISS. If a syntonic shift would appear in the same voice it would be easier to hear it, but the case would still remain within ISS. Transitions from m. 23 to m. 24, 26 to 27, and 30 to 31 produce ISS in the same voice, that is, the syntonic comma lower minor third between G (8/9) and B-flat (3/4). ISS from m. 23 to m. 24 is delayed by the use of note A in between.

It is impossible to achieve harmonic progression from one chord group to another without indirect syntonic shift, even within the same key.

Example 8 is part of the composition *23.10*. This is the case of direct syntonic shift (DSS) where the tone from one group is resolved to a tone on the “same” degree but from another group and of course, in the same voice. In Example 8, that would be the tones G (8/9) and Bb (20/27) from the inversion of the dominant minor parallel (the one with the tension b9 and with the root on the 2nd degree) resolving to the tones G (9/10) and Bb (3/4) from the subdominant minor parallel.

Examples 9, 10, and 11 are parts of the composition *Autumn Fantasy of Martin the Mouse*. In Example 9, DSS is achieved through alternation of 8/9 and 9/10 in the left hand.

dominant group (F)

Analysis

263

Gm9

Piano

subdominant group (F)

265

Gm7(9)

Example 8: Ščekić's 23.10, mm. 263–66 with harmony analysis

Analysis

Piano

Example 9: Ščekić's Autumn Fantasy of Martin the Mouse, with harmony analysis

According to Example 6, the chords from Example 10 belong to the free chord group structure because there are seven tones in the chord group. Since all of the tones are played simultaneously (Ped.), this chord group produces the third type of the syntonic shift, that is, simultaneous syntonic shift (SSS).

Example 11 belongs to the 3<sup>rd</sup> order harmony as well. Chord group C7 has tones from both groups, dominant and subdominant. The free chord group from the last two bars in Example 9 consists of the root, major third, perfect fifth, and dominant seventh of the 5/9 but also of the syntonic comma lower perfect fifth and syntonic comma lower dominant seventh of 9/16. With regards to the central tone F, that would be the following tones: 9/10 and 3/4 from the subdominant group and 8/9 and 20/27 from the dominant group. This is again the third type of syntonic shift since the interval of syntonic comma is achieved simultaneously (SSS).

3rd order harmony - free group

118 *A7*(#9; b9; #11)

Analysis

Piano

Ped.

Example 10: Šćekić's Autumn Fantasy of Martin the Mouse, mm. 118–119  
with harmony analysis

3rd order harmony - free group

128 *C7*

Analysis

Piano

Ped.

F# = G  
Cb = Bb

Example 11: Šćekić's Autumn Fantasy of Martin the Mouse, mm.  
128–130 with harmony analysis

The sounds of the DSS and SSS are so characteristic that they can be used only in order to make an accent on the shift itself. An example of that kind of use of syntonic shift can be found in *E majors Study #1*. The study is written for four pianos or keyboards where each is tuned in a different way. This provides a wide range of pitches within 5-limit intervals. Example 12 shows a palette of the pitches that can be achieved with four pianos or keyboards

with sharps and flats as introduced in example A. There are five different pitches for tone E in *E majors Study #1*.

G <sup>♯</sup>	E <sup>♮</sup>	C <sup>♮</sup>	A <sup>♭</sup>	E <sup>♮</sup>	C <sup>♮</sup>	
D <sup>♯</sup>	B <sup>♮</sup>	G <sup>♮</sup>	E <sup>♭</sup>	B <sup>♮</sup>	G <sup>♮</sup>	
	F <sup>♯</sup>	D <sup>♮</sup>	B <sup>♭</sup>	F <sup>♯</sup>	D <sup>♮</sup>	
	C <sup>♯</sup>	A <sup>♮</sup>	F <sup>♮</sup>	C <sup>♯</sup>	A <sup>♮</sup>	F <sup>♮</sup>
	G <sup>♯</sup>	E <sup>♮</sup>	C <sup>♮</sup>	A <sup>♭</sup>	E <sup>♮</sup>	C <sup>♮</sup>
		B <sup>♮</sup>		E <sup>♭</sup>	C <sup>♭</sup>	G <sup>♮</sup>
				B <sup>♭</sup>	G <sup>♭</sup>	D <sup>♮</sup>
				F <sup>♮</sup>	D <sup>♭</sup>	A <sup>♮</sup>
					A <sup>♭</sup>	E <sup>♮</sup>
						C <sup>♮</sup>

Example 12: A 5-limit lattice with a choice of 42 different tones per octave for *E majors Study #1* for four pianos in 5-limit just intonation

The first pitch for tone E is the one on the top of the second row (from left to right). The second pitch for tone E in the third row is a syntonic comma higher. The third pitch for tone E in the fifth row is a diaschisma higher, an interval of 2025/2048. The fourth pitch for tone E in the sixth row is a syntonic comma higher, and the last pitch for tone E in the seventh row is again a syntonic comma higher. This range of pitches provides enough space for exploring all cases of syntonic shift within the five limit interval harmonies of the 1<sup>st</sup>, the 2<sup>nd</sup>, and the 3<sup>rd</sup> order. The main subject of *E majors Study* is to explore the shift of one tone within the chord and the pitch shifting of the whole chord or tonality, achieved gradually through the chord progression and instantly through the direct syntonic shift.<sup>2</sup>

2 A video clip of *E majors Study #1* with sound and animation of chord progression within a 5-limit lattice is available at: <https://vimeo.com/55660995>.

**Rytis Mazulis**

## **Structural Cycles in My Microtonal Compositions**

### **1 On the question of structural cycles**

While composing I usually search for some structure, a rule according to which the musical material may be arranged in a structural order to create a structural cycle. I should say that the process of composition for me is rather a creation of a “rule” instead of just writing notes and successions of notes or chords. Creating an “order of creation,” a principle that ensures the arrangement of different musical parameters, is a problem that I generally manage in my task of composing. After a structural rule is discovered, the formal decision of composition may suddenly come in one moment. Nevertheless, it sometimes takes an enormously long time to discover.

Some features are constantly used by me as “structural rules.” Cycles of repetition of musical segments (*Twittering Machine*, 1984–1986), perpetual or spiral canon models (*Sybilla*, 1996), and permutation cycles may be mentioned (the latter will be discussed below). During the last decade, I have been especially interested in microstructural composition, taking into account only two musical parameters, that is, pitches and rhythm. In the field of pitch my approach to intervals smaller than a semitone is based on equidistant division (see the analysis of *Form is Emptiness* below). Analogically, the extraordinary short durations, as well as the microrhythmical and polytemporal constructions that sometimes result, attracted me.

In general, typical technical means of my composition are cycles of proportional or mensural canons. I may develop ideas of symmetry and infinity in musical form, searching for palindromic structures or structures based on fractal symmetry and self-similarity (*Cum essem parvulus*, 2001, and *Ex una voce*, 2004).

### **2 The idea of subdivision of the octave into 360 particles**

Series of my works produced in the period 1999–2006 exploited the subdivision of a tempered semitone or octave into numbers of equal parts. In *Talita Cumi*, a sound installation for voice and electronics (1999), the tempered semitone is divided into especially small parts, spacing 30 notes inside it (consequentially the size of each microinterval is around 3.33 cents).

The musical process in *Talita Cumi* is limited within an extremely narrow space: rows of microtones are built inside of 3 semitones (F–F#, G#–A, and B–C).

Reviewing my vocal music, Polish musicologist Jan Topolski offers the idea of extending the microtonal scale into a range of an octave.<sup>1</sup> Thus, there may be 360 different sounds within the octave (30 sounds within each of 12 semitones). I was likely pushed by Topolski to create a musical system with 360 sounds in an octave in my recent composition *Form is Emptiness* (2006) for 12 voices, cello, and electronics. All pitches written down in succession give an impression of an extremely long microtonal scale, ascending from C to C#, D, D#, E, etc. (see Example 1). A notable feature of the scale is that every sound is *different* from another, and therefore we have a succession of 360 *different* unrepeated pitches.

### 3 The idea of permutations

In such works as *Talita Cumi* for voice and electronics (1999), *Canon mensurabilis* for 6 instruments (2000) and *Musica falsa* for 4 bassoons and electronics (2006) I have used the technique of permutations as an arrangement of elements in a row (a set) of microtones. This serial procedure is conducted according to Messiaen's interversion technique: the order of the succession of sounds in the row is changed, and new constellations of the same row appear. In *Form is Emptiness*, with the use of Messiaen-like interversions, the row is presented in "en éventail ouvert, du centre aux extremes" (from center, sideways).

There is a difference between the permutation technique used in my previous works and those in *Form is Emptiness*. The question is if a single note or either *group* of neighboring sounds from the row will be considered as a structural element (unit) to be affected by permutations. In *Form is Emptiness* the system of pitches comprises 360 notes, and the row is very long. That's why I decided to consider the elements of the row as *groups* composed of different numbers of notes. I adopted a simple rule for the multiplication of notes, and the elements are:

1<sup>st</sup> note; 2<sup>nd</sup> and 3<sup>rd</sup> notes (2); 4<sup>th</sup>, 5<sup>th</sup>, and 6<sup>th</sup> notes (3), etc.

We may add one more note to each new group, and finally there is the longest group, which consists of 19 notes. After that, the groups are gradually shortened:

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1 More see: TOPOLSKI, Jan. 2005. "Talita cumi. Cum essem parvulus." *Kultūros barai* 10: 40.



Example 1: Mažulis's Form is Emptiness (2006), numbers above the notes indicate that series of notes are higher in 10.0; 13.3; 16.6 cents, etc.

As a result, there are, in total, 36 elements in the row.

The permutation in *Form is Emptiness* was executed without mathematical severity. I simply made a sketch on a page with the microtonal 360-sounds row (see Example 2). Rather, there is a pass from the center of the page to the margins, jumping from one stave to another, groups of notes chosen in succession or sometimes in broken order (the arrows show the way to pass from the preceding group to the next one, etc.). Everything seems to be done in a spontaneous and intuitive way, and that's why the moment of composing this stuff was so curious for me. Finally, the result is a presentiment of the same aggregate of 360 sounds, without repetition of any pitch (every sound appears only once during the whole piece; see Scheme 1).

#### 4 Rotation of the prime form of the row

The resulting constellation of 360 sounds is presented in the work as a basic (prime) form of the structural row (see Example 3). In order to get 6 forms (according to the required arrangement for a chamber vocal group, with 6 female and 6 male voices) I accomplished a *rotation* of elements within the row: the first prime-form consists of 36 elements in succession, but the 1<sup>st</sup> rotation ( $R^1$ ) results starting with the 2<sup>nd</sup> element, while the first one goes to the very end of the row. The 2<sup>nd</sup> rotation ( $R^2$ ) has a 3<sup>rd</sup> element for the beginning, and the 1<sup>st</sup> and 2<sup>nd</sup> elements go to the end; consequentially the 3<sup>rd</sup> rotation ( $R^3$ ) and 4<sup>th</sup> to 5<sup>th</sup> ( $R^4$  and  $R^5$ ) are derived with the same order (see Scheme 2).

151 (1) – 122-123 (2) – 184-186 (3) – 97-100 (4) – 221-225 (5) – 76-81 (6) – 262-268 (7) – 59-60; 31-36 (8) – 277-285 (9) – 16-25 (10) – 326-330; 301-306 (11) – 337-348 (12) – 169-180; 152 (13) – 121-136 (14) – 197-210; 181 (15) – 92-96; 101-111 (16) – 232-240; 211-218 (17) – 69-75; 82-90; 61-62 (18) – 243-261 (19) – 52-60; 37-47 (18) – 288-300; 271-274 (17) – 5-15; 26-30 (16) – 331-336; 349-357 (15) – 153-166 (14) – 137-149 (13) – 182-183; 187-196 (12) – 112-120; 91; 219 (11) – 220; 226-231; 241-242; 269 (10) – 63-68; 48-50 (9) – 270; 275-276; 286-287; 307-309 (8) – 51; 1-4; 310-311 (7) – 358-360; 150; 167; 219 (6) – 312-316 (5) – 318-320 (4) – 321-323 (3) – 324-325 (2)

*Scheme 1: Mažulis's Form is Emptiness (2006), scheme of permutation*

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26  
27 28 29 30 31 32 33 34 35 36 Prime

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26  
27 28 29 30 31 32 33 34 35 36 1 R<sup>1</sup>

3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27  
28 29 30 31 32 33 34 35 36 1 2 R<sup>2</sup>

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28  
29 30 31 32 33 34 35 36 1 2 3 R<sup>3</sup>

5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28  
29 30 31 32 33 34 35 36 1 2 3 4 R<sup>4</sup>

6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29  
30 31 32 33 34 35 36 1 2 3 4 5 R<sup>5</sup>

*Scheme 2: Mažulis's Form is Emptiness (2006), scheme of permutation*

16 17 18 19 20 21 22 23 24 25 26  
50.0 53.3 56.6 60.0 63.3 66.6 70.0 73.3 76.6 80.0

262 263 264 265 266 267 268  
70.0 73.3 76.6 80.0 83.3 86.6 90.0

326 327 328 329 330  
83.3 86.6 90.0 93.3 96.6

16 17 18 19 20 21 22 23 24 25 26  
50.0 53.3 56.6 60.0 63.3 66.6 70.0 73.3 76.6 80.0

76 77 78 79 80 81 82  
50.0 53.3 56.6 60.0 63.3 66.6

97 98 99 100  
20.0 23.3 26.6 30.0

122 123  
33.3 66.6

151 152  
10.0

184 185 186 187  
10.0 33.3 66.6

221 222 223 224 225  
33.3 36.6 40.0 43.2 46.6

277 278 279 280 281 282 283 284 285  
20.0 23.3 26.6 30.0 33.3 36.6 40.0 43.2 46.6

338 339 340 341 342 343 344 345 346 347 348  
20.0 23.3 26.6 30.0 33.3 36.6 40.0 43.2 46.6 50.0 53.3 56.6

301 302 303 304 305 306  
33.3 66.6 10.0 33.3 66.6

etc.

Example 2: Mažulis's Form is Emptiness (2006), microtonal 360-sounds row

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90

91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120

121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150

151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180

181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210

211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240

241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270

271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300

301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330

331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360

Example 3: *Mazulis's Form is Emptiness (2006)*, constellation of 360 sounds



*J=60*

Soprano 1  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Soprano 2  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Soprano 3  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Alto 1  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Alto 2  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Alto 3  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Tenore 1  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Tenore 2  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Tenore 3  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Basso 1  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Basso 2  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Basso 3  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Violoncello  
*f* *p*  
 Sa - ri - put - ra, em - pri - ness and

Example 4: Mažulis's Form is Emptiness (2006), constructing canon

## 5 Constructing canon

Polyphonic presentation of 6 structural “lines” in 6 vocal parts results in a six-part canon. The “prime” form appears in the upper part, while the rotation forms in the rest of parts (2–6). Starting at the same time, 6 voices are expressed in constantly changing textural relationships. The scheme above demonstrates a gradual shifting of segments from the vertical to diagonal position. Simultaneous overlapping of different segments in 6 parts create a very special harmony, and the quality of “chords” is difficult to explain in structural terms. On one hand, the harmonic shape of the music may be considered as a logical consequence of the linear presentation of the microtonal rows (actually, the same notes and groups of notes appear in different parts, and we may follow the vertical situation in the score, see Example 4). On the other hand, the vertical aspect of music is not under control of the composer: the process is totally based on canonic structure, and harmony is rather a random result of linear development. The physical phenomena resulting from a mixture of different pitches, as a fusion of harmonics, the heterodyning of microtonal pitch spectra, etc. were unexpected for me while listening to the sound first. Though I could not succeed in being in control of the acoustical parameters of sound, only these aspects should be considered as essential features of the harmonic language of the work.

## 6 Rhythm and literary text

The piece is rather a study of the micro-intonation of pitches but not of precise rhythm or tempos. There is no strict synchronization in time between the 12 vocal parts and cello part. Every performer has an individual “pilot track” (made as a MIDI-sequence) with the exact intonation of notes that should be performed. Thus 13 CD players (or a multichannel sound system) should be used for the performance to ensure the possibility of the live performance of the piece.

A well-known quotation from The Sutra Prajnaparamita was used as the literary text in the composition: “Form is emptiness and the very emptiness is form; emptiness does not differ from form, form does not differ from emptiness, whatever is emptiness, that is form, the same is true of feelings, perceptions, impulses, and consciousness.” The words are separated into syllables, and each syllable is fixed to every individual note. To get 360 syllables (as well as notes), very simple calculations allowed me to identify some phrases of the text to be repeated several times.

## **7 Conclusion: spontaneity in the creation process**

Using structural methods for composition does not eliminate intuition and spontaneity. I always need emotional tension during certain moments of my creative work. Finding the right solution to a structural arrangement in a composition may be compared with the status of “enlightenment” that usually comes after long period of searches and endeavor.



**Rytis Mažulis**

## **Composing Microtonal Melody<sup>1</sup>**

When dealing with microtonal music, various problems relating to the composition of melody should be considered. It is important to emphasize that the conception of linearity in microtonal music depends on two factors:

- the role of microintervals in the musical material;
- the perception of applied intervals.

When we are dealing with quarter-tone music based on conventional rhetoric, such as *Three Quarter-tone Pieces* by Charles Ives, traditional notions as melodic shape, linear pattern, or expressive gestures are still valid. However, the effect may be different for a piece composed of much smaller intervals (2 or 3 cents approximately), as in some of my compositions that will be discussed later.

The composer who decides to deal with microtones in their composition should first make a choice whether they will use microtones as a decorative tool or as a structural element. I tend to choose the latter, so in this article I present five different approaches to microtonal melody at the structural level.

The result of the compositional approach and technical means depends on which a particular type of linear model is applied. Basically, these models were not derived theoretically; rather, they were developed by practical experimentation with different compositional means applied to microtonal material. So, my approach is based on my experience and represents various decisions that were required for working on compositions with different ideas and practical circumstances, such as the collection of instruments in the ensemble, vocal or instrumental performance, possible use of electronics, or finally, writing for computer-controlled instruments.

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1 The text was firstly published in the *Principles of Music Composing* collection: MAŽULIS, Rytis. 2015. "Composing Microtonal Melody." *Principles of Music Composing: Phenomenon of Melody* 15: 159–64.

## 1 The roots of my microtonal music

I used microtones for the first time more than 20 years ago in the composition *Tranquility* for vocal ensemble, written in 1992. The piece was written as a four-part vocal canon. A single note repeated many times in ascending and descending course creates extended *glissandi*, with gradual quarter-tone steps. Yet another idea connected with poetic text from Vergilius (*par levibus ventis, volucrique simillima somno*) – the sound (a voice or a flute in the version produced by Italian flutist Manuel Zurria) appears first at the beginning of each note, but for the decay just a breath of air remains.

Starting with *Tranquility* I often have dealt with microintervals using different approaches, but the main principle, subdivision of the octave or tempered semitone into equal parts, remains. Whereas this principle might look artificial, it is also typical for some ethnic cultures, such as Javanese traditional music with the Slendro system. Some contemporary composers also use a similar concept of equal subdivision, such as Silvia Fómina (equipentatonic and equiheptatonic scales), Paweł Mykietyń (the harmonic quarter-tone system), etc.

## 2 Five categories of microtonal melodic models

According to my experience, there are five main categories of microtonal melodic models. I will discuss each of them separately along with five compositions where those structures were generated.

### 2.1 Motif-based structure

The first model is the motif-based structure. It is related to traditional melodic patterns and is perceived as a conventional linear motion in spite of its unusual microtonal alterations. As an example, I would like to show an excerpt from the vocal canon *Sybilla*, written in 1996 (Example 1).

The basic structure of *Sybilla* consists of a simple diatonic scale of d–e–f–g–a–b–c. The melody is constantly transposed upwards, as in a spiral canon (there is also the Latin term *canon per tonos*). However, the initial motif, which is permanently repeated, includes altered notes (the distance of neighboring pitches is three quarter-tones: D – E-quarter-tone-flat – D – C-quarter-tone-sharp; Example 2). These alterations create an interesting

harmonic effect, when 12 parts (6 female and 6 male voices) sound simultaneously. Harmony is the result of the contrapuntal motion.

As the musicologist Gražina Daunoravičienė noted:

*Sybilla* (text by Petronius) for mixed choir or 12 voices was composed for the Gaida Festival. A fragment from the *Satyricon* by Petronius intrigued the composer with its meanings, expressing the cruel absurdity of a feast scene. *Sybilla*, an endless canon moving in a circle, like Mažulis's other spiral canons, was drafted on a one-page score. The initial motif of this canon, a pattern that microtonally envelops the central tone, offered the composer a model for its development: the motif is transposed in a sequence upwards and downwards from the tones of a 'white-key' diatonic scale. By using the consistent timbral progression (female, mixed, and male voices) Mažulis shapes a palindrome of variable density. (Daunoravičienė 2004, 91)

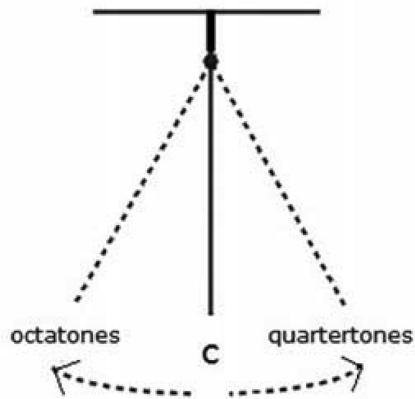




Example 2: Mažulis's *Sybilla* (2015), initial motif

## 2.2 Pendulum motion

The second model, a pendulum motion of melodic line, may be illustrated with the computer music piece *Palindrome*, produced in 1996 (Example 3). The melody was created as a pendulum, starting with the central tone and swinging to the left and right. The amplitude constantly increases and gradually covers the octatone and quarter-tone scales. Therefore, the single melody encompasses both scales, which permanently alternate with each other. In the process of composition, after the melody was created, the second step was to construct a polyphonic texture, applying the canon technique. The symmetrical concentric form corresponds to the palindrome structure, and the piece may be performed in a retrograde motion without any changes, achieving the same result.



Example 3: Mažulis's *Palindrome* (1996), a model of melodic line

## 2.3 Microphonic contour

The third model concerns the microphonic contour, which includes hardly comprehensible changes of small microintervals. In some of my compositions some very small intervals are exposed. For example, in *Schisma* for cello

and electronics (2007) we find different intervals from 2.04 cents to 4.16 cents; and in *Form is emptiness* 3.33 cents. The composition that I would like to offer now is *Talita cumi*, where a semitone is divided into 30 parts and the resulting intervals are also of the same size, that is, 3.33 cents.

Regarding the perception of this music, musicologist Helga de la Motte wrote:

Music to Rytis Mažulis also means a symbol which rests beyond its concrete shape of a sound structure. Here the magic of composition owes its birth to the conversion of an abstract image into a concrete sound result. The listener seems to be given a chance to decide whether to immerse himself into a meditative contemplation or to focus attention and to follow a subtle change of microintervals. Having chosen the latter way, he will discover with astonishment how hardly noticeable intervals, which seemed to be not felt by the ear – just a noticeable difference – become clear and heard. Thanks to the spell of music, he will experience his own changing perception together with music. (de la Motte-Haber 1999)

The term “microphonic” refers to Gérard Grisey and his discussion of the liminality of music, which considered sound phenomena that approaches the boundaries of perception (Rose 1996). There are also scientific terms that refer to the smallest changes of the pitches a person is able to detect. According to Donald Hodges and David Sebald, the Just Noticeable Difference (JND) can be from 0.5 to 4 Hz, depending on the frequency level (Hodges and Sebald 2011, 117). For me, it is important that a melody composed in such a scale may be considered as a linear phenomenon and be perceived as a succession of different individual pitches. nevertheless, it depends on a listener’s approach and the ability to follow the micro-events.

## 2.4 Gliding notes

The next model is a gliding notes technique. It is based on the application of extended *glissando* passages for the whole composition, in which the *glissando* gestures are not decorative; they are strictly structuralized elements. As an example, let us analyze the excerpt of my composition *ajapajapam*, written in 2002 (Example 4).

To Latvian Radio Chamber Singers and Chorus Quartet  
**ajapajapam** Rytis Mažulis (2002)

Example 4: Mažulis's *ajapajapam* (2002), *glissando* texture

The idea was to create a melodic *glissando* pattern and to extend it in time until the duration of around 35 minutes was reached. The result is an extremely slow and static process, when the melody descends, covering an interval of a minor sixth. However, the downward movement is hardly noticeable because of the extremely slow tempo. The polyphonic texture consists of six structural lines. The intervals of time among them produces a canon, with constant delay, which results in overlapping of the *glissandi* patterns. The harmonic parameter is very important for the listener because the microchromatic clusters permanently rotate and generate various sound spectra. The linear process in this composition cannot be perceived as a row of different or individual intervals. It is rather an endless note that multiplies into the polyphonic layers of sounds.

## 2.5 Resulting patterns

The last model of microtonal linearity represents the resulting patterns. They occur in cases when the melodic pattern is not “composed” as a line, but

results from the interaction of various structural parameters, such as pitches, rhythm, harmony, and texture. For example, in the composition for chamber ensemble *Canon mensurabilis*, written in 2000 (Example 5), the quarter-tone rows were applied with different forms of transpositions and interversions. The serial procedures were also adapted to the organization of rhythm. The successions of different durations, or mensurations were presented in different parts, following the proportions of 6 : 5 : 4 : 3 : 2 : 3 and so on. The application of quasi-serial technical means, together with the constant crossing of parts in the similar register, results in an “artificial” linearity. There is a pseudo-melody, which was not created intentionally. It is a result of the whole complex of structural factors.

### 3 Conclusions

In conclusion, I would like to add that the final result of a microtonal composition strongly depends on purely practical moments, like instrumentation. If we write for strings, woodwinds, or voice, in general, for instruments with natural tuning, we could not expect complete accuracy in microtones. Even strictly calculated and structured material may sound like falsely intonated pitches. Therefore, the result may be negative. In this case, a more reasonable solution is to pay more attention to sound colors, polyphonic textures, and sound layers.

However, if it is important to get a clearly audible result of individual pitches, we should choose instruments of fixed tuning, such as a piano, which might be retuned, like in *Canon mensurabilis*, or *Canon fluxus* (2008), as well as harpsichord (*Monad*, 2006) or synthesizer (*Talita cumi*).

Trying to synthesize both approaches, I used to duplicate the material that is performed by human beings with an electronic/computer part, which presents the same sound material. In this case, it performs the microstructures precisely. On the other hand, live musicians perform approximately, but they give live spirit to the performance.

Finally, because almost all of my compositions are canons of various kinds, there is always a basic principle: to derive everything from a single melody. (As the Latin *regula* says, *ex uno segmento totem operem deducere* [to derive all piece from one segment].) Therefore, for me, it is very important to create a melody. That is the first step in my process of composition.



The image displays a musical score for Example 5: Mažulis's Canon mensurabilis (2000), quarter-tone rows. The score is arranged in three systems, each containing staves for Flute, Clarinet in Bb, Violin, Viola, Violoncello, and Piano. The music features quarter-tone rows and is marked *pp sempre, non legato*. The first system includes a tempo marking of  $\text{♩} = 64$ . The second system includes a measure number of 6. The third system includes a measure number of 12. The piano part features a complex rhythmic pattern with many sixteenth notes.

Example 5: Mažulis's Canon mensurabilis (2000), quarter-tone rows

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**Tomaz Svete**

## **Ekmelic Music in Slovenia**

Since 1970 an essential part of the research work by Rolf Maedel and Franz Richter Herf at the Institute for Basic Musical Research at the Mozarteum in Salzburg was dedicated to the examination and systemisation of microtones. The results are called ekmelic music, a system basing on a 72 division within an octave. Franz Richter Herf's intention was not only to create a system, opening a wide range of possibilities for composing in a new way, but also to create some examples in the field of compositional techniques that would be useful for future generations of composers.

Franz Richter Herf (1920–1989) is considered to be a leading composer of ekmelic music. He and Rolf Maedel (1917–2000) are also theorists and founders of the 72-step ekmelic tone system. In 1991 I became familiar with the basics of ekmelic music, visiting the Institute for Basic Musical Research under the leadership of Horst-Peter Hesse (1935–2009). One of his main ideas was to consider chord constructions within the 72-step system, based primarily on the “ad infinitum” overtone scale as consonant or dissonant. Actually, this should be referred to as “chords with concordance or discordance impact”, while the term “consonant or dissonant” should be used only in relation to traditional music practice based on equal temperament. From that point of view, there are at least two types of chord construction, resulting in the concordance impact: the first one, based on the arithmetic progression of overtones (8:11:14:17:20:23:26 etc.) and the second one, based on the geometrical progression of the overtone row (8:13:21:34:55:89 etc.), which is called the golden section ratio.

Also in 1991 I wrote my first work on the ekmelic tone system called *Ein komplizierter Engel* for soprano and string quartet based on a text fragment of Dante's *Inferno*. The major dilemma of including the use of microtones into the musical context seemed to be at the very beginning the practical view of performance of new works. First of all, composers using other, uncommon tuning systems should cooperate with musicians and ensembles specialized in that kind of music. The first performance of that piece in Salzburg in 1991 came through a cooperation between ÖENM (Österreichisches Ensemble für Neue Musik) and IGEM (Internationale Gesellschaft für Ekmelische Musik) in Salzburg.

As a member since 1991, its artistic adviser and a member of IGEM's executive committee, I basically no longer have problems concerning the possibility to perform new work written in the ekmelic tone system. The main aim of IGEM is to perform the works of its members and to encourage the further recognizability of ekmelic music. Today, we have enough musicians specializing in the performance of microtonal music. On the other hand, practically every music instrument – except piano or some idiophones – is able to produce microtones. Woodwinds and brass can produce microtones through special finger techniques or through lip techniques; guitar and harp can do so through the use of special scordaturas. String instruments in general access a wide spectrum of possibilities for playing microtones and microintervals, but indeed it takes a lot of practice to achieve a satisfying level of exact playing of microtones and their relations, while strings don't have frets, like, for example, guitar.

Ekmelisch-Spektral, a concert that I have initiated and took place on January 23, 2017 in Vienna, was a cooperation between IGEM and ÖGZM (Österreichische Gesellschaft für Zeitgenössische Musik or the Austrian Society for Contemporary Music) with works from Richter Herf, Johannes Kotschy, Violeta Dinescu, Tomaž Svete, Tristan Murail, and Dimitris Mouras. This concert informed me about that problem in a different way. The performers, a string quartet from the Ensemble Reconsil, without doubt specialize in contemporary music and are even familiar with microtonal works in general, but they didn't play any work in the ekmelic tone system like Richter Herf or Kotschy until then. They performed all works, including the ekmelic pieces, sovereignly, without any bit of insecurity or question according to the practical performances of ekmelic microtone relations.

For practical reasons we should prefer, however, to choose a chamber music cast composing with microtones. But my next work after *A complicated angel*, which was *Requiem* for a great orchestra, two instrumental ensembles, two choruses, soprano, alto, tenor, and bass baritone, commissioned by Austro Mechana and performed in Prague on December 7, 1991, was partly written in the ekmelic tone system. Of course, in that work I included all possibilities of playing microtones, preferring the use of special scordaturas on harp and guitar.

Concerning to the question of singing microtones and unusual intervals, it should be recommended that they be integrated very carefully into the compositions. A singer can take a special intonation from a single instrument, but it is also possible to sing ekmelic tone relations without

any instrumental support. Hitomi Akiyama, who sang a few of my compositions in the ekmelic tone system and Paulette V. Herbich, Herbert Druml, and Bernhard Halzl, the performers of *Requiem*, acknowledge that argument. Gertraud Steinkogler-Wurzinger (b. 1958), the long-standing president of IGEM, professor at the Mozarteum in Salzburg, composer, and singer is renowned for singing ekmelic music as a soloist or with her Belcanto Chorus.

*Quartettino d`archi* (1992) was still composed in the ekmelic tone system, but afterwards I struggled to find a new tone system according to the new stylistic orientation. I supposed that many possibilities that we strive to discover in one very complicated and artificial way are already available in foreign musical cultures such as Arabic or Indian musical practices. Cantata *Sacrum delirium* (1<sup>st</sup> prize for Composition competition in Gorizia, Italy, 1994) is based primarily on the use of quarter-tone scales like in Arabic music.

*Candor est lucis aeternae* (2001), a spiritual motetto for soprano, flute, and harp using special scordatura on harp, first performed at the Mozarteum in Salzburg the same year, seems to be a microtonal work but not written in the ekmelic tone system. *Mystics* for two harps (1999), performed for the first time in 2016 in Vienna (the 2<sup>nd</sup> and 3<sup>rd</sup> movements), uses a wide spectrum of microtones and rich combinations of colours in the way of a “super-harp.”

*Lilium pedibus detruere* (2009) for clarinet, saxophone, guitar, and piano combines elements of the ekmelic ton system with special playing techniques like multiphonics and other sound effects on woodwind instruments.

A return to the roots of ekmelic music was realised in *Deux aquarelles écméliques* for flute, viola, and harp, first performed in Salzburg in 2010. At the very beginning of the piece, the initial row of tones, “a sort of an Arabic scale,” moves into a vertical position, forming a chord construction according to the overtones 8:11:14:17:20:23 (Example 1). In the second movement, I used principles of overtone spectrums of metals (*La lune et la guillotine*) researched by the composer and theoretician Kurt Anton Hueber (1928–2008), a long-standing member and the president of IGEM.

*L’après midi d’un grillon* (2014) for violin, violoncello, and guitar with special scordatura must be considered a continuation of the tradition of ekmelic music and of a compositional work of Franz Richter Herf.

Handwritten musical score for 'Deux aquarelles écéméliques' by Svete. The score is written on multiple staves. The top staff is for Flute (Fl) with dynamics like 'f', 'cresc.', 'ff', and 'poco rit.'. The second staff is for Viola (Vla) with dynamics like 'f', 'mf', 'mp', and 'ff'. The third staff is for Viola (Vla) with dynamics like 'mf', 'cresc.', 'mp dolce', and 'cresc.'. The fourth staff is for Viola (Vla) with dynamics like 'm.d.', 'm.g.', 'p', and 'pp'. The fifth staff is for Viola (Vla) with dynamics like 'm.g.', 'p', and 'pp'. The sixth staff is for Viola (Vla) with dynamics like 'm.g.', 'p', and 'pp'. The score includes various musical notations such as slurs, accents, and dynamic markings.

Example 1: Svete's *Deux aquarelles écéméliques* (2010), fragment of the score

## Conclusion

Asking myself if there exists any influence of ekmelic music in Slovenia, I could hardly respond in a positive way. First of all, I should be considered the

only representative of that musical style among Slovenian composers; further, all my activities in the field of microtonality are bound up into the activities of IGEM and the Austrian musical cultural area. The only work including microtones through special scordatura on harp that was not performed or initiated through IGEM is my 10<sup>th</sup> opera, the chamber opera *Ada* performed in Ljubljana in the 2017/18 season. Of course, I initiated some guest performances and concerts with ekmelic music in Slovenia, but there have been no noticeable results of those efforts. The area of microtonal music, in the first line ekmelic music, should be seen as an important part of my compositional oeuvre, but not the only one.

It is not the object of our observation, but if we ask ourselves about the use of microtones and microtonal systems, there are obviously some Slovene composers using them. At the moment, we can just say “we guess,” or “we suppose.” The task to research microtonality in Slovenia should be temporarily considered as an object of upcoming investigation.





### **III.**

# **FROM THE HISTORY OF MICROTONAL MUSIC IN CENTRAL AND EASTERN EUROPE: ALOIS HÁBA AND HIS SCHOOL**



**Vlasta Reittererová, Lubomír Spurný**

## **Alois Hába: A Poet of Liberated Music**

Alois Hába (21 June 1893, Vizovice–18 November 1973, Prague) entered Czech musical culture at a time when the “lived inheritance of folklore” had come to be recognized as something of genuine potential value for high culture. Attempts at the authentic expression of musical roots no longer meant a degrading provincialism, as had still to some extent been the case when the Czech musicologist Zdeněk Nejedlý (1878–1962) expressed highly critical views of the work of Leoš Janáček and Vítězslav Novák. When another Czech musicologist, Vladimír Helfert (1886–1945) in his book *Česká moderní hudba* (Czech Modern Music) (1936) tried to define Hába’s place in the evolution of Czech music, he praised the positive significance of the composer’s folklore inspirations. Helfert believed that in Hába, after Janáček, the Czech musical scene had acquired a composer whose starting point was not romanticism and whose sensibility was partly defined by his origin. Some passages in Hába’s music have an undeniable similarity with Eastern Moravian melodic types, but Hába does not falsify folklore or demean himself by trying for the required “folky” effect, that is, the admixture of the “folk” remains something more essential than contrived. Although regional roots play an important role in Hába’s music, the composer never imitates or parodies folk music. As one of the most radical representatives of the Central European aesthetic avant-garde between the wars, Hába expressed his individual style by drawing on the well-springs in the sense of his own lived experience of folklore but then reformulating this inspiration at the most universal levels – microtonality, athematism, and modality.

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Alois Hába was born in Vizovice in Moravia into the family of a folk musician. In this region he was able to experience folksong and music in its authentic forms, and his theoretical and biographical writings often allude to folk inspirations as a unique and major source of his original work as a composer. In the autobiographical sketch *Můj lidský a umělecký vývoj* (My Human and Artistic Development), which by his own dating was written at Christmas in 1942 (printed in 1993), and later in the text *Mein Weg zur Viertel- und Sechsteltonmusik* of 1971, he stresses the importance of inherited musicality, gradual acquaintance with the traditions of artificial classical music and

then the further development of his own original musical language, that of “liberated music.”<sup>1</sup> With the caveat that this is a necessarily stylized picture of his own search for artistic identity, we have no reason not to believe him. We can also take his account of his life as a more general contextual commentary on the advantages and shortcomings of “peripheral” culture in relation to the culture of “the center.” Wallachia and Slovácko, which by his time were permeated by various different levels of musical culture, provided the necessary dose of authenticity but at the same time the necessary degree of knowledge of “serious” artificial music. As Hába himself insisted at many points, practical “music-making” in his father’s ensemble and his first-hand contact with folk music was of essential value for him. For example, he recalls that:

At dance entertainments and folk festivals we used to play not only composed dances but also dance songs that the dancers would sing for us to copy and follow immediately. Some of the folk musicians still knew how to perform in the old-fashioned way, that is, to sing with ornaments deviating from the usual semitone system. These people would want us to play them just as they sang them, which meant we had to “catch” unusual intervals, mainly on the violin. My perfect pitch made it easier for me, but it didn’t always work to the full satisfaction of the singer-dancers. Once, in Vsacko I think it was, the singer, a lad built like a mountain, wanted to smash our bass with a two-liter glass because I didn’t manage to play his song on the violin the way he sang it. He really scared us. Afterwards at home we learned the different intonation deviations of the folk singers. (Hába 1942 in Vysloužil 1993, 50)

If we want to explain the principle of the qualitative transformation of folklore roots in Hába’s life, however, we need to find the point at which he started to cultivate and develop this inherited element. In this context it will suffice to consider the tradition of the “culture of the center” which Hába both accepts and rebels against. His journey from the periphery of the Eastern Moravian region, which led through teacher training college in Kroměříž (1908–1912) and a short period of work as a teacher in

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1 This expression appeared for the first time in Hába’s article “Casellas Scarlattiana – Vierteltonmusik und Musikstil der Freiheit” (Hába 1929). The phenomenon *Musik der Freiheit* is one that invites connection and comparison with a number of theoretical concepts of the Central European avant-garde that explicitly appeal to forms of aesthetic liberation. If Hába’s liberated music is often taken to mean the possibility of free treatment of sound material, its technical side is often associated with the expressions *microtonality* and *athematism*.

Bílovice in Slovácko (1912–1914), took Hába first to Prague (1914–1915), then to Vienna (1917–1920) and to Berlin (1920–1923). In his case the progress through important centers of European culture genuinely corresponded to the artistic “progress” of the young composer on his “journeyman travels.” Studies with Novák and Schreker in Prague and his Berlin meeting with Ferruccio Busoni were undoubtedly important moments in Hába’s artistic growth. Apart from new experience and knowledge, however, what he acquired above all was the hallmark and reputation as a noteworthy innovator and propagator of the new avant-garde trends. In the spirit of the collective creed of the young avant-garde generation, Hába both joined the current of the most contemporary modern movement and at the same time increasingly developed his specific creative identity.

Hába’s first real teacher of composition was Vítězslav Novák (1870–1949). Hába joined Novák’s master course in 1914 without having graduated from the conservatory. Hába studied with Novák for just under a year. In this short time, he mastered the rules of compositional technique and crowned his studies with the composition Sonata for violin and piano, Op. 1. Successful completion of his studies paved the way for the young Hába to enter Prague cultural life, but on the day of his twenty-second birthday he had to give up this promising prospect and join the Austro-Hungarian army. He spent the first years of the war on the Russian front, from where he was recalled to Vienna to organize a collection of military songs for army purposes with Felix Petyrek (1892–1951) and Béla Bartók (1881–1945) (more see: Andreska et al. 2015).

His first contact with radically innovative ideas in new music can clearly be dated to January 1917, and in this case precise dating has considerable explanatory value. Towards the end of January Hába, as a student of the Vienna Officers’ School, attended a performance of the opera *Die Schneider von Schönau* (1916) by the Dutch composer Jan Brandts-Buys (1868–1933) and at the same time read in the Viennese press about a showcase evening of quarter-tone music by the German composer Willy von Möllendorf (1872–1934) held in the *Tonkünstlerverein* in Vienna. Immediately after the opera visit, Hába, keen to compose similar music, wrote to Brandts-Buys asking for lessons in composition. Brandts-Buys was too busy to agree, but on his recommendation Hába was taken on for a while as a pupil of the important Viennese musical theorist Richard Stöhr (1874–1967), who trained him in harmony and strict counterpoint.

The encounter with quarter-tone music was fateful for Hába's future orientation as a composer despite the fact that he only learned of the Möllendorf evening second hand through a newspaper article:

In 1917 I read in the German music magazines that W. Möllendorf was campaigning for the introduction of the quarter-tone system. It was the most progressive idea for the further development of European music. I realized that with my experiences of Eastern Moravian folk singers I had a firm melodic foundation for the creation of quarter-tone music. (Hába 1993, 51)

In Hába's case the desire for originality was combined with the attempt to preserve the riches of the culture from which he came. Hába first tried out his idea of "unusual music" in February and March of 1917 in his unfinished *Suite* in the quarter-tone system in three parts. The piece remained incomplete in a piano part. In the same year he also composed the orchestral *Ukrainian Suite*. He included neither in the numbered list of his works. In 1918 Hába entered the Vienna Akademie für Musik und darstellende Kunst as a private student in the class of Franz Schreker (1878–1934). Under Schreker's expert supervision, he composed his first numbered works, Sonata for piano, Op. 3, String Quartet No. 1, Op. 4, Overture for large orchestra, Op. 5, and Six Piano Pieces, Op. 6. The last two pieces in particular are excellent demonstrations of how perfectly Hába mastered the traditional craft of composition. The piano pieces also reveal an attempt to use the up-to-date compositional techniques expounded, above all, by the Schoenberg School. In the spring of 1920, Hába presented his teacher with his first quarter-tone String Quartet, Op. 7. Schreker greeted the work with amazement<sup>2</sup> but recommended the piece for publication by the renowned Vienna publishing house Universal Edition. The new work was then rehearsed under Hába's direction by the Havemann Quartet and presented in Berlin in the autumn of 1921.

In the autumn of 1920, Franz Schreker left for Berlin to take up the position of director of the Berlin Staatliche Hochschule für Musik. His most faithful students followed him, including Alois Hába as well as, for example, Ernst Křenek (1900–1991), Max Brand (1896–1980), Karol Rathaus (1895–1954), and Jascha Horenstein (1898–1973). Berlin, where Hába lived from mid-1920 to Easter 1922 and with intervals until the summer of 1923, was another decisive stage in Hába's life.

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2 Franz Schreker: "Was? Vierteltonstreichquartett? Mensch, sind Sie verrückt geworden?"

He arrived in Berlin as a self-confident composer already beginning his career but nonetheless still in the process of finding his own expressive language. Although he faced financial problems in Berlin, a major center overflowing with important protagonists of the avant-garde in all branches of culture, it offered him a golden opportunity for contact with the latest artistic movements.

Here Hába found another element that was to be one factor determining his “liberated music” in the future: this factor is athematism. The first of his works using this technique are the quarter-tone *Fantasia* for solo violin, Op. 9a, and *Music* for solo violin, Op. 9b, the quarter-tone String Quartet, Op. 12, *The Choral Suite*, Op.13, the quarter-tone String Quartet, Op. 14, and the sixth-tone String Quartet, Op. 15. Their experimental quality apart, even after many years these works remain a clear confirmation of the composer’s exceptional creative powers. A striking feature of this period is his attempt to exploit the new tone systems to their fullest potential. Hába embarked on new music with panache and enthusiasm, and if some attributes of his style were later to be singled out as typical of his work, they originated in this period. In the years 1923–1927 he wrote the majority of his pieces for quarter-tone piano, among them five suites and ten fantasias. The character of this period as one of maximum technical innovation is underlined by the fact that between the Suite for piano, Op. 10 (1923), and his *Fantasia* for cello and quarter-tone piano, Op. 33, with one exception, Hába wrote no pieces in semitones. Hába also contributed to the invention of new instruments. For example, he designed a three-manual keyboard for quarter-tone harmonium and piano. On his suggestion the company August Förster realized construction of a quarter-tone piano in 1925. The same company constructed a quarter-tone and sixth-tone harmonium (1927). Then, together with Artur Holas, Hába constructed the mechanics for a quarter-tone clarinet. The firm V. Kohlers Söhne in Kraslice (Graslitz) started to manufacture a quarter-tone clarinet in 1924. (At first it was made from German parts, but from 1931 on, it used French parts.) At the end of the 1920s the Dresden firm Fr. A. Heckel manufactured a quarter-tone trumpet for the performance of the opera *Mother*, Op. 35.

In Hába’s case we can clearly identify the motives that led the young composer to consider athematism or microtonality to be important compositional techniques. Berlin offered Hába a wide range of opportunities to pick up new ideas that would then form part of the theoretical background of his liberated music (*Musik der Freiheit*). Among the composers who inspired him, one frequently mentioned in the literature is Ferruccio Busoni (1866–1924).

In Berlin Hába encountered Busoni's ideas in the second, reworked edition of his book *Sketch of a New Aesthetic of Music* (*Entwurf einer neuen Ästhetik der Tonkunst*, 1907, 1916). In wider musical circles, Busoni had the justified reputation as a leading supporter of microtonal music (and new music in general), but in fact he was extremely hostile to quarter-tone music, seeing the third-tone and sixth-tone system as far more natural and promising for future use. Busoni's views eventually inspired Hába to compose his sixth-tone String Quartet, Op. 15.

Hába's apprenticeship years, which culminated in Berlin, were something he could capitalize on at home, where many of his experiences acquired the attractive hallmark of complete novelty. In 1923, therefore, Hába returned to Prague for good. He started to teach at the Prague Conservatory in the same year and in 1925 managed to persuade the school authorities to allow him to open a class in quarter-tone and sixth-tone composition. In 1934 he was made a regular professor there.<sup>3</sup>

Hába's class soon became world renowned. In addition to Czech and Slovakian students, it was also attended by Germans, Poles, Turks, Egyptians, Ukrainians, Yugoslavs (Serbs, Croats, and Slovenes), Bulgarians, Lithuanians, and Danes. Hába nurtured several students who also attempted compositions in micro-interval systems, while others at least partially took over the principles of non-thematism (from the standpoint of micro and macro form) and tone centrality. Among the most well-known were his brother Karel Hába (1898–1972), Karel Ančerl (1908–1973), Rudolf Kubín (1909–1973), Václav Dobiáš (1909–1978), Miroslav Ponc (1902–1976), Karel Reiner (1909–1979), Slavko Osterc (1895–19419), Milan Ristič (1908–1982), Konstantin Iljev (1924–1988), Ljubica Marić (1909–1993), Necil Kazim Akses (1908–1999), and Jeronimas Kačinskas (1907–2005). All Hába's students from this period gained composition education from other teachers and came to Hába in order to learn about new methods of contemporary music.

Participation in Hába's courses was facultative within the study at the conservatory, and its participants received a certificate of completion. Since the amount of money specified for the running of the department required that a determined number of students frequent the course for a specified period of time, the period of study was determined to be one year. In many cases, however, on Hába's intercession, the period of study was extended. In his seminars, Hába introduced his students not only to the methods of his own

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3 About the "Hába 'School'" see Očadlík 1930/31, 308–11 & 1934/35, 53–4. The theme of Hába's composition class was thoroughly discussed by Vysloužil 1974. The same author then published also in 1993, 30–2. See also Reittererová 2005; Spurný 2010.



composition work, with the specific poetics of “liberated music,” but he also attempted to pass them some of the theoretical points from accomplished masters of central European modernism. Hába’s competence in this field is, for that matter, evidenced by the author’s theoretical work, especially his two theories of harmony (Hába 1927 and 1942–43).

The first years following Hába’s return to Czechoslovakia were by no means easy. Probably the most serious difficulties were associated with the reception of his microtonal work. While in the Prague German Verein für musikalische Privataufführungen (Association for the Private Performance of Music) he found important support and facilities, thanks to which several of his quarter-tone pieces reached the Prague festivals of the International Society for Contemporary Music (ISCM; 1924, 1925), the Czech section of this organization showed no interest in his work (the same syndrome was behind the fact that in 1925 at the Prague ISCM festival Bohuslav Martinů was classified as a member of the “foreign” French school). Quarter-tone and athematic music was felt to be a symptom of the stalemate in avant-garde art. Not even Hába’s introductory lecture before each concert could change this opinion. The untrained listener heard such music primarily as chaos and “rough, naturalized expression.” In the eyes of critics, Hába’s “liberated music” was part of the destruction of the organic unity of the work, and the author’s theoretical ideas were often considered symptomatic of a crisis of values and essential negation of traditional culture. Furthermore, for an important group of Czech critics Hába’s music failed to fit well into their concept of the evolution of Czech music, because it sounded calculated and “un-Czech.” The feeling that Hába’s music did not suit the native scene was aggravated by his supposed and real ties to German music, and implicitly to the compositional techniques of the Schoenberg School. Many of the polemicists exploited a tried and tested smear technique, consigning the condemned to the categories of “alien,” “speculative,” “inappropriate” or “emptily artistic” as against idealist art, against music that respected the native and authentic (unutilized) tradition.

The prospects for the performance of Hába’s and his pupils’ compositions were transformed in 1927. In this period Hába, together with the music critic Mirko Očadlík (1904–1964), took up leading positions in the *Spolek pro moderní hudbu* (Modern Music Club). One crucial factor here was the affiliation of the club to the ISCM, in which Hába could now exercise a major influence. The club’s publicity organ was the magazine *Klíč* (Key), in which he published critical articles on modern music. In 1935 he transferred his activities to the Association for Contemporary Music *Přítomnost* (Present) and was elected

its chairman. He also published in the magazine *Rytmus* and helped to create its profile. He took an important part in the organization of the ISCM international festival in Prague in 1935, when he sat on the international jury, as he was later to do in 1932, 1938, 1958, and 1961. (In 1957 Hába was made an honorary member of the ISCM for his services, an honor previously granted to his teacher V. Novák.) Hába's name appeared on the international scene in other ways as well. With his assistant, the composer and pianist Karel Reiner (1910–1979), he accepted an invitation to the International Congress of Arab Music in Cairo in 1932 to give lectures and demonstrations of quarter-tone music. (Others who attended this conference included Béla Bartók, Paul Hindemith, and the ethnomusicologist Erich von Hornbostel.) Hába also took an active role in musical education. He realized that it was not enough just to train a new generation of composers when an adequately educated public was just as essential to musical life. In any case, Hába believed that music cultivates the human being and that – in line with Steiner's anthroposophy – it helps a person to achieve the true spiritual experience of humanity. He was also convinced that music's educational effect would protect music itself from degradation into “mere entertainment” or a “technical game.” Education for music and by music was the theme of a number of Hába's lectures. Hába, with Leo Kestenberg (1882–1962), helped to found the Society for Music Education (Prague 1934) and later to plan the first International Music Education Congress (Prague 1936). (The Society for Music Education was the precursor of the International Society for Music Education, which was formed in 1953.)

Hába sought to embody his notion of a new “liberated music” in a genre with a sufficiently high profile to publicize an emergent style; opera would be a demonstration of the viability of quarter-tone and athematic music. In the period 1927–29 he composed the quarter-tone opera *Mother* on his own libretto. The work was first performed in German on May 17, 1931 in Munich with Hermann Scherchen conducting. (The opera was not presented in Czech until 1947 and then 1964 in Prague).

Hába composed this opera after several earlier opera sketches. *Mother* is a realistic work, with “realist” understood in the widest sense. The story is set in the composer's native Wallachia. The text of the libretto is written in the Moravian dialect. The local color is then enhanced by a number of folk scenes (funeral weeping, a lullaby, a wedding song). Despite this, as is the case with other important operas in the same vein (for example, Janáček's *Jenůfa* or in Burian's *Maryša*) Hába did not compose a “folklore opera.” Although the work has clear references to folk setting, this is supposed to enhance the raw

reality of the work. The plot of the opera is simple. After the death of his first wife, the peasant Křen finds a new bride. This is Maruša, a girl from the neighboring village, who has to take on a great deal of work in the cottage and the care of her step-children and own children, just like the peasant's first wife. For the composer, Maruša Křenová seems to represent his spiritual and sensual ideal of the rural woman and mother. While the practical and energetic farmer brings up all his children to work in the fields and the household, the mother takes care of their emotional and spiritual development. She wins for the most talented a right to higher education, while her youngest son, the future farmer, stays at home to support her. The twenty-three years that the opera covers are divided into ten scenes – scenes of ordinary, everyday life. They are stripped of all the contrasts, stylizations, and paradoxes usually employed to create dramatic tension and movement towards a denouement. Hába's style of opera might be compared to reportage. Instead of stylized focus, Hába enlarges the sphere of his work to cover the entire field of life, thus cancelling out the difference between "ceremonial/festival art" and the "art of the everyday." The lack of theatricality is sometimes interpreted as deliberate and innovative, but in many respects the work perhaps aims wide of experiment. Moreover, while the use of the quarter-tone system on the one hand secures the opera *Mother* a special place in world opera repertoire, on the other its specific requirements make it a piece for which few companies would have the resources.

Two further stage works show that Hába was thorough and consistent in his aims here. In neither is the epic pathos of building a new world stylized, but in both it is to be discovered in daily reality. Hába devotes himself to progressive social issues in his (semitone) opera *Nová země* (New Land) (1935–1936; libretto written by Ferdinand Pujman based on the book by Soviet author Fyodor Gladkov). After the premiere of the opera overture, in which there was a quotation from the Internationale, preparations for the staging of the opera in the Prague National Opera were halted. The official reason given was the threat of worker demonstrations. The struggle for a better future, linked with the coming of Christ in the framework of the anthroposophical ideas of Rudolf Steiner, is an idea presented and developed in the author's last opera, composed in the sixth-tone system, *Přijď království Tvé. Nezaměstnaní* (The Kingdom Come. The Unemployed, 1937–1942). This work was likewise never staged.

The lack of positive response to Hába's stage works was not accidental. What it was about the composer's approach that was behind these failures? First, Hába's stage works do not observe the conventions typical for the genre.

Although Hába's *Musik der Freiheit* would be hard to imagine without the strong inspirational influence of the theoretical work of Ferruccio Busoni, Hába seems to have taken no notice at all of his views on opera. Busoni saw opera as a stage genre in which play was the central issue. It was an idea later to be brought to life by Igor Stravinsky in *Histoire du soldat* and by Bohuslav Martinů in several of his works. It seems to have bypassed Alois Hába. Although the expression *Musik der Freiheit* might suggest a notion of the fortuitous and the playful, this is not entirely the reality. Hába's understanding of opera was clearly quite different from Busoni's. The world of Busoni's operas in contrast to Hába's opera aesthetics is modified, stylized to the point of unlikelihood, which is why it retains harmony, order, balance, and organic coherence. Hába, on the other hand, abandons the ground of "operatic fiction" and lets himself be carried away by the idea of a return to authentic representation of lived reality. Ideas that in their time must have sounded provocative (and are still just as provocative today), express a faith in reality, in revolutionary social change, which necessarily leaves its mark on art. While this is an over-simplification, we are clearly dealing here with notions taken from interwar proletarian art, heavily spiced with the anthroposophy of Rudolf Steiner. Hába formulated his own philosophy of opera in the article *Zvukový film an opera* (Sound Film and Opera):

What sort of life content should modern opera express? The different elements of the internal and public struggle of mankind today for a new style of life on earth. Fairytale and historical subjects must give place to new themes. There is a need to see and depict the moving forces of social struggle, which is the greatest drama involving many personal tragedies and comedies. There is a need dauntlessly to announce with artistic deeds as well as others that Christ has risen from the dead in the will of the world proletariat. There is a need to read 'the signs of the times' and draw the right social and artistic conclusions. (Hába 1931, 60)

In the course of the 1920s and 1930s, Hába earned a reputation for himself in broader cultural consciousness as an original composer, teacher, and tireless organizer. This creative growth was interrupted by the fascist occupation, when he was classified and banned as an exponent of "entartete Kunst" (degenerate art) along with many other avant-gardists.

After World War II, he was appointed head of the Great Opera of the 5th of May (1945–1948) and became a professor of composition at the Academy of Performing Arts in Prague (1946–1949). Towards the end of the 1940s,

however, a spontaneous reaction against the First Republic and to the recent war created a new social situation. Following the communist coup of 1948, Hába was exposed to the attacks of the ideological spokesmen of Socialist Realism, and in 1951 his composition class was dissolved. The post-war social elite, which decided on the character of production, no longer had any interest in work that was full of elemental revolutionary unrest, apparently incomprehensible, resistant to rules and guidelines. Hába's refusal of an offer to join the Communist party contributed to his exclusion from social and cultural life. His own concept of socialism derived from Steiner's anthroposophy had nothing in common with the Soviet vision of (real) socialism. Anthroposophy, a doctrine that found many supporters and passionate opponents throughout the century, was of enormous importance for Hába, providing him with spiritual and moral support in times of crisis. He followed its principles in his readiness to interact with people of all religions and convictions, and anthroposophy also provided inspirations for his musical theory and practice. (Hába had been introduced to anthroposophy by Felix Petyrek (1892–1951), who took him to the Goetheanum, the headquarters of the Anthroposophical Society in Dornach in Switzerland, in 1926. From 1927 Hába was an active member. He lectured regularly at the Dornach Free University for Spiritual Science, and several of his works were premiered in the Goethenau.)

In the years 1949–1953 Hába's works were not performed or published, but he himself continued to compose, writing both semitone and quarter-tone music. He was rehabilitated in 1953, and thereafter worked only as a composer. The last twenty years of Hába's life were an extraordinarily fruitful period. Many musicians were ready to perform his earlier and new works, above all the Hába Quartet under its leader Dušan Pandula. Hába's pieces were abundantly published and the composer was invited to lecture and to attend the performances of his works abroad. His name appeared again at the ISCM international festival in Prague in 1967. He used his influence and contacts to help young composers who often identified themselves with his legacy, although they took a cautious attitude to some of his aesthetic conclusions. In the final phase of his career, Hába composed as many as 40 new works. These were mainly chamber pieces, and when he wrote larger-scale works, concertos. Hába continued to write in various different tone systems, whether traditional (e.g. String Quartet No. 7 *Christmas*, Op. 73, 1951), quarter-tone (String Quartet No. 14, Op. 94, 1963), fifth-tone (String Quartet No. 16, Op. 98, 1967), or sixth-tone (String Quartet No. 11, Op. 87, 1957). Even at this late stage Hába

never gave up an experimental and open-minded approach, and he repeatedly tried to get to respond to revived impulses of twelve-tone music and Webernian serialism.

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After surveying his career, we may tentatively suggest some conclusions about Hába's place in the context of Czech and Central European music. First and foremost, it is clear that he was a composer who became involved in the Central European musical avant-garde very much "from the outside," from a Moravian region with a predominantly folk tradition. The strong individuality and originality that he began to show during his stay in Vienna became a respected reality in Berlin. In terms of the expressive canon of nineteenth-century music the position of "other, outsider" had been negative, a pure liability, a status overlapping with that of "diletante" in the sense of exclusion from professional advancement. Now the situation had turned around – at least in Berlin if less in Vienna – and the position could be one of special privilege. (Vienna is generally regarded as a place with great respect for tradition and conservative views.) To be different was now to have an exceptional status. Suddenly the attribute of otherness became an undeniable advantage. In a sense the change reflected the new democratic era, since it was a status that could be claimed by anyone, regardless of social background. Novelty and difference were transformed into attributes that could bring participants in the common "project of the new" closer together while at the same time representing another scale by which they could define their distinct identities and differentiate themselves. Hába was sensitive to the various individual developmental trends but did not identify himself wholly with any one of them. Despite his sympathy and affinity for the new theories and his repeated stress on the value of the influence of Novák, Busoni, and Schoenberg, Hába sought to create a style all his own. For Hába art was undoubtedly a field of creative freedom, where a work was born as the result of the active activity of a unique, irreducible individual. Nonetheless, Hába shared with the rest of the Central European avant-garde the striving for an explicit definition for the principle of redundancy. It is clearly a striving to render musical language more precise, to rid it of the last trace of the decorative and the rhetorical. Hába's project was also characterized by a distinctively sharp struggle against traditional ways of treating material that forced the composer to surrender his own individuality. Another feature of Hába's type as a composer was that fact that he shared only marginally in the future development of European new music; from the point of view of the

“culture of the center” as a historical rather than only geographical concept he ultimately remained at the periphery. The character of his work excludes him from the community of “established composers” and makes him once again an “outsider.”

There are a several different reasons why this should be so. Hába’s “liberated music” is known only through a few theoretical works that came out mainly in German, a few recordings, and relatively inaccessible scores. This has naturally limited an understanding of the whole Hába phenomenon. Usually, Hába is characterized as a tireless propagator of microtonal and athematic music. These mere assertions, however, do not of themselves have any precise content and problematize any proper conception of Hába’s music; for example, pieces composed with microtones, in fact, represent less than a third of Hába’s output as a composer. Of course, it remains an open question whether the change in the conditions for the reception of Hába’s music will make for a major change in the way he is viewed. While in the 1920s Hába took significant steps beyond the canon of traditional music in his works by using unconventional sound material, in the period after WWII the leaders of the modern movement of the time rejected him for alleged traditionalism (and in some cases for technical inadequacy). Here the criterion of musical value was, above all, the developmental novelty (innovativeness) of Hába’s music between the wars, which perfectly corresponded to the “spirit of the time.” His retreat from his well-known position was then interpreted as an inability to express that “spirit of the time” in an appropriate way. Hába, therefore, came to occupy only a marginal position among the “classics” of modern music who made major contributions to the “artistic values” of European music and helped to create the main stylistic trends. The rationale of assertions of this kind is based on the historical conception of the rise of the modern. If we focus our attention on important moments of development (athematism, microtonality), we necessarily push everything else about this music into the background. Such music becomes a mere signpost for future development. Thus, just like technical discoveries, Hába’s music necessarily becomes obsolete for future generations. Not even the ideas of “liberated music” could escape this process of ageing and Hába’s name was reduced to a mere encyclopedia heading, becoming a synonym for microtonal and athematic music.



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**Rūta Stanevičiūtė**

## **The Alois Hába School, Jeronimas Kačinskas, and the Beginnings of Microtonal Music in Lithuania**

### **1 Introduction**

Until the mid-twentieth century, it was important for young emerging composers, in order to be considered valid in the field of musical criticism, to belong to one of the acknowledged composition schools. I would like to illustrate this tendency with an example from a review about the festival of the International Society for Contemporary Music (ISCM). From its establishment in 1922, this society proclaimed the discovery of new talents and the presentation of new compositions by emerging composers as one of the main tasks of the organization. It is worth noting that the tendency to characterize master-based composition schools as part of an artistic trend coincided with permanent efforts to think of the national and even civilizational differences of modern music. This way, after the seventh festival in Geneva in 1929, Henry Prunières, the most influential French music critic of that time, described the German and French composition schools, based on performances by young composers:

Strong antagonistic tendencies between the German and French schools became clearly manifest [at the festival]. French sensualism stood against the German *Gemüt* and cerebral speculations of the Viennese school. Evidently, both parties hold fast to their respective positions, but this by no means undermines the conspicuous talent of true virtue which only conforms to its own aesthetic principles and puts most diverse technical means into practice. I cannot but acknowledge excellent contrapuntal skills characteristic of the musicians from across the Central European schools [of composition]. All these young Germans, Austrians, Czechs, and Poles seem to have achieved an astonishing proficiency in their craft. ...On the other hand, they oftentimes fall into the traps of scholastic or pedantry where they find themselves seized by complexity that prohibits sensualism and [the expression of] emotions.

The post-war school of composers associated with *Le jeune France* stands out in sharp contrast to these [Central European composers].

Their work generally displays much freshness, melodic innovation, and certain lightness, but their craft is quite meagre. They have an instinctive feeling for the orchestra, yet they have little knowledge about its intrinsic resources, comparing to their coevals in Central Europe. While some demonstrate their enjoyment of life, sun and love, others sink into sullen delusions and visions of exhausting struggle, or seem to succumb to the great ennui. (Prunières 1929, 84–5)

It was quite symptomatic that, in that opposition, two categories significant for the early reception of modern music were confronted: that of method/technique and of sensitivity/ethos, or the technological and aesthetic aspects of musical style. Just like in the above-quoted opinion, different views on the opposition between German and French musical novelties were often perceived as a civilizational confrontation between Latin and Germanic geniuses. Characteristically, in the interwar period, when evaluating young composers and making such wide-ranging generalizations, the stylistics and the national identity of their teacher of composition were particularly frequently referred to.

In this context, the school of Alois Hába had a different position, to some extent comparable with New Viennese School, primarily because of its founder's universalistic, transnational orientations and ambitions. From a historical perspective, the use of the definition of "school" had changed greatly since the interwar period. Despite the fact that the very notion of the Hába school in a strict sense has been questioned in contemporary musicological research, in my chapter I shall discuss some possible interpretations of this term from the Lithuanian perspective, presenting its reflection in the creation and cultural activities of Jeronimas Kačinskas (1907–2005), Hába's pupil and a predecessor of the microtonal music tradition in Lithuania.

## **2 Jeronimas Kačinskas and the modernization of Lithuanian music in the 1930s**

Jeronimas Kačinskas has a unique and somewhat paradoxical position in the history of modern Lithuanian music of the first half of the twentieth century. He emerged with the second wave of modernization in Lithuanian music, which embraced and was shaped by composers who received their musical training at the centers of Western classical music in the late 1920s and 1930s. As has been amply shown by various sources, Paris, Berlin, and Prague were among the most popular higher education destinations for Lithuanian

composers a generation younger than their predecessors, who would have usually opted for the conservatories of Leipzig, Warsaw, Moscow, or Saint Petersburg.<sup>1</sup> After graduating from Klaipėda Music School in 1929, Kačinskas went on to pursue his studies in Czechoslovakia.<sup>2</sup> He entered the conventional composition course with Jaroslav Křička at the Prague Conservatory, where he also took additional courses with Otokar Šín in theory, Pavel Dedeček in conducting, and Alois Hába in quarter-tone music from 1929 to 1931. It was also during his studies in Prague that Kačinskas became one of the most ardent and notable followers of the so-called Hába school: in the compositions he wrote later, in the 1930s, he consistently deployed the athematic style and microtonality Hába promoted. But despite his attempts and due to various objective and subjective reasons, only one athematic composition by Kačinskas – the first version of the Nonet (1931–1932) – received public performance before World War II. After the composer emigrated from Lithuania by the end of WWII, all the unpublished scores of his athematic and microtonal compositions vanished in the turmoil of war and subsequent Soviet occupation. In the post-war years, Kačinskas settled in Boston, in the United States, where he managed to retrieve separate parts and reconstruct from memory the full score of the second version of his Nonet (1936). This piece is the only surviving specimen of Kačinskas’s early athematic style which was performed for international audiences.

Despite the wartime losses, Kačinskas deserves a very important place in the modernization narratives of Lithuanian music, where he is regarded as a radical modernist. Such reception of his music formed in the inter-war years: in Lithuanian music criticism of the time, both Kačinskas and Bacevičius (the latter fellow composer being a representative of the Paris School) were labelled ultramodernists, while their music was classified under “expressionistic atonalism.” The question of whether these two composers can be attributed to the avant-garde remains open until this day and is still being discussed by Lithuanian musicologists. The early reception of Kačinskas’s music was certainly influenced by his work as an active

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1 As aptly noted by Giedrius Gapšys, the youngest generation of professional composers significantly differed from the older and middle ones in their views on professional preparation. For Juozas Naujalis (1869–1934) and Juozas Gruodis (1884–1948), studies abroad meant a source of universal music knowledge, while Jeronimas Kačinskas or Vladas Jakubėnas (1904–1976) chose a specific higher music school and a teacher of composition in order to acquire specialist knowledge and to master modern systems of musical composition (Gapšys 1989, 47).

2 In 1920s and 1930s the Klaipėda Music School employed numerous Czech musicians including the members of famous Czech Nonet in corpore at the beginning of their professional career. Alongside the acquaintance with the Czech musical tradition, one more reason for Kačinskas was cheaper education at the Prague Conservatoire compared with other prestigious centres for training in musical education.

advocate of the Hába school and promoter of other modernist trends in Lithuania. After his return to Lithuania in 1931, Kačinskas opened a quarter-tone theory class at the Klaipėda Music School and publicized the phenomenon of microtonal music in the local press by publishing articles written by Alois Hába, Karl Ančerl, Karel Reiner, Mirko Očadlík, and other members of the Hába school in the journal *Muzikos barai* (Domains of Music), which he co-founded and had co-edited with fellow musicians since 1931. The spread of quarter-tone music in Lithuania also gathered momentum due to the activity of the Society of Progressive Musicians, a group of congenial musicians which gathered around Kačinskas in 1932 and organized the first Lithuanian tour of the then-famous Czech Nonet the same year. It was during this tour that the first version of Kačinskas's Nonet (1931–1932/1936) received its Lithuanian premiere in the performances of its dedicatee and was later included in the program of the 1938 ISCM Festival in London. As a matter of interest, this piece was the only Lithuanian entry in the International Society for Contemporary Music's annual festivals before WWII. It is also worth mentioning that Kačinskas helped established the Lithuanian section of the ISCM in 1936.

New material about Kačinskas's work and activities is currently being supplied by musicologists Vlasta Reittererová's and Lubomír Spurný's research in the Hába archive in the Czech Republic, as well as the extant documentation of the Czech Nonet archive preserved at the Czech Museum of Music in Prague, the archives of the Prague Conservatory, and other sources. The research of the past few years into these various archives has yielded the discovery of two compositions which had hitherto been considered lost: the piano score for the Concerto for quarter-tone trumpet and symphony orchestra (1930–1931) and Trio No. 1 for trumpet, viola, and harmonium in the quarter-tone system (1933). To gain a closer perspective on the background of these particular compositions and the broader context of the Lithuanian composer's early work and its place in the Hába school, some additional sources have been used in this research, such as Kačinskas's correspondence with Hába and Emil Leichner (the first violinist and leader of the Czech Nonet) and Hába's correspondence with various members of his school. The newly discovered examples of the Lithuanian composer's early microtonal music and archival documents enable us to critically evaluate the uniqueness of Kačinskas's early compositions and their dissemination in the environment of the Hába school, in order to integrate those phenomena into twentieth-century music-modernization processes.

### 3 The Hába composition school vs. composition class

When undertaking a conceptual analysis of Kačinskas's early creations, it is useful to start with problematic issues related to the definition of the Alois Hába school. Interpretations of the phenomenon began to form as early as in the interwar period, when at the Prague Conservatoire in 1923, the composer first taught a course about microtonal composition which increasingly gained popularity among students of different specialties, and Hába's graduate-composers eventually became more active in musical life. Lubomír Spurný noted that, before WWII, there was no clear divide between the Hába school and Hába's class of composition, that is, the conceptual and institutional conceptions of the phenomenon. Music critic Mirko Očadlík, who shared the composer's artistic attitudes, was the first to have more conceptually used the terms "the Hába school," "the quarter-tone school," and "Hába's athematicists." The synonymous use of these terms suggested that Očadlík saw the phenomenon both as a composition school and a movement characterized by an artistic ideology. The author believed that the distinction of the Hábist movement was predetermined by Hába's consistency as a teacher of composition:

Alois Hába created his quarter-tone school by thorough work based on the elements necessary for the creation of new sound [...] His work was systemic: first the conception of the system was developed, then the instruments [made]; [only] afterwards did Hába realize his creative and interpretive technique. (Očadlík 1933, 88)

Vladimir Helfert, who at the same time summarized the development of early modernism in Czech music in his book *Modern Czech Music* (1936), wrote that it was:

[T]he energetic, sometimes even fanatical personality [of Hába] that enabled him to set up his own school. (quoted from Reittererová and Spurný 2014, 81)

As soon as Hába started teaching at the Prague Conservatoire, he ambitiously planned his school as an international phenomenon, able to compete with the ideas and methodologies developed by the most outstanding European teachers of composition<sup>3</sup> (Spurný 2011, 143). Thus, for example, back in 1925, in his letter to Emil Hertzka, director of the Universal

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3 At the time, the courses taught by the composer were attended by merely five students of composition, however, at the end of the 1920s, 15 to 26 students were simultaneously attending the class of quarter-tones and, to quote Mirko Očadlík, some of them were "well-educated, gifted, and courageous people" (Očadlík 1933, 90).

Edition publishing house, Hába claimed to have created a school and intended to make it a European school of composition. On the national scene, he first had to compete with influential Czech teachers of composition classes who had gained international recognition. From that viewpoint, in the area of traditional composition in the Prague Conservatoire, the most outstanding classes were those given by Vítězslav Novák and Karel Jirák. However, Hába had wider ambitions: an active participant of the international musical scene, he tirelessly promoted his pupils' works and sought wider international representation for his school. Especially in the '1930s, when compositions by Hába's pupils and special concerts of quarter-tone music continued to be included in the ISCM festival program, the Czech composer's ambitions to present his creative method and the movement of his followers as an alternative to the New Viennese School were growing.



*Example 1. Alois Hába at his quarter-tone piano, 1930s.*

However, from a historical perspective, later researchers, especially Reitererová and Spurný, questioned the use of the term Hába school in the strict



sense. The researchers tended to believe that the Hábist movement could be called a school only with some reservations: on the one hand, because of, from their viewpoint, an incompatibility of the avant-garde ideology with the connotations of the concept of school, and on the other hand, because of a certain vagueness of the compositional method of the initiator of Czech microtonal music. According to Spurný, the term school was associated with the threat of imitation, which was viewed in a negative light in the interwar period (Spurný 2011, 146–7). In the opinion of the Czech musicologists, the “Hába composition school” was a consequence of the historical and aesthetic interpretation rather than a descriptor for the composer’s integral compositional method, therefore, the use of “composition class,” that is, a reference to the institutional framework, was more appropriate (Reittererová and Spurný 2014, 83; also Reittererová 2005, 9). At the same time, based on the image of the “Hába school” as a movement of unique individuals formed back in the interwar period, Reittererová and Spurný presented it as a large group of the Czech composer’s pupils, colleagues, and followers. The list of 213 musicians from 13 countries presented by the researchers reflected the period of Hába’s teaching in the Prague Conservatoire (1923–1953) and covered:

1. graduates of the Quarter-tone and Sixth-Tone Music Composition Department, officially established in 1934;
2. students who attended the quarter-tone courses of the Czech composer before 1934;
3. Hába’s private pupils, known from the composer’s correspondence and other documents, and
4. supporters and followers of Hába’s music and theoretical conception who the composer corresponded with.

Such a broad contemporary understanding of the Hába school presents difficulties in defining the aesthetic and stylistic characteristics of the phenomenon. It must be noted that, so far, no attempts have been made to carry out a more exhaustive comparative analysis of the creation of Hába’s pupils, although simultaneously the somewhat reserved position of contemporary researchers towards the application of the term of school to the Hábist movement (and more broadly, to twentieth-century music) has been preconditioned by the imaginary heterogeneity of the phenomenon. Should we agree with researchers who believed that the conventional use of the term of school deserved criticism, we can see that heterogeneity was a typical feature of twentieth-century composition schools. Thus, for example,

in opposition to the established concepts of composition schools, Arnold Schoenberg wrote:

All my pupils are very different from each other, and although most of them compose twelve-tone music, it is impossible to talk about a school. Each of them had to find their own unique way. (Schoenberg 1984, 386)

Hába formulated the dogma of creative succession from a different perspective, that of a teacher of composition:

A creative musician is not always able to convey all his ideas to his pupils, especially those that he himself is just beginning to formulate. (Hába 1927, xv)

Hába's statement referred to another motif of giving special prominence to teachers of composition typical of the interwar period: in the culture of musical modernism, the authority figure in composition symbolized a specific trend of music renewal and thus served as a convenient tool to understanding the diversity of modern music. Moreover, the significance of the creators of modernism was in its own way consolidated by the composition school, which contained the contradictions typical of modern music between the imperative of individualism and the need to get together in artistic groups, predetermined by the socio-cultural environment.

#### **4 The corpus of Jeronimas Kačinskas's athematic creation**

At the end of the 1930–1931 academic year, Hába wrote to his former student, Slovenian composer Slavko Osterc:

In the summer, the gifted composer Kačinskas is completing his studies [...]. He wrote a very good string quartet. (Prague, June 11, 1931; quoted from Reittererová and Reitterer 2005, 156–68)

It was the first completed composition by Kačinskas in the quarter-tone system: String Quartet No. 2 (1931) composed in the years of studies. As known from Kačinskas's correspondence with various acquaintances, he had begun to compose Concerto for Quarter-tone Trumpet before completing the above-mentioned String Quartet, also having conceived the idea for the Nonet in the summer of 1930. After he returned to Lithuania in the summer

of 1931, Kačinskas continued intense experimentation with the quarter-tone system, even though only a few of his artistic endeavors came to fruition. One of his letters to Emil Leichner, dating from the post-war years, included a concise annotation of his pre-war work, which he had presumably intended for the performance of his Nonet at the 1938 ISCM Festival in London.<sup>4</sup> The annotation listed some of his major works written before the war (I have added unfinished compositions to make this list complete):

*Variations* for piano (1928–1929)

String Quartet No. 1 (1930)

Nonet (1931–1932; 1936)

String Quartet No. 2 in the quarter-tone system (1931)

*Concerto Fantasia* for quarter-tone trumpet and orchestra ([1930–1931])

Concerto for piano and orchestra in the quarter-tone system (unfinished, 1932)

*Songs* for low voice and piano in the quarter-tone system (unfinished, 1932)

Trio for trumpet, viola and harmonium in the quarter-tone system (1933)

*Symphony Fantasia* (1937–1940)

In the list, only the first two compositions represent the genre of the so-called traditional composition, while the remaining opuses were already developed using Hába's conceptions of athematic and microtonal music. In addition, we should perhaps extend the list with one more composition, even though there is very little evidence about its existence. In 1937 in a profile of his music written for the Czech music magazine *Rytmus*, which announced the performance of his Nonet at a concert organized by the Czech contemporary music association *Přítomnost* (Presence) in Prague, Kačinskas mentioned having composed a piece for quarter-tone French horn, yet no physical or documentary evidence has ever supported that claim. The possibility to discover more lost pieces by Kačinskas remains likewise uncertain. For example, in an article published by the *Muzikos barai* journal, Hába informed readers about the coming performances of Kačinskas's quarter-tone quartet by Czech musicians at the Czech contemporary music association concert in Prague and, somewhat later, at the concert of the Hába school

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<sup>4</sup> Jeronimas Kačinskas' letter to Emil Leichner, Boston, 1965. Czech Museum of Music, Alois Hába archive.

in Munich. Conclusive evidence was found that the concert in Prague had never taken place, but there is still a lack of reliable data about the concert in Munich. Be that as it may, String Quartet No. 2 was very well-known among Hába's pupils and colleagues in Prague and it was precisely for this composition that Kačinskas was ranked among the most gifted pupils of Hába as early as his student days. In his fairly detailed description of Kačinskas's quarter-tone quartet, Hába himself emphasized the creative talent of his student in absorbing and applying the principles of composition that he had invented and advocated. As the composer noted, paraphrases of his theoretical works were evident: he emphasized the young author's ability to combine consonances in a unique manner, to originally build chord progressions, to enrich the melodic and rhythmic, and to creatively develop the athenatic style in a non-standard form, based on the principle of non-repetition:

In the spring of 1931, [Jeronimas Kačinskas] wrote a large three-movements q(quarter) t(one) quartet [...]. Individual movements of the quartet were composed not in accordance with the schemas of the usual forms (those of sonata, rondo, scherzo, or song). There were no theme repetitions or their variations, either. The quartet was written in an athenatic style, and each voice in it was melodically completely independent. In the creation of thematic music, it is impossible to find purely independent voices, because everything there comes from a combination of two, three, or more themes.

A composition in an athenatic style can be compared to a story or a novel: melodies are combined in a similar way as the ideas of a literary work, each carrying a certain volume of the content. The creator has absolute freedom, and simultaneously assumes the greatest responsibility for the form structure design.

He can create a very complex form up to 6, 7, and more stages, characteristic in terms of the rhythm, none of which repeats.

Kačinskas' form of the first movement has six stages: Adagio-Allegretto, Allegro moderato, Meno mosso-a tempo, Andante, Allegro moderato, and Allegro. The main movement structure: slow, faster, slow, and fast tempos. The form of the second movement has four stages: Adagio, Piu mosso, Agitato, Adagio. The structure: slow, faster, and slow tempos. The third movement consists of four stages: Moderato energico, Allegro, Meno mosso, and Presto. Mainly, those are transitions from a medium to a fast and from a slower to a very fast tempo. (Hába 1931, 3; underlined by A.H.)

Mirko Očadlík, one of the most influential music critics in Prague, described the quartet by the Lithuanian composer as a noteworthy composition and identified a stylistic kinship between the work of Kačinskas and his teacher. A year later, summarizing the decade of the Prague quarter-tone music school, Očadlík singled out two of Hába's pupils – Jeronimas Kačinskas and Karel Ančerl – as to have equaled and even excelled their teacher:

The first to achieve absolute integrity in making use of the new style and new sound at their disposal. (Očadlík 1933, 91)

The chronology of Kačinskas's early creation proved that his support to the Hábit movement was an important factor for its development. He created especially intensely during his studies and in the year following, when he unsuccessfully tried to integrate into the musical institutions of Kaunas (1931–1933). Given the fact that, after 1940, Kačinskas discontinued his athematic and microtonal experiments, his early creations should be regarded as part of an integral period of mastering Hába's philosophy of music and his creative method.

## 5 Kačinskas's early work and aporias of athematicism

In his years of study in Prague, Kačinskas was characterized as a highly creative successor of the principles of composition propagated by Alois Hába. One might go even further by claiming that the creative imperative lies at the heart of the Czech composer's style, which the composer defined philosophically as the music of freedom (*Musik der Freiheit*) or a free style of composition (*Musikstil der Freiheit*).<sup>5</sup> According to Jiří Vysloužil, the author of the first comprehensive study dedicated Hába's work, the aporia between freedom and regularity (order), or the contradiction and tension between spontaneous creativity and orderly composition, was very characteristic of Hába's artistic mindset. All the same, in all of Hába's copious creative output Vysloužil managed to find only two violin solo pieces, which exemplified his truly free athematic style: *Fantasia for violin* in the quarter-tone system, Op. 9a (1921), and *Music for violin* in the quarter-tone system, Op. 9b (1922) (Vysloužil 1996). It should be noted that Hába's music was not exclusively athematic or microtonal: his compositions included those written in a dodecaphonic technique or opuses in the conventional language of modernism.

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5 The concept of a free style of composing as a synonym of athematicism was first used by the composer in his paper "Casellas Scarlattiana – Vierteltonmusik und Musikstil der Freiheit" (Hába 1929). The conception of the athematic style was most comprehensively introduced by Hába in his theoretical study (see Hába 1925).

That athematic composition was not an easily tackled task and posed considerable challenges is witnessed by the fact that Kačinskas was quite anxious about the Lithuanian premiere of his Nonet in 1932:

I felt that composing this piece exceeded my abilities because I couldn't perceive the succession of musical patterns, textures, and overall form while listening to its performance. It had a stunning effect on me, not because of delight, but rather because I had doubts in it. Having noticed my strange confusion, Leichner asked "Didn't you like the performance of Nonet?" I assured him of the opposite because the performance was of the highest standard. But it was not until the fourth performance in Kaunas that I could fully grasp the character and style of the work and this helped me calm down. (Kačinskas 1997, 360)

Kačinskas's Nonet presents itself as an example suitable for discussion of the composer's originality in the choice of genre and instrumental combination for works written in the athematic style. Nonet by Kačinskas is one of the first modern works commissioned by the revived Czech Nonet in 1931 (the ensemble was formed in 1924 and many times faced the prospect of disbandment). The Baltic tour of the Czech Nonet of 1932 featured some of these commissioned works: Bohuslav Förster's Nonet, Op. 174; Alois Hába's *Fantasia for nonet* No. 1, Op. 40; and three initial movements of Jeronimas Kačinskas's Nonet, entitled "Three Moments from the Nonet" (1931–1932). The fact that Kačinskas could only learn the athematic style from early works by Hába written mostly for quarter-tone piano or string quartet also attests to the independence and originality of his creative choices. By that time the only athematic work for larger ensemble available for emulation was Hába's quarter-tone opera *Matka* (Mother), completed in 1929 and first put on stage in Munich, in 1931; but it was hardly possible that Kačinskas could have seen, heard, and studied this work in detail.

Speaking of the athematic and microtonal compositions written in Lithuania after his studies in Prague, we should also note that Kačinskas opted for genres and combinations which entailed more opportunities for performance. This circumstance may seem rather surprising, if we remember that before WWII his music did not have many opportunities to be heard apart from the performances of the Czech Nonet. Nevertheless, he demonstrated much persistence in making his music heard: for instance, he acquired a quarter-tone harmonium and helped other musicians purchase a quarter-tone trumpet

and French horn.<sup>6</sup> His letters, articles, memoirs, and other writings provide ample evidence about his earnest endeavors to form a quarter-tone music ensemble, organize its appearances in Lithuania, and even take part in the quarter-tone music festival in Prague in 1933, which never took place due to financial reasons. The composer also wrote about his intentions to hold a public concert of quarter-tone music in his letters to Hába in 1936. However, this idea was not implemented, either.

In his writings from that time, Kačinskas, like many other adherents of “non-thematicism,” most often focused on the ideological postulates of Hába’s teaching and basic principles of the athematic composition, without going into more detailed commentaries about composing in the athematic style and quarter-tone system. By paraphrasing Hába’s caption about musical language as a “stream of thoughts,” comparable to the “stream of consciousness” in literature, Kačinskas has pointed out certain challenges in mastering the athematic style:

Hába argued that the essence of creativity lies in a constant state of creative activity. If something is reiterated, transposed, or imitated, the process of creative action gets interrupted. The same happens in a story where events follow in sequence and evolve from and relate to each other, thus making for a coherent whole. Of course, some may disagree with this theory, but it leaves a certain trace in the creative soul. Even though I’m not a rigorous athematicist, my works still retain that continuity. It was not easy for us students to embody the principle of athematicism in music; I must have been the only one to realize this idea, in part at least, without much effort. (Kačinskas 1997, 357–58)

Just like Kačinskas, the more outstanding of Hába’s students usually commented on the philosophy of their composition teacher’s music but not on the technological tools acquired for the class of quarter-tone music. Hába’s conception of the music of freedom represented the doctrine of aesthetic freedom typical of the Central European avant-garde. At the technological level, its expression was to be ensured by athematicism and microtonality – unrestricted freedom of choice of the formal development and the musical sound material. Probably because of the ideologeme of freedom, in the

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6 He managed to get only a few performers interested in the quarter-tone music and hoped to form a quarter-tone ensemble. In Klaipėda, microtonal instruments were gradually accumulated for the purpose: Kačinskas had a Förster’s harmonium, due to Hába’s intermediation, trumpeter Vincas Deniušis acquired a Fr. A. Hackel’s quarter-tone trumpet, while French horn player Benediktas Vasiliauskas was looking for a quarter-tone French horn of the same company.

explanation of the compositional method promoted by Hába, more attention was devoted to those categories of the language of music that were expected to ensure creativity. Hába liked to emphasize that in his theoretical works:

He (the pupil) must learn how to combine [compose] freely. (Hába 1927, xv)

Spurný, however, noted that, despite the statements of the Czech composer,

the road to the 'freed music' was a process implying deep reflection and planning, as everything that was traditional and restrictive had to be only gradually rejected, consciously and deliberately. (Spurný 2011, 141)

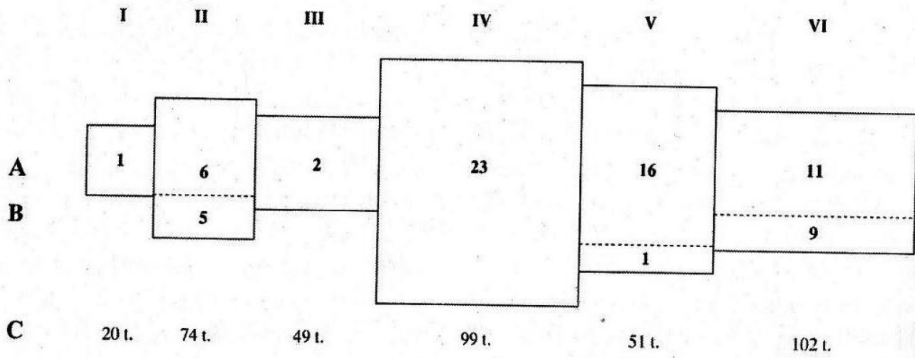
Hába had explicitly stated his attitude towards universal and individual categories and parameters of music in the context of his system. For him the individuality of a composer's work was primarily related to the parameters of melody and rhythm rather than style or form, whose logic depended on more fundamental historical processes. Composer Viktor Ullmann (1898–1944), who studied with Schoenberg (1919) and Hába (1935–1937), indirectly confirms that athematic style was based on straight-lined formal model:

I am indebted to the Schoenberg school for strict, i.e. logical structures and love for valor vis-à-vis the sound world, and to the Hába school for a refinement of melodic sensitivity, the vision of new formal values and the liberation from the canons of Beethoven and Brahms. (Spurný 2011, 142–43)

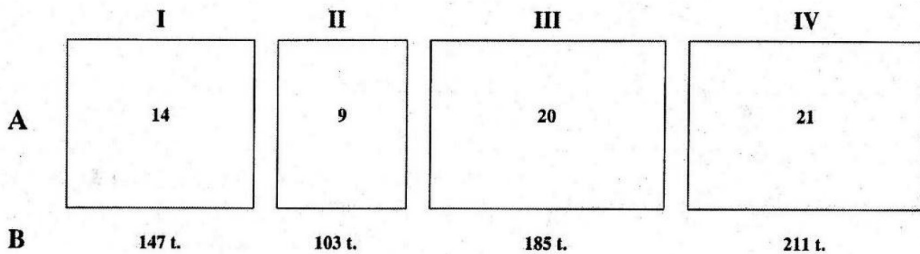
In the athematic musical thinking promoted by Hába, the horizontal line, the relationship between the melodic processes, and the formation was particularly important. In this case, athematism did not mean the rejection of thematic material: on the contrary, it was of special importance, yet it was composed on the basis of the non-repetition principle. Researchers paid attention to the similarity between the athematic development principles and the Baroque polyphonic techniques, occasionally even to the quodlibet genre, while avoiding thematic development. A comparative analysis of Nonets by Kačinskas and Hába conducted by Lithuanian musicologist Danutė Palionytė revealed that the formal structure of those athematic compositions was very similar or even invariant: the two works were characterized by sequences of asymmetric polymelodic structures (Palionytė-Banevičienė 2010, 282).



Differently from Kačinskas, who left no detailed technological comment on the thematic material of his composition, Hába in the score of his *Nonet* had clearly indicated the principal themes (Schemes 1 and 2).



*Scheme 1: Hába's Fantasy for nonet in twelve-note system No. 1, Op. 40 (in one movement, 1931): A – number of primary themes; B – number of secondary themes; C – number of bars (Palionytė 2010)*



*Scheme 2: Kačinskas's Nonet (in four movements, 1932/1936): A – number of themes; B – number of bars (Palionytė 2010)*

A comparison between two compositions by Kačinskas – the *Nonet* written in the twelve-tone system and the newly discovered *Trio* in the quarter-tone system – also revealed the invariability of formal structures. Unlike the four-movement *Nonet*, the *Trio* was a one-movement composition whose three asymmetrical polymelodic episodes were separated by the references to the tempo and the character of performance (Episode 1: *Adagio sostenuto* – mm. 1–79; Episode 2: *Allegro con fouco* – mm. 80–143; Episode 3: *Moderato* – mm. 144–83). However, in the composition of asymmetrical structures, similar techniques were employed in both works: the pedal technique,

22 *Maestoso* (175)

*p* *mf* *f* *poco dimi.* *poco dimi.* *men.* *p* *ff*

Example 2: Kačinskas's Trio for trumpet, viola and harmonium (1933), mm. 174–82 (manuscript, Czech Museum of Music, Alois Hába archive)

complicated multi-layer chords, and sharp changes in tempo and dynamics. Although the Nonet and the Trio differed in terms of harmony, the same principles could be identified in the formation of themes: from microcontrasts and circular permutations to wide-ranging melodic gestures formed in leaps of fourths, typical of twentieth-century atonal music. The composer was hardly trying to achieve that effect, yet it was some specific melodic gestures that brought the Trio by Kačinskas close to the sound aesthetics of the New Viennese School. A typical example of such aesthetics was the Finale of the Kačinskas Trio, featuring the “flickering” of the microtone-enriched, rising fourth against the background of a complex chord (Example 2).

In his theoretical writings, Hába emphasized that composing in the twelve-tone and microtonal systems may and must be based on similar principles and procedures. I would like to illustrate this statement by demonstrating how Kačinskas adopted the concept of tone centrality, which was one of the key concepts in Hába’s theory and creative practice. In the sense proposed by Hába, tone centrality was not the return to functional tonality or the function of tonic. As suggested by Andrew McCredie,

rather it was the result of displacements and relativizations within the tonal hierarchy. (McCredie 2002, 193)

For example,

in tone centrality, a single tone governs the harmony of an extended passage, without implying the harmonic functions or hierarchal relationships that characterize tonality. (Skinner 2006, 87)

A typical example of tone centrality would be chord structures constructed above the central tone, from which melodic lines are derived (Example 3). These melodic lines can serve the function of a pedal point in various voices and layers of texture – for instance, in the bass or in the upper voice (soprano) – or become part of the melodic motif (example 4). Another procedure, related to the concept of tone centrality and extensively used in Kačinskas’s Trio as well as in Nonet, is the technique of contrary motion (Examples 5 and 6).



*Example 3: Hába’s illustration of tone centrality (Hába’s Neue Harmonielehre des diatonischen, chromatischen, Viertel-, Drittel-, Sechstel-, und Zwölftel-Tonsystems, 1927. Quoted after Skinner 2006)*

**Adagio sostenuto**

The musical score is for three instruments: Tromba in C, Viola, and Harmonium. It is in 3/4 time and consists of three systems of music. The first system (measures 1-4) is marked *Adagio sostenuto* and features dynamic markings *ff* and *f*. The second system (measures 5-9) includes triplets and dynamic markings *ff* and *mf*. The third system (measures 10-13) is marked *stringendo* and includes dynamic markings *mf* and *f*. The score shows complex rhythmic patterns and articulation marks.

Example 4: Kačinskas's Trio for trumpet, viola and harmonium (1933):  
tone centrality (Music Information Center Lithuania, 2017)

The image displays a musical score for a Trio for trumpet, viola, and harmonium by Jeronimas Kačinskas, starting at measure 117. The score is written for three staves: the top staff for the trumpet, the middle staff for the viola, and the bottom staff for the harmonium. The music is in 3/4 time and features complex rhythmic patterns, including triplets and quintuplets. Dynamic markings such as *p* (piano) and *f* (forte) are used throughout. The score is divided into three systems, with measures 117-119, 120-122, and 123-125. The key signature has one sharp (F#) and the time signature is 3/4. The piece concludes with a double bar line and a fermata over the final notes.

Example 5: Kačinskas's Trio for trumpet, viola and harmonium (1933),  
contrary motion (Music Information Center Lithuania, 2017)



*Example 6: Hába's illustration of contrary motion between fields*  
 (Neue Harmonielehre des diatonischen, chromatischen, Viertel-, Drittel-, Sechstel-, und Zwölftel-Tonsystems, 1927; quoted after Skinner 2006)

The examples above demonstrate that Kačinskas adopted and consistently applied Hába's theoretical concepts and principles of composition practice in his athenatic and microtonal music. In a certain way this also supports Mirko Očadlík's observation that:

[Hába's] system for them [that is, his pupils] was a kind of a trial, by which they could test the elasticity and capacity of their imagination. (Očadlík 1933, 90)

As has been adumbrated above, Hába associated the stylistic individuality of his pupils primarily with melodic and rhythmic innovation, which stemmed from their ethnic tradition and personal qualities. For instance, when he characterized the national features of Kačinskas's Concerto for quarter-tone trumpet and orchestra, Hába noted that:

[The Lithuanian composer] constructs his chords in a very distinct way, while his work is distinguished for combined rhythms and rich quintuplet and septuplet figurations. (Hába 1931, 3)

Danutė Palionytė, in her analysis of the Nonet by Kačinskas, also pointed to the possible manifestations of the elements characteristic of traditional music, such as diatonic trichords, lamenting intonations, and the like (Palionytė-Banevičienė 2010, 283). The composer, however, had reservations about any references to the native traditional music in his work. I tend to think that the true source of the above-mentioned chords and melodic figurations in



Kačinskas's music may be found in the theory of harmony Hába developed. He attached special significance to some characteristic intervals, especially to the second augmented by a quarter-tone, which was used as a tool for symmetrical division of the perfect fourth. Since Hába assumed that the linear and vertical arrangements of pitch content were inseparable, similar procedures were equally important for his harmonic polyphony and melodic innovation. Although the intervals, which played an exceptional role in Hába's music, had no numerological interpretation, such differentiation certainly had an ethnological foundation. It is a well-known fact that Hába had strenuously studied the traditional music of various European and Eastern cultures and subsequently based his principles of composition on systematic research and analysis thereof. Consequently, one may conclude that certain folk associations occurred in Kačinskas's work indirectly, that is, through the attentive study of Hába's theoretical and musical work. These associations received no reflection in Lithuanian music criticism of the inter-war period, while the style of Kačinskas's music was considered quite detached from the local ethnic tradition and its cultural identity.

## **6 Microtonality and the imaginary future of Lithuanian modern music**

Kačinskas presented the progress of the Czech musical culture as an example to be followed in the modernization of Lithuanian musical culture:

It is necessary for us, Lithuanian musicians, to get better acquainted with the achievements of the Czechs and other nations in the art of music and to adapt them to our own culture. Otherwise, in the future, we shall unavoidably face the threat of lagging behind the world and of stagnation leading nations to destruction. (Kačinskas 1931, 4)

Hába and his closest co-workers also cherished hopes with regard to the prospects of quarter-tone music in Lithuania after Kačinskas's return to Kaunas upon completion of his studies at the Prague Conservatoire. In that year, the geography of students in the Hába class was expanding, and the ambitions of the Czech composer to disseminate his teaching in other countries through his pupils was growing. Having graduated from the Prague Conservatoire in 1927, Slavko Osterc started teaching quarter-tone music at the Academy of Music in Ljubljana, and in the 1930s, similar initiatives were undertaken by the graduates from Bulgaria and Turkey. Hába's ambitions were kindled by the enthusiastic interest in his system in an International

Congress of Arab Music in Cairo in 1932, where prominent authorities on modern music sought points of contact between the European and Arab cultural traditions.<sup>7</sup>

Immediately after the event, Hába sent a short report on the results of the international forum for the publication in the Lithuanian musical press. In Hába's words:

[A]fter long and sometimes sharp debates (mainly differences of opinion were expressed between the Czech and German composers) it was decided to develop a culture of Arab music in the spirit of national character, using quarter-tone and sixth-tone systems cultivated by A. Hába. (Hába 1932, 114–15)

The Czech composer's forecasts and expectations were too optimistic, even though he managed to engage Eastern musicians in his microtonal experiments. Hába and his assistant, composer and pianist Karel Reiner, accepted an invitation by organizers to give lectures and demonstrations of quarter-tone music in Cairo. To that end, the congress was brought to the latest model of quarter-tone piano (created by Hába's design and produced by the August Förster company in 1931) for performance of avant-garde quarter-tone music<sup>8</sup> (Reittererová and Spurný 2014, 142).

Alois Hába's reception of Western-Eastern musical encounters in Cairo and his ideas about the integration of Eastern heritage into the renewal of modern music have been reflected in the writings of his pupils in Czechoslovakia and Lithuania. It was specifically in the early 1930s that discussions about the interaction between national and modern art and the prospects of Lithuanian music modernization became especially relevant. The journal *Muzikos barai*, founded and first published by Jeronimas Kačinskas and his colleagues in 1931, turned into a platform for their program when discussing the current situation and the future of Lithuanian and, more broadly, European modern music. In his articles Kačinskas promoted microtonal music as a road of progress for the

7 The congress was attended by composers Béla Bartók, Paul Hindemith, Egon Wellesz and musicologists Erich von Hornbostel, Robert Lachmann, Curt Sachs.

8 During the Cairo congress, Hába's theoretical insights and microtonal compositions supported the proposal for standardization of a modal system to be recognized by all Arab music practitioners. It was based on quarter-tone harmony, e.g. proposition to adopt a musical scale consisting of 24 equally spaced octave notes by subdividing each semitone into two quarter-tones. This proposal particularly passionate supporters were so-called modernists, especially the Egyptian representatives Mansûr 'Awad, Mahmûd al-Hifnî and Emile 'Aryân standing for ideology of modernizing (and partially Europeanizing Egyptian music). By contrast, the proposal was rejected by conservative Turkish musicians "on account of its arbitrary nature and inappropriateness to accurate measurements of Near Eastern pitch" (Racy 1993, 74).



renewal of national music, rejecting the superficial adaptation and imitation of Western influences. Promoting the ideology of music avant-garde, he wrote:

Quarter-tone and sixth-tone systems of composition implemented in Prague are nothing more than the development of primeval Oriental music combined with European music culture. [...] According to some famous Prague musicians, the Lithuanian people are closer to the Orient than to Western European spirit: they noticed Lithuanian musical rhythms and melodies' character. If we look at our past music, then we will find there a number of intervals smaller than halftones. It is seen that in ancient times the Lithuanians did not know Greek and German *dur* and *moll* tonalities. (Kačinskas 1931, 4)

Kačinskas's contemporary, composer Juozas Strolia,<sup>9</sup> an active contributor to the journal on the issues of modern art, presented ideas similar to those heard in the Cairo Congress:

We have substantial evidence to prove that Lithuanians have felt the beauty of modern music (in the present-day sense) from ancient times. Thus, e.g. non-tempered tuning of musical instruments, augmented intervals occurring in songs, accords of the seconds (not resolved) in "hymns" [Lithuanian polyphonic part-songs – R.S.] and in the music of the *skudučiai* [panpipes] indicate that the origins of the contemporary music have existed in the Lithuanian nation, just the choral singing and consonant harmony imposed upon Lithuanians distorted the very melodies of our folk songs and adapted them to major and minor tonalities. Due to alien influences, presently we are so distant from our true music that we start fearing modernism, whose origins exist specifically in our national music. (Strolia 1932, 23)

However, unlike Hába, from the very beginning of his musical career Kačinskas took a critical view of the opinion widespread in Lithuania that modern music had to be based on the "structure and spirit of the old folk songs" (Kačinskas 1933, 22). The desire to create a model of national music through mechanical generalization of the means of expression of traditional music (the melodic, rhythmic, and harmonic features) was considered by the composer to constrain

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9 Juozas Strolia (1897–1969) – composer, musicologist, violinist, pedagogue, and choir conductor. He studied at Kaunas (1921–1924) and Klaipėda (1924–1929) Music Schools. In 1941, he left for Germany, and from 1951 lived in the USA. He wrote about 300 musical compositions, published works on the history of music theory, and collaborated with the press. Strolia contributed a number of valuable problematic articles on the issues of musical modernism to *Muzikos barai*.

and even hinder the new music as well as limit its progress. For Kačinskas, the basis of the national uniqueness was creative individuality, never repeating the previous stages of human creation and based on “free creative foundations”:

We live in an age where science and art manifest themselves in an especially intense development and the search for new ways. The mind is breaking into still unexplored areas in order to learn everything and to adapt that to life. Love for diversity and a desire to get rid of any clichés is felt. Art has always been sensitive to the character of the epoch, thus currently it also reflects some features of our life. However, it would be inaccurate to assume that art in its ideological expression always strongly depends on the character of the epoch. Frequently it reaches much further. [...] Traditionalism in music only paralyzes its progress, since limitations make a bad influence on the creator’s phantasy and prevents him from using all the roads of the beauty of art. Therefore, the free development of creation within the boundaries of the creator’s control of feelings and mind is the closest to the progress. (Kačinskas 1931, 1)

The interest in microtonal music was also promoted by numerous publications by Alois Hába as well as representatives of his school and interpreters of his compositions (Karel Reiner, Karel Ančerl, Mirko Očadlík, and German conductor Hermann Scherchen) in the Lithuanian musical press. Through presenting the phenomenon of the quarter-tone music in their articles in the journal *Muzikos barai*, they contrasted the Hábaist musical ideology – as they imagined – with the cultural and political decline of the Old Continent. Hába’s followers, including Kačinskas, saw the 1930s not as a time of the avant-garde rejection and its end, but, on the contrary, as a period of mature avant-garde achievements:

Currently, music is undergoing a stage of quest and replacing the vague problems of sound by discoveries and improvements. That allows us to imagine the character of the evolving epoch of the new music. (Kačinskas 1932, 102)

Such claims kindled Kačinskas’s hopes of easily getting wider ranks of musicians and audiences interested in microtonal music in Lithuania, both in the capital and provincial cities. That was demonstrated by the composer’s plans to organize a concert tour of the Czech Nonet in ten Lithuanian cities in 1932, which were only partially implemented.<sup>10</sup>

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10 In October–November 1932, the Society of Progressive Musicians organized a tour of the Czech Nonet in four Lithuanian cities: Klaipėda, Šiauliai, Panevėžys, and Kaunas (altogether, five concerts were held).

The efforts of Jeronimas Kačinskas to institutionalize quarter-tone music at Kaunas Music School, the main national higher music education institution, was categorically resisted by its director Juozas Gruodis (1884–1948), the most authoritative teacher of composition. In 1932, Gruodis allowed Kačinskas to introduce the students of Kaunas Music School to quarter-tone music. The music aroused considerable interest. However, Kačinskas was not permitted to teach quarter-tone music even free of charge. Gruodis thought that the adoption of the quarter-tone system would call for radical changes both in the entire system of teaching and instruments, that is, for abandoning the foundations of the European tradition. On the other hand, microtonal tuning for his ear was “false” and artificial, and he considered the proponents of the system insincere experimenters rather than real artists. Differently from Kačinskas, who insisted on the closeness of microtonal music to the Lithuanian traditional music, Gruodis believed that “quarter-tones were alien to diatonic Europe, and especially to Lithuania” (Gruodis 1965, 219). Kačinskas even intended to set up a private quarter-tone school in Kaunas. However, failing to receive support from official institutions in the then capital of Lithuania, he set up classes of quarter-tone composition, theory, and conducting at Klaipėda Music School in 1933. The classes trained merely a few more serious enthusiasts of microtonal music.

Articles by Jeronimas Kačinskas on the issues of modern art and the promotion of microtonality served as important stimuli for the renewal of music in Lithuania before WWII. His attempts to institutionalize the practice of microtonality in higher music education institutions and concert scenes were less fruitful. However, the efforts left a deep imprint on the Lithuanian music modernization discourse as a not fully implemented musical avant-garde project in Lithuania.

## **7 The Hába school and the interwar reception of Kačinskas’s music**

The concept of tone centrality and folkloric foundations were some of the key features which distinguish the atonality of the Hába school from that of the New Viennese School. Theodor W. Adorno’s attempts to pair Hába’s athematicism with Schoenberg’s atonality of his expressionistic period were criticized by later scholars. Ernst Křenek, for example, argued that Hába absorbed and further developed the inspirations coming from Schoenberg’s atonality from the point where the founder of the New Viennese School had stopped evolving after composing his monodrama *Erwartung* (1909) (Křenek 1939, 161). These divergent opinions represent two tendencies in the reception of the Hába school, which formed during the inter-war years and remained

influential to the present day. Hába liked to repeat to his pupils that, were he a German and not a Czech, his theoretical conceptions would be much more widely recognized. The opinions of his contemporaries and subsequent researchers on the issue differed; one may assume that, for example, the relatively poor reception of the Czech composer's theory of harmony was affected by a gap between microtonality and the discourses of contemporary harmony. Whatever the case, the reception of Hába's athematicism and the conceptions of microtonality in the Czech musical culture and in Germany and Austria were essentially different. The direction of Hába's "contextualization" was symptomatically revealed by views on the relationship of his theoretical thought and creation with Schoenberg's tradition. In the German and Austrian musicology – in overviews of the twentieth century music development, from those by Hans Mersmann (*Musik der Gegenwart*, 1924) and Adorno to those by Hans Heinz Stuckenschmidt (*Musik des 20. Jahrhunderts*, 1979) and Hermann Danuser (*Die Musik des 20. Jahrhunderts*, 1982) – Hába was most frequently considered and analyzed in the environment of the formation of expressionism and dodecaphony. Czech musicologists, on the contrary, tended to relate Hába's originality to his getting the better of the Schoenberg's school. Special attention to that fundamental theme was devoted by Vysloužil, author of the first solid monograph on the initiator of the Czech quarter-tone music. He argued that, despite the theoretical conceptions and creative impulses of the founder of the New Viennese School and the certain closeness of Hába's artistic ideas to Schoenberg's creative principles, any ideas of artistic dependence or even followership ought to be excluded. The musicologist identified three principal differences in Schoenberg and Hába's musical thinking (Vysloužil 1965):

- 1) The Czech composer introduced the concept of the central sound as a substitute for the functional relations of the tonal harmony;
- 2) Hába and Schoenberg's expressive content of atonal music was different: the simplicity and optimism of the Czech composer's works and their folklore origins stood in contrast with the grotesque and violent atmosphere of Austrian and German expressionist music; and
- 3) for Schoenberg, athematicism was just a short creative phase, while for Hába, it became the basis of his compositional style and the symbol of a constantly changing modern life.

Even though Schoenberg was acquainted with Hába's theory of harmony, the world of microtonality was especially alien to him. Spurný, who analyzed the differences between Schoenberg and Hába's theories of harmony and

compositional principles, believed that the Czech composer, who back in the early 1920s had a positive view of the method of dodecaphony, sought to draw a clear caesura between his own ideas and the inspirations of the founder of the New Viennese School. In Spurný's opinion Schoenberg's "participation" in Hába's theory of microtonality was rather a gesture of respect for the authority of the new music which indicated the direction to the musical avant-garde movement (Spurný 2007, 328).

Still, before WWII, the relationship between the Hába school and the New Viennese School was ostensibly competitive. On the eve of the eighth ISCM Festival, in a letter to Slavko Osterc, Hába wrote:

And what's more, Karlsbad (!) is to host the first ever boxing fight between the semitone systems of the Viennese (Schoenbergian) thematic extraction and of our [Prague] athematic (!) extraction. The concert program includes your concerto, my orchestral fantasy, and Karel Hába's Cello Concerto. All three Schoenbergian pupils will be presented for the first time alongside each other [in one concert, R. S.], abreast with their Holy Father. This time all young composers must attend this feast of music in Karlsbad for the purposes of learning! And they should listen to every rehearsal!<sup>11</sup> (quoted after Reittererová and Reitterer 2005)

And, for example, in his overview of the successful reception the pieces representative of his school had in London at the 1938 ISCM Festival, Hába concluded with much delight that his school received the same degree of attention or even greater access to international audiences than the New Viennese School.

Hába and his followers presented a non-uniform movement of (discrete) individuals loosely associated through their common quest for innovation. This way, the Hába school and its founder's activities provided a model for implementation on both levels – that of creation and that of the institutionalization of modern music. These activities reflect the self-awareness and positioning of the Prague microtonal school in the 1930s. In that time in the European modern music scene, a discussion began about the end of experimentation and the search for new paths. An active and influential member of the International Society for Contemporary Music, Hába was not satisfied with the pluralist music policies of the ISCM and the weakening position of the musical avant-garde at the society's festivals. By the mid-1930s with the start of composers' massive emigration from Germany and Austria, the positions of the Prague school

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11 A letter of Alois Hába to Slavko Osterc, Prague, January 3, 1935. Czech Museum of Music, Alois Hába archives.

of microtonal music as a milieu of musical avant-garde in the environment of the ISCM became stronger. It was not accidental that in the context of Hába's school reception it was stated, to quote Kačinskas, that:

The creative forces belonged to Europe's Eastern and South-Eastern states: Czechoslovakia, Yugoslavia, Hungary, Poland, and Lithuania. (St. Mac. 1938)

I NONETTO

Jeronimas Kačinskas  
(1931-1933)

LARGO MAESTOSO

FLUTE

OBOE

CLARINET (Bb)

BASSOON

HORN (F)

VIOLIN

VIOLA

CELLO

BASS

8

Flut.

Oboe

Clar. (Bb)

Bsn.

Horn (F)

Vln.

Vla.

Vc.

Bass

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Example 7: Kačinskas's Nonet (1931-2/1936), first movement, mm. 1-13

This creative competition between the two avant-garde schools also affected the international dissemination and reception of Kačinskas's music. I would like to briefly comment on the critical reception of Kačinskas's composition in the context of the Hába school in national and international cultural environments. In Lithuanian music criticism of the inter-war time, Kačinskas was labelled as "ultramodernist," while his music was classified under "expressionistic atonalism" beyond any references to New Viennese School and without any deeper knowledge or interest in Hába's school. After the Czech Nonet tour of Lithuania, Kačinskas's composition was harshly criticized by conservative musicians. The Nonet was called "decadent music," "a chaos of sounds," "cat music," "mad delirium," and "Bolshevism in the art of music."

This example is intended to illustrate to what extent mainstream styles and concepts could affect the local reception of music. For various reasons Lithuanian musicians, who had studied in Paris, Berlin, or Prague, adopted from their teachers and colleagues not only modern music vocabularies and styles but also their misgivings about or open hostility towards the school of Schoenberg. Despite that, Lithuanian music critics often described their works in terms resonating with the typical reception of Schoenberg, such as "atonal" or "expressionist" music. This testifies to the power of international critical discourse to influence even the most secluded peripheral musical cultures where modern music of any kind was identified with imaginary harbingers of innovation and radicalism in music, along with the most striking features of their work, irrespective of stylistic trend to which that music really belonged.

Kačinskas's composition, included in concert programs organized or promoted by Hába and his supporters, gained much attention from international critics. As evidenced by Hába's correspondence with Slavko Osterc and other active members of the International Society for Contemporary Music, the Czech composer considered Kačinskas's work, especially his Nonet, as one of the most representative pieces written within the framework of his school. After the Nonet's premiere in Lithuania in 1932 and the first performance in Prague in the autumn of the same year, this piece received many more performances in various European venues where it was presented as a typical exponent of the athematic style. In 1933, the Czech Nonet performed this piece on its tour in Italy and later repeatedly included it in radio broadcasts in various countries. In 1937, a performance of the Nonet was planned for the special showcase of the Hába school at the ISCM Festival in Paris, but it was not until the 1938 ISCM Festival in London that this plan was fulfilled.



At the ISCM Festival in London, Kačinskas's composition was primarily received as representative of Hába's school. The international reception of the Nonet specifically recorded contradictory opinions about the athematic style in the years of avant-garde's ebb. Mosco Carner compared the athematic style of Kačinskas's Nonet to modern narration in literature, but he was not convinced of the aesthetic value of athematic technique (Carner 1938, 389). Richard Cappel, a reviewer for the *Daily Telegraph and Morning Post*, described Kačinskas's piece as an example of contemporary fashion – to apply the theory and to contemplate what would happen (Cappel 1938). Edwin Evans, newly elected president of the ISCM, characterized Kačinskas's composition as an interesting piece, but he had doubts about the method of athematicism and in a humorous way compared it with Mr. Jourdain, the character from Molière's play, who lives a full life not knowing he speaks in prose (Evans 1938, 68). Polish composer Michał Kondracki described the Nonet briefly as "à la Hába" but featured the piece among the 11 most interesting compositions presented at the festival (Kondracki 1938, 4). Critical reviews clearly testified to the reception of athematicism outside Hába's camp: the mastery of Kačinskas's Nonet received positive evaluations; however, comments on the prospects of athematic thinking and the universal character of Hába's method were restrained.

Nevertheless, after the seventeenth festival in London, the musical critics featured the best contemporary composition schools based on the presentations of young composers and in some way summarized the achievements of the interwar period: they highlighted four schools related to modern music centers in Vienna, Berlin, Paris, and Prague, mentioning the disciples of Schoenberg and Schreker; the pupils of Ravel, Roussel and especially Nadia Boulanger from Western Europe and the US; and the pupils of Vítězslav Novák, Karel Jirák and Hába featured among Central European and Balkan emerging composers (Haefeli 1982, 257).

## 8 Closing notes

Hába's "quarter-tone school" trained active members of the Central and Southeast European musical avant-garde: that was an exceptional outcome of Hába's doctrine and academic activity, the contribution of his lively personality that laid the foundations for the modernization of music beyond the great centers of new music in Europe. Czechs Miroslav Ponc, Karel Hába, Viktor Ullmann, Karel Ančerl, Rudolf Kubín, Karel Reiner, and Václav Dobiáš; Slovenian Slavko Osterc; Bulgarian Konstantin Iljev; Lithuanian Jeronimas



Kačinskas; Serbians Milan Ristić, Ljubica Marić, Vojislav Vučković, and Dragutin Čolić; Turkish Necil Kâzım Akses; and other “non-thematicists,” after their studies in Prague, insistently sought to modernize musical life and to set up institutions for the promotion of new music in Czechoslovakia, Slovenia, Serbia, Bulgaria, Turkey, Lithuania, and other countries. The concentration and common activities of the Hába school in the interwar period intensified. Brave young forces integrated into the modern music scene immediately after the global economic crisis, in the atmosphere of growing political tension.

The abrupt change in the political and artistic climate in the middle of the twentieth century precluded the realization of Hába’s ambitions to the extent he would have imagined. After many years as an emigrant, Kačinskas regrettably admitted that Hába’s system failed to realize its full potential. His microtonal theory did not receive wider acceptance and was supplanted, as he said, by *musique concrète*, that is, “manipulation of musical and non-musical sounds” (Kačinskas 1997, 352). Kačinskas’s microtonal music’s potential to modernize Lithuanian music was not exploited, either, as, after WWII, the scores for his microtonal compositions were not available. However, information about the interwar Lithuanian microtonal music inspired composers of the younger generation and, starting with the 1980s, microtonal music came back to life in the post-avant-garde compositions of Rytis Mažulis and had followers in the music of the youngest generation of composers of the twenty-first century as one of the elements in the language of music.

I would like to end my article with a brief conclusion: more thorough research into the athenatic and microtonal music by Jeronimas Kačinskas allows us to revise and modify the established narratives of Lithuanian music history by conceptualizing the manifestations of the first-wave pre-war avant-garde in Lithuania. His works composed before WWII, due to very limited dissemination, were reflected and interpreted in the context of the local national modernist mainstream rather than discussed and placed in the broader context of the international musical avant-garde and modernism. The symptoms of such attitude are still frequently encountered in the writings of Lithuanian musicologists, where the concept of the Lithuanian musical avant-garde has been used quite reluctantly and parenthetically due to uncritical replication of the descriptions formulated in the critiques of the inter-war period. To a similar extent, a critical revision of the Hába school would encourage more comprehensive comparative research into the work by its representatives. Exploration of its interwar and early postwar reception can considerably augment and amend our knowledge about the character of school relations in the cultures of musical modernism.

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**IV.**

**EKMELIC MUSIC**



**Franz Richter Herf**

## **The Presence of Ancient Greek Music in the Today's Musical Work<sup>1</sup>**

When talking about the ancient Greek music, it is meant to be a specific historically delimited period. It starts with the era of Homer (about 800 B.C., thus after the Dorian migration) and terminates in the time between about 350 and about 300 B.C., when entering the Hellenism.

The continuation which the notion of the music of the Greek people has undergone in the intellectual and musical history of the Occident, is in his importance in no way inferior to the influence that the Greek architecture, the sculptoring, the philosophy, and the poetry have been exerted on. Since the few fragments which have been preserved from the music of the Greek, first of all, do not originate at all from the classical period, furthermore, since they do in no way convey a notion of the nature and the artistic impact of the music, the emanating forces have not to be looked for in the music as a sounding phenomenon.

The post-Christian centuries until today have been actuated to artistic inspiration, to the emulation of the ancient example, and to research, above all, by four imagining and mental spheres in conjunction with the Greek music:

- by the music as an idea,
- by the Greek tragedy,
- by the doctrine of ethos and the katharsis and thereby the role of music in the education,
- by the musicology, in particular, by the tradition of the Greek music theory.

The music as an idea, "Musiké", originally means the sounding of bound speech, of verses; a verse cannot be rendered other than by singing, it originally comprises in itself a musical element. "Musiké" is not what we understand by music, instead it is the work of the poet when it sounds, music and poetry simultaneously. This unity which is no longer conceivable for us today

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<sup>1</sup> The text was first published in *Uni-aktuell*. Zeitschrift der Österreichischen Hochschülerschaft der Universität Salzburg, 3, 1982/83, 13 ff. A shorter version was published also in: MAEDEL, Rolf, and Franz Richter HERF. 1983. *Ekmelische Musik*. Innsbruck/Neu-Rum: Edition Helbling, 13 ff.

starts to decompose at the end of the 5<sup>th</sup> century – after the classical period. Music and poetry separate from each other.

Until the 5<sup>th</sup> century, the “Musiké” is intimately associated not only with the poetry but also with dancing.

The rhythm of the Homeric hexameter seems to have been that of a round dance. The choral lyrics of the 7<sup>th</sup> and 6<sup>th</sup> century and the choirs of the classical tragedy in the 5<sup>th</sup> century also have to be understood from the perspective of dancing. Chorus means “roundel”; the word has attained its today’s meaning not until the Christian era.

The Greek rhythm is not an independent musical, but likewise a verbal rhythm: the verse rhythm in the unity of the “Musiké.” It is not based on the accentuation of the individual words but on the length and shortness, respectively, of the individual syllables, on the quantity. We can state a lot about the Greek rhythm, yet not only on the basis of the descriptions of theorists, but above all on the basis of similar rhythmic attitudes which are today still vivid in the folk music of Greece and of the Balkans. So, for instance, the rhythm of the round dance Syrtós Kalamatianós, which is typical for the modern Greek folk music, can be traced back until the era of Homer.

Until the classical period however, the singing definitely takes precedence. The actually tonal aspect of the music is called “Melos”, composed of:

- Logos (Word),
- Harmonia (Modulation, i.e. the stress ratio between the consecutive tones), Rhythmos (Order of movements).
- Harmonia and Rhythmos have to accept a subordinate role to the Logos.

The “Musiké” of the classical period is never an art by itself in our meaning and for that reason alone, it is not comparable with our music. The major importance of the Greek music that has never been attained again in this sense by an occidental people is due to the connection of direct relatedness to life and immediate relationship to the deity. Music was not an accompaniment, it was an integral part of a cult, state ceremonies, celebrations, or of sociability.

The Periclean era (5<sup>th</sup> century) (Pericles 478–429) with the high classicism in the field of graphic art also leads up to a new period in music history which is likely at its zenith in the dramatic arts. The tragedy arises out of the Dithyrambs at the Dionysos festivals. Classical authors of the Greek drama: Aeschylus (525–456), Sophocles (496–406), Euripides (484–406).



The participation of the music in the drama is not entirely clarified. The most important musical forms are: the marching in, standing, and recessional song of the choir, choral chants with pantomimic dance, lyrical dialogs of mostly lamenting character. The choir is constituted by 12 and later 15 singers. Whereas in Sophocles, the music bears only a contentual and factual relation to the dramatic plot, in Euripides, it is by its atmospheric character involved in the entirety of his tragedies. Euripides has introduced in the artistic composition of the drama as a musical innovation a form which can be paraphrased with the term of the solo aria.

We know that the development of the opera (about 1600, in the Baroque period) originates from the longing for reawakening of the Greek tragedy. But even all reformative movements in the history of the opera try to emulate ancient examples. Gluck seeks a congenial declamatory unity of text and music; Wagner transfers the ancient choir into the orchestra. All these endeavours had been inspired by the Greek tragedy which, however, could not rise again in its original form.

Although the few preserved musical memorials of the Greeks are readable, they do not allow to make the music sound again. The Greek music is a music which consists in sounding, i.e. it is not based on notation like the western music. The Greek notation emerges not until after the classical period; when the unity of speech and music decomposes. It shall prevent the decomposition, and preserve the tradition of the musical practice. It serves for the fixation of sounding music and puts down in writing only what is no longer arising solely from the self-evident practice. In order to create sounding music from the Greek notation, one actually would have to know the Greek music: that what you want to reconstruct turns out to be the prerequisite for the reconstruction.

I would like to touch just shortly upon the ethos doctrine which takes up much space with the Greeks also in the music. It has a dominant position as moral keystone in the political and educational system, since in the Greek intuition music, according to its character, positively or negatively affects the human will.

The music serves the religion and the state. In Sparta, Thebes, and Athens, it is compulsory in the education to learn playing the Aulos and to participate in the choir. The practice of the melodies takes place in historical order, first the ancient hymnody of the sagas of gods and heroes, not till then the contemporary music. In Arcadia, it is public liability to attend music lessons up to the age of 30.

The ethics of Plato allows for the musical education of the youth only the Dorian key which is masculine, severe, and stabilizing the character, as well as the Phrygian key which is passionate and sparking off to belligerent deeds. The Lydian is refused because of its soft character. However, not only the keys but also the modes are of ethic importance. The diatonicism corresponds with the Dorian, the enharmonicism is used particularly in the music of the classical tragedy, the chromaticism is excluded from the tragedy.

By specifying the terms key and mode, we are already in the thick of the Greek music theory which is quite completely handed down to us.

The Greek music is originally based on the pentatonic scale. With the intrusion of elements of the linear musical culture of Asia Minor the five-step scale becomes a seven-step scale, by inserting two “irrational” tones (trail tones, without a precisely definable pitch) between the five tones.

Here we find the first evidences for the Occident of smaller tone steps than that of the semitone. They are called “Diesis” by the later Greek theorist. Though, in the Pythagorean era, “Diesis” denoted the diatonic semitone step (256:243) which later received the name “Leimma”. Then just those tone steps which were smaller than the semitone have been counted among the Dieses.

The Greek tone system has been described not until the age of Hellenism (beginning about 350 B.C.) and is based on a decidedly linear-melodic music. This is a product of race-foreign influences and mixtures; chromaticism and enharmonicism with their Dieses have thoroughly intermingled and modified the original music of the Greeks.

The tone system is based on the interval of the fourth, on the downward four-tone series, the tetrachord. Attaching on top of a tetrachord an equally constructed one results in the complete scale (the octave species of the respective key). The position of the semitone step within the tetrachord distinguishes the principal keys (Harmoniai):

- Lydian (medieval Ionian)
- Phrygian (medieval Dorian)
- Dorian (medieval Phrygian)

From each of these scales, two secondary scales can be formed by attaching a tetrachord corresponding to the basic scales above or below and by completion to the full octave:

below hypo-    above hyper-

Fifth down    Fifth up

Completing the octave above and below each by a tetrachord and adding a tone at the lower octave results in the complete system (system *téleion*). The two tetrachords in the middle are called “separated” (*diezeugménon*), the outer ones “connected” (*syneménon*).

The scales are transposed in order to be able to apply them in accordance with the normal ambitus of the Lyra and the Kithara, respectively, which features initially only four up to five, later seven up to seventeen strings.

On the other hand, the modes are determined by the different structure of the tetrachords. The frame, the fourth, always remains the same. The two tones in the middle are replaced by inserting irrational tones, in fact: for the chromatic mode by an irrational tone at the second position from the top, for the enharmonic mode by a tone at the third position. The diatonic mode which represents the oldest one, does not contain these irrational tones; they have to be traced back to the oriental influence.<sup>2</sup>

### ***Sample 1***

#### **Tetrachords:**

**1a – enharmonic after Eratosthenes 1b – chromatic after Archytas**

**1c – diatonic soft, tempered after Aristoxenus 1d – diatonic soft after Ptolemy**

We can exclude these irrational tones both from the tuning of the Lyra and also from the scales of the Aulos.

### ***Sample 2***

**2a – Lyra tuning, Dorian soft**

**2b – Aulos scale, from Dieses**

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2 Audio samples are available on pCloud: <https://my.pcloud.com/publink/show?code=0ZFJ9HZUMkzfRF5gUfwr4E6JgpBffATa0zX>

In order to be able to systemize and represent all irrational tones which arise from the transpositions of the keys and modes, Aristoxenus of Tarent (300 B.C.) suggested to divide the tetrachord in 30 pieces. This micro-structure yields 72 degrees in the octave. We will encounter again this number in the contemporary fine-step (ekmelic) music.

When considering the Greek music theory, one has above all Pythagoras in mind. In the doctrines of the Pythagoreans the ancient cosmology with music and number continues to sound, but here it has the character of an esoteric doctrine whose knowledge remains restricted to secret societies, to small enclosed circles. The magnificent results of this science had more likely an impact on acoustics and the theoretical basics of music than on its development as an art genre.

Although the musical practice of the ancient Greece cannot be investigated scientifically it is at least within the bounds of possibility that rudiments of the Greek Melos have been preserved in individual regions down to the present day. So the Istrian cantos, but in particular, the wind instruments commonly use there – called Sopile which are always employed in pairs like the Aulos – points out to a possible vestige of the Greek Auletic. Also characteristic is the heterophony frequently found between the singing voices and the instruments. – Heterophony means a melodic variation as a decoration and paraphrase of the principal voice by a second, mostly instrumental voice. No polyphony or contrapuntism in our sense.

### **Sample 3**

**Istrian: *Vrbniće nad morem* 3a – 2 Sopiles**

**3b – Singing**

**3c – Two male voices and 1 Sopile**

The Istrian Sopiles are also used in the livelier instrumental music for the folk-dances. In this capacity, I have employed them in my opera *Odysseus*, namely at the beginning of the first scene; Menelaos celebrates with many friends the wedding of his son. This festivity is interrupted temporarily by the arrival of Telemachos who wants to obtain information about the fate of his father Odysseus. The two Sopiles are accompanied by side drums, a trumpet theme gives this dance music a festive character.

**Sample 4**

**Franz Richter Herf: *Odysseus*, Op. 12 (1979), 1<sup>st</sup> scene, beginning**

The music at court of Menelaos has probably sounded not quite like this, but here a reconstruction is not the issue, which would not be possible at all, instead it is an inspiration from the Greek archaicum.

A further example for the Greek influence indirectly via the Istrian music is the musical version of the poem “Welle der Nacht” by Gottfried Benn. The singing is framed by an atmospheric picture of the Istrian coastal landscape. The dance tune sounding from afar, with the Sopiles being imitated by two oboes, applies the Istrian scale.

**Sample 5**

**Franz Richter Herf: *Welle der Nacht*, Op. 2 (1973)**

But not only in Istria, also in Macedonia, we still find today music that has not fulfilled a further development to the polyphony and possibly still comprises elements of the ancient Greek music. In the sample of a Macedonian shepherds’ song, a melody sounds over a stationary chord made of a fifth and a fourth with a great many irrational tones appearing in it. However, the clarinet-like instrument originates more recently.

**Sample 6**

**Macedonian shepherds’ song**

The fine-tone system of the ancient Greek monody and heterophony has been lost for the moment by the emergence of the occidental polyphony (earliest beginnings in the 10<sup>th</sup> century A.D.). It has come to a simplification and coarsening of the tone system. The irrational (ekmelic) tones were not applicable for the formation of chords. At the beginning, it even was a problem to place a harmonious third into the tone system. But in the course of time, more and more tones could be included also into the polyphonic music; first in a rather spare chromaticism, but finally by the introduction of the “equal temperament” (end of 17<sup>th</sup>, beginning of 18<sup>th</sup> century) a complex chromaticism and enharmonicism was feasible. Attempts of further differentiation of the tone system (Gesualdo 1560–1613) had no long-term success for the time being. The expansion of the chromaticism and enharmonicism was far from being finished. Not until the beginning of the 20<sup>th</sup> century, there is a growing number of tendencies to

introduce microtones. Under the representatives of this tendency, we find names like Busoni, Stein, Avraamov, Ives and Wyschnegradsky. The most important, doubtless, is Alois Hába who uses in his works already quarter and sixth tones and takes twelfth tones into consideration at least theoretically.

**Sample 7**

**Alois Hába: String quartet No. 11, Op. 87, 2<sup>nd</sup> movement  
*Andante misterioso***

By the emergence of composing with 12 tempered tones, after the principle of Schoenberg and Hauer, this development has temporarily been stopped for 50 years.

Favoured by the introduction of electronics in the music, today more and more composers deal with the microtones and apply them in their works, even though mostly not systematized. On that point, two short clipping by Lutosławski and Ligeti.

**Sample 8**

**8a – Witold Lutosławski: *Livre pour orchestre* (1968)**

**8b – György Ligeti: *Chamber concert for 13 solo instrumental performers* (1970)**

The endeavour to integrate the microtones in our western tone system induced Rolf Maedel and me in 1970 to start a common research work. In doing so, the division of the octave in 72 degrees as already suggested by Aristoxenus turned out to be the most favourable solution for a microtonal system also for the polyphony. With this fine-step temperament, all audible tone values are perceptible with sufficient accuracy. Since this is also the case with all overtones – the Greeks did not yet know that the whole-numbered proportions are at the same time overtones – the microtones in the chords lead to completely new sound combinations.

**Sample 9**

**9a – Ekmelic chords, produced with the fine-step organ**

**9b – Three times ground tone progressions (temp./prop.)**

Like in those days, the influence of the Orient has enriched the archaic music of the Greeks by irrational tones and refined the tone system, also today it comes again to a further refinement of the existing tone system by non-European influences, for instance, of the Indian or Persian-Arabian music, and to the integration of all musical cultures of this earth into the occidental polyphony.

***Sample 10***

**10a / b / c – Franz Richter Herf: *Odysseus*, Op. 12 (1979),  
Introductory chorus / 5<sup>th</sup> scene / Final chorus**





**Franz Richter Herf, Rolf Maedel, Horst-Peter Hesse**

## **Microtones**

The word *tone* as used in music theory, has two meanings: firstly, a single tone as opposed to the chord, and secondly in the sense of a tone step. When one speaks of whole tones, semitones or quarter-tones then it is the second meaning of the word that is being referred to. The term *microtone* also refers to the second meaning and designates as a generic term all steps on the pitch scale which are smaller than a half tone step.

From ancient times, many oriental music cultures have made use of finer tone steps than those which our traditional 12-semitone system offers. Already in the ancient world, microtones were described in rational proportions in the so-called enharmonic mode by Greek music theorists. In the 2<sup>nd</sup> century AD, Ptolemy wrote three important books about the ancient practice and theory of music; in his second book he pointed out that the whole tone must be subdivided into twelve microsteps, hence the octave into 72 microsteps in order to obtain all the pitch steps that were practically being used.

In the Christian music of the early Middle Ages the enharmonic mode was dismissed in favour of the diatonic genus. The reason for this was that the Christians remoulded the ancient ethical doctrines.

In the course of the development of polyphony the repertoire of the tone steps of the medieval hexachord system was insufficient and was continually expanded by placing the accidental. These chromatic changes did not mean a transition into another *modus*, instead a tone colouring – a “brightening” or a “dimming” – which served the intensification and weakening, respectively, of the melodic tendency progress. The use of tones which were not in accord with this system were called “*musica falsa*” or “*musica ficta*” by many music theorists. The development could not be stopped in polyphonic music if one wanted to place pure consonances over or under an existing voice.

During the Renaissance period there was a general consciousness that there had been an ancient Greek tetrachord division and many sophisticated systems were developed, not only to realize perfect fifths but also perfect thirds on keyed instruments.

Nicola Vicentino (1511–1576) subdivided around 1555 the whole tone into five microtones each with about 40 cents and developed with his “Archicembalo” and the “Arciorgano” instruments with 31 keys per octave.

This attempt, however, was only an approach to the ideal fifth (3:2) and the third proportion (5:4). An absolutely exact realization is impossible because octaves, fifths and thirds do not exactly go into each other, because the proportions rely on the prime numbers 2, 3 and 5, respectively, whose products and powers do not concur.

A century after Vicentino, 1675, Nikolaus Mercator (1620–1687) developed a 53-step system. This system is superior to all other subdivisions of the octave in one respect: his steps cover, with great accuracy, the values of the Pythagorean scale based on the fifth proportion (3:2) as well as those of the Didymic scale, in which the perfect major third with the proportion (5:4) is included.

While twelve perfect fifths put on top of each other exceed seven octaves by the Pythagorean comma (23.46 cents), 53 fifths are only 3.62 cents bigger than 31 octaves. If you put a major third on eight fifths (in the circle of fifths from C to G sharp) the five octaves are exceeded just by the so-called schism (1.95 cents); this means that you can fit into the system the major thirds with an accuracy which lies far below the discrimination of the ear (tone identity). The 53-step system combines octaves, fifths and thirds much better than our twelve step one. Its disadvantage is that it is very unwieldy.

In the second half of the 19<sup>th</sup> century, for many composers, the chromaticism which they could put to use in the 12-step tempered system was insufficient; they required a finer distinction and made experiments with quarter-tones. These can be easily formed by singers, string and wind instrument, but cannot be controlled exactly. In order to fulfill these requirements, the first quarter-tone piano was built in Moscow in 1864. This was followed by the Behrens-Senegalden model.

Apart from this simple subdivision of the semitone, there were attempts to subdivide the octave organically into such fine steps that they could represent exactly defined proportions. While Carl Eitz (1848–1924) in constructing his “Eitz Harmonium” used again the 53-step system, the Dutchman Adriaan Daniel Fokker, as Vicentino before him, decided in the 20<sup>th</sup> century to use the 31-step system.

Since the end of the 19<sup>th</sup> century, many composers have made use of microtones in their compositions and have tried to explore the limits of audibility

and controllability of a fine step chromaticism. They reached different stages. While the Mexican composer Julián Carrillo (1875–1965) demanded microtones down to a level of 1/16-tone (12.5 cents), others were satisfied with quarter-tones or sixth tones, amongst others Charles Ives (1874–1954), Béla Bartók (1881–1945), Alois Hába (1893–1973), and Ivan Wyschnegradsky (1893–1979).

The composer Wyschnegradsky introduced in 1916 the term “Ultrachromaticism” for the fine step melody shape which uses microtones. Apart from him, Georgy Rimsky-Korsakov (1901–1965), the grandson of the famous composer, and Arseny Avraamov (1886–1944) devoted themselves to research into microintervals during the 1920s. Their work led, in the 1960s, to the construction of a synthesizer by Evgeny Murzin (1914–1970) with a 72-step subdivision of the octave. The synthesizer can be seen at the Scriabin Museum in Moscow.

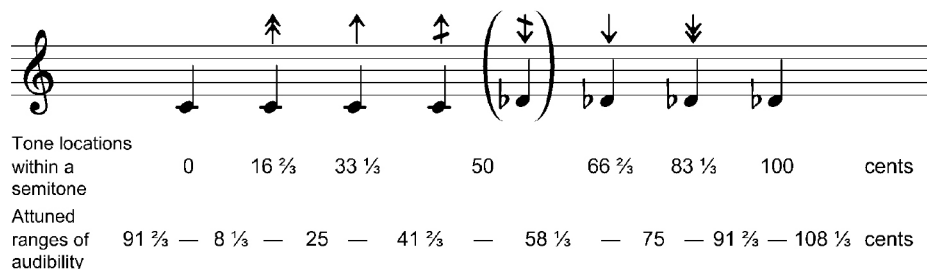
Since 1970 at the Mozarteum in Salzburg, the 72-step system – as proposed by Ptolemy – has been tested both in theory and practice: Maedel and Richter Herf 1977, Maedel 1983, Franz Richter Herf with his opera *Odysseus* and and numerous other compositions with microtones (Ekmelic Music), vinyl records DIESIS.

The collaborators of the Institute for Basic Musical Research at the Mozarteum settled on the 72-step system for the following reasons:

1. The size of the tone steps within the 72-step system (16.67 cents) is estimated in such a way that the pitch distinction is easy to recognize with long sustained tones (the limit of pitch discrimination under this condition lies between 5 and 8 cents), on the other hand, in dynamic music, this is near the medium limit of the discrimination for pitches.
2. The number 72 is a multiple of 12. Therefore the 72-step system comprises all the steps of the equal tempered semitone system and moreover, offers a finer gradation of the tempered semitone steps in six micro-step, respectively.
3. In this system, the most essential natural tones (overtones, partial tones) are approximated to  $\pm 5$  cents, whereas the limit of pitch discrimination in dynamic music remains below this level (sound identity).
4. The microtone steps can be notated with only three additional signs to the conventional notation.



The arrows are always placed above the notes and apply to the respective measure, just like the accidentals. A diagonal slash cancels them. The cent values for the six tone locations and their attuned ranges of audibility are specified below:



With chords, bent arrows show which tones are to be raised and lowered, respectively:



The arrows hardly complicate the legibility of the score; practice has shown that the musicians are acquainted with the additional signs in a minimum of time. With the exception of keyed instruments, all instruments are able to play microtones; the best are of course the strings and, among the brass instruments, the trombone. The woodwind instruments can reach all the microtones demanded – partly by employing new fingering positions not used till now, partly by changing the lip tension. An electronic keyed instrument with 72 steps per octave was built in Salzburg in 1974.

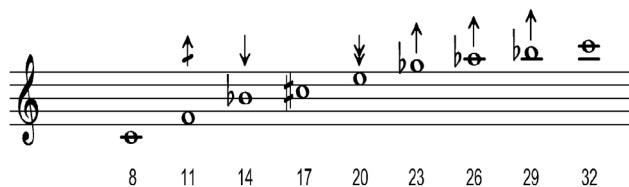
In order to make appropriate use of microtones in polyphonic compositions, the quality of the harmony (sonance) has to be considered because music

which does not take harmony into consideration, does not correspond to the character of occidental polyphony. According to the disposition of our sense of hearing, we notice the ratios of the frequencies when more tones sound simultaneously. These ratios are always expressed by integral proportions. In practice, within the 72-step system, all proportions up to 105 can be used, since the proportion 105 : 104 is the smallest step in the system. The level at which a chord merges depends on the selection of single tones and their grouping.

With the first six tones of the partial-tone series, three consonant chords can be formed: the major triad (4 : 5 : 6) and both of its inversions. The traditional 12-step tone system is based on these first six partial tones – the senarium. Within this system, other higher partial tones with sufficient accuracy are included (9., 15., 17. and 19. approximately). With the 15<sup>th</sup> partial tone it is possible to build-up three more consonant chords: the minor triad (10 : 12 : 15) and both of its inversions. However, with the 7<sup>th</sup> partial tone, we gain a far better, although unfamiliar, minor triad 6 : 7 : 9 which represents a real contrast to the major triad. But in the traditional tone system there is no 7<sup>th</sup> partial tone and also no 11<sup>th</sup> or 13<sup>th</sup> tone. These “ekmelic” tones are essential for the development of new harmonious chords.

In the (theoretically infinite) progression of the proportion numbers, intervals are defined each by two adjacent numbers and as the numbers increase the intervals become smaller and smaller. New chords can in this way be formed that a selection is made from the total stock of proportion numbers (series of natural numbers) by building arithmetic series. Example: 3, 7, 11, 15, 19, 23, 27 etc.

The so-called inharmonious (pseudoharmonious) part-tones, that can be heard, in particular, with bells, are also created in such series. With such microtonal structures – similar to the nature of the bell spectrum – numerous new harmonious chords can be built-up. As an example, the arithmetic series 3 on 2, i.e. 2, 5, 8, 11, 14, 17, 20, 23, 26, 29, 32 etc. Between the proportion number 8 and 32 the following interval structure will be created:



The chord has a very pleasant sound, even when considering the attuned hearing of the system tones to the natural tones of the partial-tone series. If these tones are transposed into the range of an octave, then the following 8 step tone scale is obtained:

Partial tone	16	17	20	22	23	26	28	29	32
Cents	0	105	386,3	551,3	628,3	840,5	968,8	1029,6	1200

The intervals between the notes are:  
 Cents            105 — 281,3 — 165 — 77 — 212,2 — 128,3 — 60,8 — 170,4

This scale is closely related to the sonance series from which it is derived. This means diatonicism. Deviations from the steps of this scale are to be handled in accordance with the principles of microchromaticism. Also, the parallel use of two or more series is possible and leads to bi- and polytonality, respectively. Thus, by incorporating the ekmelic tones we gain a large number of new harmonious chords. In the same way, the possibilities of the melody shape will be substantially enriched.

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## Editors

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His main research interests and teaching areas are the epistemology of music research; the sociology of music; and the history of contemporary, primarily Slovenian, music since 1918. He cooperates regularly with the Music Academy in Zagreb, the Faculty of Music in Belgrade, Karl-Franzens-Universität in Graz, the Music Academy in Sarajevo, and the Ballet College in Ljubljana.

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More at: <http://www2.arnes.si/~lstefa/>





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**Agustín Castilla-Ávila** has worked as a composer in Europe, Asia, and the USA. His music has been conducted by Russell-Davies, Kalitzke, Ceccherini, Soriano, Lintu, and Schellenberger, among others. He has written solo and chamber music, orchestral music, theater plays, choreographies, and five chamber operas. He has published for Doblinger Verlag, Bergmann Edition; Mackinger Verlag, Da Vinci Edition; Verlag Neue Musik; and Joachin Trekel. His music has been recorded on eleven CDs and three DVDs.

He was awarded the 2013 Music Prize (Jahresstipendium) from the region of Salzburg.

He is president of the Internationale Gesellschaft für Ekmelische Musik in Salzburg. He has created a 36-division system for ordinary guitar. His microtonal ideas have been presented in *The Contemporary Guitar* (2015) by John Schneider and in Franck Jedrzejewski’s *Dictionnaire des musiques microtonales* (2004).

He has given nearly a hundred lectures in thirty countries, including at universities such the Reina Sofia in Madrid, the Mozarteum in Salzburg, the Yong Siew

To Conservatory in Singapore, and Boston University. He has also directed the *Mikrotöne: Small is Beautiful* symposium (in 2015, 2017, and 2019) in Salzburg.

**Franz Richter Herf** (1920–1989) studied at the Viennese Academy of Music, and after WWII at the Mozarteum in Salzburg with Johann Nepomuk David, Egon Kornauth, and Bernhard Paumgartner. Additionally, he took private lessons in conducting with Clemens Krauss. In 1948, he became the musical director in Salzburg, and in 1949, he was appointed lecturer at the Mozarteum. Additionally, he worked as freelancer at the Austrian broadcasting company.

From 1970, he and Rolf Maedel became devoted to the research and systematization of microtones. This led to the development of ekmelic music. Herf was the co-founder of the Institute for Basic Musical Research in 1974 and constructed the ekmelic organ using his own design. In the same year, he was appointed a full college professor. From 1979 to 1983, he was the rector of the Mozarteum Academy in Salzburg. In 1985, he established the Microtones Symposia in Salzburg and was in charge of them in 1985 and 1987.

Herf's works written after 1970 in the ekmelic tone system include the opera *Odysseus*, the 2nd symphony, four Ekmelies (these are short pieces of music in one movement for orchestra), and choral and chamber music.

**Rytis Mažulis** (b. 1961) graduated from Prof. Julius Juzeliūnas's composition class at the Lithuanian Academy of Music in 1983. He began teaching at the same institution in 1989 and headed its Composition Department from 2006 to 2014. He studied at the Akademie Schloss Solitude in Stuttgart from September 1998 to April 1999.

In 1988 he won the Tyla Prize for his chamber piece *The Sleep*, and in 1989 he was awarded the Lithuanian Culture Fund Prize for chamber and vocal music. Mažulis is a three-time winner of the best vocal composition (*ajapajapam*, 2002; *Form is Emptiness*, 2006; *Coda*, 2011) in the best compositions of the year competition organized by the Lithuanian Composers' Union. In 2004 he was the recipient of the Lithuanian National Prize, awarded for achievements in culture and the arts.

Rytis Mažulis's works are regularly performed at various important festivals in Europe. The Belgian recording company Megadisc Classics released four CDs of solely his compositions between 2004 and 2010.

**Rima Povilionienė** (b. 1975), PhD in musicology, is a full time professor at the Lithuanian Academy of Music and Theatre, Assistant Editor-in-chief of the scientific yearly *Lithuanian Musicology* and an editor at the Lithuanian National Philharmonic. She is an author of the monograph *Musica mathematica*.

*Traditions and Innovations in Contemporary Music* (Peter Lang, 2016, 288 p.). Rima is a co-editor (with Nick Zangwill and Rūta Stanevičiūtė) of *Of Essence and Context: Between Music and Philosophy* collection for Springer (2019). She held a researcher position at the International Semiotics Institute (ISI) at Kaunas University of Technology and at the Centre for Science at the Lithuanian Academy of Music and Theatre. Rima held internships at the Institute of Musicology at Leipzig University (2004) and IRCAM (2012) and attended Eastman School summer courses in Paris, IRCAM (2019). She has edited over 15 collections and published more than 30 scientific articles and 150 critical reviews. She has been a guest lecturer at such institutions as Leipzig University, the Tbilisi Conservatoire, the Belgrade University of Arts, the J. Vītols Latvian Academy of Music, Vilnius University, and Kaunas University of Technology. Her monograph *Musica Mathematica* (in Lithuanian, 2013) was awarded Prof. Vytautas Landsbergis Foundation Prize for the best musicological work of the year. She is an editor of two collections for Springer (2017 and 2019).

**Vlasta Reittererová** (b. 1947 in Prague) studied musicology at the Charles University in Prague. Between 1972 and 1987 she worked at an art agency, and from 1987 to 2002 she was a librarian and assistant at the Department of Musicology at Charles University. From 1998 to 2002 she worked as a teacher (history of music) at the Prague Conservatory and from 2002 to 2007 as an external teacher at the Masaryk University in Brno. She lives in Vienna. Specialization: music of the nineteenth and twentieth century, music theater, and German-Yiddish composers in Czechoslovakia between the world wars.

**Gabrielius Simas Sapiega** (b. 1990) is currently studying at the Lithuanian Academy of Music and Theatre for a doctorate. He deepened his knowledge of musicology in France (Conservatoire de Lyon), and of philosophy in Israel (University of Jerusalem). He studied for his Bachelor of Music Composition under Raminta Šerkšnytė and continued his master's studies with Mārtiņš Viļums. Sapiega composes instrumental music of various kinds and regularly participates in composition master classes and music festivals. Sapiega's works have been performed in such countries as Lithuania, France, the Czech Republic, Austria, and Estonia and have been broadcasted and recorded for the UK BBC 3 radio.

**Lubomír Spurný** (b. 1965) is a full time professor of musicology at the Institute of Musicology of the Masaryk University in Brno. In his research he concentrates on the music theory and aesthetics of the first half of the twentieth century. He is the author of books on Heinrich Schenker and Alois Hába and the editor of several other books and journals. Since 2018 he has been the director of the Terežín Composers' Institute.

**Tomaž Svete** (b. 1956) studied at the Music Academy in Ljubljana and afterwards at the High School of Music and Dramatical Arts in Vienna with Friedrich Cerha in composition (diploma with distinction 1986, Master of Arts 1989) and with Otmar Suitner in conducting (diploma 1988). He is a freelance composer and conductor and an honorary professor for composition at the Karl Prayner Conservatory in Vienna. Since 1995 he has been a professor of composition at the Faculty of Education in Maribor, Slovenia. In the fall semester of 1999, he was a Fulbright professor at the University of Hartford, USA.

His works for orchestra (two symphonies, *Double concerto*, *Violin concerto*, *L'amôr sul mar*, *Divertimento*, *Gothic windows*, *Le jardin oubliée*), vocal-instrumental works, 40 chamber music pieces, 10 operas (among them *Antigona*, *Kriton*, *Ada*) and *Requiem* have been performed during many important festivals in Europe, USA, Israel, and Taiwan.

For his opus, he has received many distinctions and prizes, as well as the first-place prize for his opera *Kriton* at the Johann-Joseph-Fux competition for opera composition in Graz in 2000.

**Zoran Šćekić** received his BFA in Jazz Guitar at the University of Music and Performing Arts in Graz, Austria. As a recipient of the Bruxelles Stipendium in 1998, he went to Helsinki and Vienna, where he completed his MA in Jazz Theory, Composition, and Arrangement and participated in the International Summit of Music Academies as a representative of the Sibelius Music Academia.

His works as a composer, arranger, and guitarist in the field of written and improvised music are available on several official and unofficial studio and live recorded CD albums as a result of his playing jazz guitar, writing works, and working with some international names such as Miroslav Vitouš, Chriis Jarrett, Michael Abenne, Bill Dobbins, Bob Brookmeyer, and Jon Irabagon.

Within his microtonal work, Šćekić had composition premiers in European capitals, seminars on microtonal harmony based on his book *Five Limit Intervals – Theory & Praxis*, and presentations for a microtonal keyboard prototype (Z-board) built in San Diego using his design. He released in cooperation with USA Ravello Recordings and NAXOS "JUST MUSIC" his first CD album of microtonal pieces written for solo piano in Just intonation, which was one of the 15 CD albums on last year's Grammy Award winner's John Schneider's list The Best of 2015, next to Harry Partch, Essa Pekka Salonen, Wynton Marsalis, and Brad Mehldau. He is the leader of the project Adria Microtonalis, established in May 2016, to initiate the first microtonal analysis of a Croatian traditional intonation system from the north Adriatic region, protected as UNESCO cultural heritage.

He is also one of the founders and the chairperson of the Croatian Association of Microtonal Art dedicated to the promotion, development, and advancement of traditional and contemporary microtonal music; to initiate and promote systematic and detailed research and promotion of traditional microtonal systems as an important part of cultural heritage; to compose and to interpret within microtonal systems as one of the key directions of further development of music in general; and to promote an objective connection between science and art.

**Miloš Zatkalik** (b. 1959) is a composer and music theorist from Belgrade and a full time professor at the University of Arts in Belgrade's Faculty of Music. He is a visiting professor at the University of Banjaluka (Bosnia and Herzegovina) and was formerly at the universities of Novi Sad and Kragujevac. He has been invited to lecture in Canada, Norway, the USA, Slovenia, Germany, and Australia.

Major symphonic works: *Minas Tirit: What's He to Hecuba; Of Saralinda, Xingu and the Duke Swallowed by Golem—A Fable for Symphony Orchestra.*

Major chamber works: *The Mad Carriage-greeter from Ch'u; Lost Fragments II; As if Nothing Had Happened; Seemingly Innocent Game; Noise in Inner Silence.*

Major works for chamber orchestra: *Dum incerta petimus, Lost fragments; Four Visions of Absence; Four Chromatic Transformations;* solo instruments (flute, viola, cello); songs.

As a theorist, he has presented at many scientific conferences worldwide and published a number of papers. His recent publications include a book on post-tonal prolongation. His principal research areas include analysis of twentieth-century music, with special interest in goal-oriented processes in post-tonal music; relationships between music and literature; and the psychoanalytic foundations of music analysis. He co-authored the first Serbian electronic textbook on music analysis. He serves on the editorial board of the *New Sound Journal of Music* and the Vilnius-based *Principles of Music Composing.*

He is a member of the University Senate and a representative of the Composers Association of Serbia, which is a part of the European Composers and Songwriters Alliance. He has also held the position of head of Department of Music Theory and was vice-chairman of the University Council, a member of the Composers Association of Serbia Managing Board, and a member of the jury of Serbia's only award in composition. He also holds a degree in English language and literature.



## Summary

Over the centuries in Western music, microtonality has been primarily a theoretical issue that did not enjoy much practical interest. Attitudes towards microtonality have radically changed since the early twentieth century. In the work by Ferruccio Busoni, Alois Hába, Julián Carrillo, or Ivan Wyshegradsky – the classics of the musical avant-garde – microtonality was reinvented and updated as an advanced theoretical concept and a liberating compositional practice. Although the idea of microtonal music as an avant-garde utopia became exhausted by the late 1960s, it encouraged numerous musical practices, from composition and performance to the manufacture of musical instruments. In the contemporary omnivorous culture, microtonality exists on different levels of different musical practices.

This volume is based on the conviction that microtonality is a fundamental change-indicating concept in Western music history. The book focuses on the development of microtonal music in Eastern and Central Europe from World War I to the present. The authors examine how diverse concepts of microtonality have given way to new composition theories and practices in the region, which has long been marginalized in general histories of avant-garde and post-avant-garde music. These scholars hold the view that even between WWI and WWII, microtonal music and its theoretical reflection were outstanding contributions of Eastern and East-Central European composers to the contemporary discourse of avant-garde music. That provoked radical changes in the composition and performance practice of new music and affected several generations, sustaining and transforming early avant-garde insights.

Organized into four sections, the book encompasses a broad interdisciplinary trajectory, combining analytical approaches with historical studies and artistic research. Throughout the volume, our contributors explore the interactions of Central/Eastern European and Western music and musicians as creative forces that illuminated cross-cultural exchange. The first section “Microtonality Versus Microchromatics: Concepts and Contexts” reflects a diversity of issues and approaches addressing microtonal music concepts and practices. It begins with the chapter “Introduction to Microtonal Music” by Lidia Ader, which discloses a study on microtonal music and its phenomenon in different musical spheres. Based on research of new techniques, it revives hidden layouts of the course

of late nineteenth- and early twentieth-century music development. During this observation and analysis the author recalls forgotten works and names and lesser-known scores. She carried out such research in archives of microtonal leaders in Russia, the UK, France, Germany and the Czech Republic. This allowed major centers of microtonal music to be united and it to be analyzed in a general context. The terminological overview includes discussions on the unification of a joint notion, observing such concepts as xenharmony, ekmelic, super-chromatic or ultrachromatic, microdimensional, microchromatic and microtonal music. Discussing the phenomenon of microtonal music as a whole, it is necessary to analyze the numerous prerequisites for the idea of splitting sound into micro-components at the beginning of the twentieth century, to reveal the general cultural and social processes that were the impetus for its development and dissemination, and finally, to pay attention to the parallel experiences of splitting the whole into parts in the second part of the paper. The next observation includes analysis of the evolution of auditory sensations and physical processes accompanying a century of innovation. The key part of the chapter proposes the classification of existing works by systems used in the works. The author introduces basic and applied features with succeeding subdivisions. A short look at the marginal culture of composers who worked in the microtonal field shows some conclusions and reflections on microtonal composers' destiny and the results of their work.

The overview of the contemporary microtonal composition practices is continued in the chapter "Microtonality in Slovenia: The Concept and Its Scope" by Leon Stefanija. Stefanija argues that the history of microtonality in Slovenia is sketched from the first discussions of the topic during the World War I to the second decade of the twenty-first century. When Vito Žuraj (1978), a composer active mainly in Germany, gave a pre-concert talk in Cankarjev dom on March 13, 2015, after he received the highest national recognition, the Prešern's Prize, for his recent work, he commented that today many contemporary composers also write *only* microtonal works. He, among some other composers today, accepted microtonality as a *common* compositional vehicle. The concept had to undergo a thorough redefinition to become a *common* in music after it was reflected publicly for the first time in Slovenia in 1928 by one of the theoretically best-informed composers in Slovenia, Srečko Koporc (1900–1965), and further propagated by the main "opinion maker" of the 1930s, Slavko Osterc (1895–1941), who wrote only two pieces of microtonal music. Namely, although after WWII the concept of a microtonal system was considered a part of the modern aesthetic capital, it was considered but as a consequence (Alojz Gržinič), even as a dead-end (Ivo



Petrić) to romantic chromatism. A more positive attitude toward microtonality came with the growing popularity of electronic music during the 1960s, especially in Slovenia with the generations of composers that were active from the last quarter of the twentieth century (such as Uroš Rojko, Brina Jež Brezavšček, Urška Pompe, Tadeja Vulc, and Nina Šenk, among many others from the younger generations).

In the Stefanija's opinion, microtonality today is a clear sign of composers' rootedness in the avant-garde tradition. However, the artistry emerging out of different aesthetic ideals connected to microtonality has a different meaning today than in the early days of the concept. Two layers of the phenomenon are traced out as crucial. On one side, microtonality was seen as a technical issue enabling an expansion of a musical universe that has been growing in importance generally only after World War II and features as a commonality of sound-art culture today. On the other side, the tectonic shifts in the musical habits within the last century reveal microtonality as a powerful utopian concept with several ideological faces, ranging from the Slavic stream between the wars to the fuzzy concept of making and understanding music today.

In the chapter "From Tone Inflection to Microdimensional Glissando: Observations on Microtonal Manner in Contemporary Lithuanian Music," Rima Povilionienė examines Lithuanian microtonal music in a wider international context. At the beginning of the twentieth century, increasing attempts to produce microtonal music resulted as a response to the rapid changes taking place in the world and a burst of technological innovation. Microtonal experiments prompted the decline and transformation of the 12-tone temperament, introducing such theoretical ideas as *el sonido trece* (Carrillo) and sixth-tones scale (Busoni), bichromatic music (Möllendorff) as well as the rich and refined oeuvres of Wyschnegradsky, Hába, their pupils, and other followers. However, today the description of non-12-tone as well as music of different tuning, including microtonal, is rife with concepts and systematization attempts due to the variety of microtone applications and the highly individualized technological as well as aesthetic approaches by each composer. The chapter collects and examines the cases of microtonality systematization (e.g. bipartite generalization based on observations by Werntz, Denyer, Haas, etc.) in order to highlight the important features of microtonal music composition and to present specific cases in Lithuanian contemporary music that focus on operating with microtones as an expansion of the single tone (unison), shaping the glissando, manifestation of integral microchromatics (cf. ultrachromatics by Wyschnegradsky), and others.

In the chapter “Microtonal Music in Serbia: A Newly (Re)discovered Resource” Miloš Zatkalik rethinks the spread of microtonality in Serbia from the historical and analytical perspectives. Although non-tempered and microtonal intonations abound in Serbian traditional music, both folk and church, microtones were used only rarely by composers of art music, chiefly by a handful of those who studied with Alois Hába. It is, therefore, remarkable that the second decade of the present century saw an eruption of interest in microtonality among younger generations of composers (typically doctoral students). Their primary concern is not so much with microtonal systems of pitch organization, and in the majority of cases microtones are treated as inflections of “regular” pitches, rather than pitches in their own right. Instead, microtones – notated almost invariably as  $\frac{1}{4}$ -tones – are generally used with the intention of evoking folk traditions (not only Serbian) or ancient and non-Western civilizations. This is part of an apparently broader tendency of archaization, or more precisely, of incorporating the past into the present.

The research focus of the chapter “Microtonality in the Post-spectralist Context: Microintervalics in the Compositions of Gabrielius Simas Sapiiega and Mārtiņš Viļums” by Simas Sapiiega is the conversion of microintervalics in the music of the second half of the twentieth through the early twenty-first century. The manifestations of the new microintervalics that began to form in avant-garde music stimulated changes in the principles of composition, transformed the established idioms of music, and reconstructed the relationship between the composer and the composition. When looking through the prism of the theory of music and seeking to detail different strategies of compositional techniques employing microintervals, the taxonomic categories of transference, syncretism, and synthesis (cf. Yayoi Uno Everett 2004) are used. Moreover, the place of microchromatics in the composer's reflective consciousness is brought to the foreground as a network of communicative relationships of historical and theoretical heritage. The final and comprehensively consolidating circle of microprocess conversion reveals the compositions affected by the transformation aspect as the most radical oppositions not only in terms of the strategies of the use of microintervals but also of the notional meanings of functionality. To disclose the transformation of microsystems into the ultimate completion of conversion, different compositions by Simas Sapiiega and Mārtiņš Viļums are analyzed using philosophical-aesthetic insights and the methods of analysis adapted to microchromatics.

The second section “Contemporary Practice of Composing and Performing of Music with Microintervals” addresses issues of current microtonal trends in both composition and performance. It provides composers' own reflections

on aesthetic orientations and microtonal compositional techniques presented in the chapters by Agustín Castilla-Ávila (Austria), Zoran Šćekić (Croatia), Rytis Mažulis (Lithuania), and Tomaž Svete (Slovenia). The section begins with the article “Writing Microtones for Guitar” by composer and guitarist Agustín Castilla-Ávila on composing and performing on microtonal guitar. Castilla-Ávila presents the 36-division system he created for ordinary guitar and discusses other ways to get microtones on guitar with reference to his compositions *Caged Music 3* (2006), *Canto de Nezahualcóyotl* (2018), *Dos Sonetos* (2014), *Sakura* (2012), *Tres Momentos Microtonales* (2001), *Tres Tristes Tríos* (2012) and others.

Based on his rich experiences as a composer, innovator, arranger, multimedia artist, and jazz guitarist in the fields of written and improvised music, Zoran Šćekić tackles issues of microtonal harmony. In the chapter “Introduction to the Five Limit Intervals Harmony” Šćekić introduces us to the original harmonic theory he developed in the book *Five Limit Intervals – Theory & Praxis* and creatively tested in his numerous microtonal compositions. The necessity of the new harmonic approach based on microintervals is discussed at length through the harmonic analyses of the Šćekić’s pieces from the open series of compositions *Just Music / Music for piano in five-limit Just intonation* (2015).

In two chapters (“Structural Cycles in My Microtonal Compositions” and “Composing Microtonal Melody”) Rytis Mažulis opens his creative laboratory for composing microtonal music. The composer typically composes by defining cycles of proportional or mensural canons. Dealing with microtonal music, he argues, various problems of composing melody should be considered. The result of the compositional approach and technical means depends on which particular type of linear model is applied. According to Mažulis, there are five main categories of microtonal melodic models: the motif-based structure; the pendulum motion of the melodic line; microphonic contour; the gliding notes technique; and the resulting patterns. All of these models are illustrated with Mažulis’s vocal and instrumental compositions *Sybilla* (1996), *Palindrome* (1996), *Talita cumi* (1997), *ajapajapam* (2002), and *Canon mensurabilis* (2000).

The chapter “Ekmelic Music in Slovenia” by Tomaž Svete sketches the fragments of the ekmelic music movement from the Slovenian perspective. The author shares his experience from creative cooperation with the Austrian Ensemble of New Music (ÖENM / Österreichisches Ensemble für Neue Musik) and International Society for Ekmelic Music (IGEM / Internationale Gesellschaft für Ekmelische Musik) in Salzburg.

The third section “The History of Microtonal Music in Central and Eastern Europe: Alois Hába and His School” focuses on a historical exploration of early microtonality in Central and Eastern Europe, exploring Alois Hába’s microtonal music school and its international reception. In this part of Europe, microtonal experimentation was institutionalized first at the Prague Conservatory, where Alois Hába started to teach on microtonality in 1923. In the 1930s, when in European modern music centers discussion began about the end of experimentation and the search for new paths, the Eastern European microtonalists opposed the musical mainstream. In the chapter “Alois Hába: A Poet of Liberated Music” Vlasta Reittererová and Lubomír Spurný discuss the historical role of Alois Hába as a leading protagonist of the Central European interwar avant-garde that moved between Vienna, Berlin, and Prague. In the authors’ words, Alois Hába’s life and work are important aspects of his creative biography. In the specific context of Czech music, he likewise has the reputation of being an exemplary innovator but is considered to have been strongly rooted in tradition as well. Hába is known primarily as a tireless propagator of microtonal and athematic music, for which his own term was “liberated music.” In this music he added more subtle quarter-fifth-, and sixth-tone intervals to the semitone system and abandoned the traditional treatment of motifs. Hába’s dream of the unlimited possibilities of new music lasted roughly twenty years (1919–1939) and found expression in a series of pieces that oscillate between the diatonic and bichromatic systems. He wanted to introduce the public to the new tonal systems by using newly constructed instruments, and we might see his progress in this respect as a step towards the institutionalization of his own innovations as a composer. Finally, Hába was a tireless organizer who helped to ensure that works of new music were regularly presented in Prague concert halls. Many of Hába’s pieces provoked a great deal of controversy in their time, and the listener today will certainly be able to judge his output (103 opuses) more objectively. Today, we can see Hába’s creative impulses against the background of a broader pattern of cultural history, in which shorter periods of destruction of existing artistic norms always give way to periods of creative synthesis.

The following chapter of the third section – “The Alois Hába School, Jeronimas Kačinskas, and the Beginnings of the Microtonal Music in Lithuania” – by Rūta Stanevičiūtė examines Hába’s creative impulses, which laid the foundations for the modernization of music beyond the great centers of new music in Europe by exploring the beginnings of microtonal music in Lithuania. By the mid-1930s with composers’ massive emigration from Germany and Austria, the position of the Prague school of microtonal music as a milieu of the

musical avant-garde in the international modern music scene and especially in the environment of the ISCM became stronger. At the time, Alois Hába was especially concerned with the broader representation of his school, and he simultaneously managed to promote his own musical doctrine via his pupils' activities in Central and Eastern Europe. In this chapter the author discusses the effort of Lithuanian composer Jeronimas Kačinskas (1907–2005), a pupil of Hába and an outstanding follower of the Czech composer's microtonal school, to institutionalize microtonality. During his study years, Kačinskas became one of the most prominent adherents of the Hába "school" and continued to consistently deploy the quarter-tone system in his works throughout the 1930s. Having returned to Lithuania in 1931, he seized the opportunity to establish a class on quarter-tone music at the Klaipėda Music School and promulgated ideas of microtonal music in his writings. Kačinskas and some fellow musicians founded the music magazine *Muzikos barai* (Domains of Music) in 1932, which often featured articles by the proponents of the quarter-tone and avant-garde music of the time, such as Hába himself, Karel Ančerl, Karel Reiner, and Mirko Očadlák. To effectuate the dissemination of quarter-tone music in Lithuania he co-founded, in 1932, the Society of Progressive Musicians with a group of like-minded composers, which organised the first Lithuanian tour of the famous Czech Nonet the same year. Along with other contemporary pieces, these concerts featured the world premiere of Kačinskas's Nonet (1931–2/1936) written especially for this ensemble, which was later included in the program of the 1938 ISCM Festival in London. Hába regarded Kačinskas's Nonet among the most remarkable accomplishments in the modern music of the 1930s and several times included this work in concerts that represented his school of composition.

However, the abrupt change in political and artistic climate in the middle of the twentieth century precluded the realization of Kačinskas's ambitions to the extent he would have imagined. After many years in emigration, Kačinskas regrettably admitted that Hába's system failed to realize its full potential, his microtonal theory did not receive wider acceptance and was supplanted, as he said, by *musique concrete*. After Kačinskas's emigration to the United States in the aftermath of World War II, for many decades the Nonet has been the only known example of his microtonal music. Relying on the newly discovered autographs of his microtonal works (for example, Concerto for trumpet and symphony orchestra, 1930–1; Trio No. 1 for trumpet, viola and piano, 1933) and scarcely researched archival documents, this chapter argues the originality of Kačinskas's microtonal compositions and examines their international spread in the context of the Hába school.

The fourth section (“Ekmelic Music”) offers two chapters by Franz Richter Herf – the founder of the concept of ekmelic music – and his co-authors, presenting an important historical source of knowledge on the twentieth-century transformation of microtonality. From 1970, Franz Richter Herf and Rolf Maedel became devoted to the research and systematization of microtones. This led to the development of ekmelic music. Herf was the co-founder of the Institute for Basic Musical Research in Salzburg in 1974 and constructed the ekmelic organ using his own design. The chapters “The Presence of Ancient Greek Music in the Today’s Musical Work” and “Microtones,” kindly provided by the International Society for Ekmelic Music (IGEM / Internationale Gesellschaft für Ekmelische Musik), were originally published in the 1970s and 1980s.

This volume presents new research as well as some testimonies on the rich and varied theories and practices of microtonal music in Czechia, Slovenia, Croatia, Serbia, Russia, Lithuania, Latvia, and Austria. Viewed as a whole, this volume is neither a comprehensive nor an exhaustive account on microtonality within the discussed musical cultures. However, individual contributions as well as the whole volume – and this was exactly what the editors were after – encourage further interest and discussion about history and contemporary musical practices involving microtonality, hopefully not only in Central and Eastern Europe.

## Povzetek

V stoletjih zahodne glasbe je mikrotonskost veljala za teoretično vprašanje, ki ni bilo deležno velikega praktičnega zanimanja. Odnos do mikrotonskosti se je korenito spremenil od začetka 20. stoletja. V delu klasikov glasbene avantgarde – Ferruccio Busonija, Aloisa Hábe, Juliána Carrilla ali Ivana Wišnegradskega – je mikrotonskost na novo izumljena in posodobljena kot napreden teoretični koncept in osvobajajoča kompozicijska praksa. Čeprav je mikrotonska glasba kot avantgardna utopija izčrpana do konca šestdesetih let prejšnjega stoletja, je spodbudila številne glasbene prakse – od kompozicijskih in izvajalnih do izdelovanja glasbil. V sodobni kulturi glasbenega vsejedstva obstaja mikrotonskost na različnih ravneh različnih glasbenih praks.

Zbornik izhaja iz prepričanja, da je mikrotonskost eden temeljnih konceptualnih pokazateljev spreminjanja v zgodovini zahodne glasbe. Osredotoča se na razvoj mikrotonske glasbe v vzhodni in srednji Evropi od prve svetovne vojne do danes. Avtorji preučujejo, kako so raznolika pojmovanja mikrotonskosti odpirala pot novim teorijam in praksam skladanja v regiji, ki so bile dolgo na obrobju splošnih zgodovin post/modernizmov. Uvidi raziskovalcev pričajo o tem, da so se mikrotonska glasba in njeni teoretični odrazi že med obema svetovnima vojnoma pojavili kot izjemen prispevek k sodobnemu diskurzu glasbenih modernizmov in avantgard s strani skladateljev vzhodne in srednje Evrope. Mikrotonskost je prinesla korenite spremembe v pogledih na novo glasbo in je vplivala na več generacij.

Zbornik je razvrščen v štiri poglavja in je zasnovan interdisciplinarno. Združuje analitične pristope, ki sodijo na področje zgodovinskih in klasičnih muzikoloških študij kakor tudi umetniškega raziskovanja. Avtorji raziskujejo interakcije srednje-/vzhodnoevropske in zahodne glasbe ter posvečajo pozornost glasbenikom kot ustvarjalnim silam, ki osvetljujejo medkulturno izmenjavo. Prvo poglavje »Microtonality Versus Microchromatics: Concepts and Contexts« odraža raznolikost vprašanj in pristopov obravnavanja koncepta mikrotonskosti in različnih glasbenih praks. Začne se s poglavjem »Uvod v mikrotonsko glasbo« Lidie Ader, študijo o mikrotonski glasbi in njenem večplastnem učinkovanju na različnih ravneh glasbenega življenja. Raziskovanje novih kompozicijskih tehnik oživi skrite glasbenozgodovinske plasti s konca 19. in začetka 20. stoletja. Med tem opazovanjem in analizami avtorica razkriva pozabljena dela in imena, skoraj neznane partiture.

Raziskavo je izvedla v Rusiji, Veliki Britaniji, Franciji, Nemčiji in na Češkem v arhivih vodilnih ustvarjalcev, povezanih z mikrotonsko glasbo. To je omogočilo povezan pogled na večja središča mikrotonske glasbe, zato prispevek ponuja sintetičen prikaz kontekstov, v katerih se pojavlja. Terminološki pregled prinaša pravcato razpravo o konceptu, ki ga sooblikujejo različni pojmi, kot so enharmonija, ekmelična glasba, superkromatična, ultrakromatična, mikrodimenzionalna, mikrokromatična in mikrotonska (v slovenščini po navadi napačno prevajana kot »mikrotonalna«)<sup>1</sup> glasba. V razpravi o pojavu mikrotonske glasbe je bilo namreč treba analizirati številne spremenljivke, ki so na začetku 20. stoletja botrovale cepitvi tona na mikro sestavine: razkriti je bilo treba splošne kulturne in družbene procese, ki so prispevali k njegovemu razvoju in širjenju mikrotonskosti in jo je zato neizbežno, kot v drugem delu prispevka opozori avtorica, opazovati skozi vzporedne izkušnje delitve intervala na manjše dele in na koncu razgraditve v zven. Aderino opazovanje vključuje analizo razvoja slušnih občutkov in fizičnih procesov, ki spremljajo stoletje inovacij. Avtorica tudi predlaga razvrstitev obstoječih del po sistemih, ki se uporabljajo v delih obravnavanih ustvarjalcev. Kratek pogled obrobne kulture skladateljev, ki so si prizadevali za mikrotonsko glasbo, nakazuje tudi rezultate in usodo njihovega dela.

Pregled mikrotonskih kompozicijskih praks se nadaljuje v poglavju »Microtonality in Slovenia: The Concept and its Scope« Leona Stefanije. Avtor sledi zgodovini mikrotonskega koncepta v Sloveniji od prvih razprav o tej temi med prvo svetovno vojno do drugega desetletja 21. stoletja. Pogled je jasno osredičen v današnji kompozicijski praksi, ki jo nakaže z delom Vita Žuraja (1978), skladatelja, ki je bil aktiven predvsem v Nemčiji, danes pa predava kompozicijo na Akademiji za glasbo v Ljubljani. Zanj je povsem samoumevno, da danes mnogi sodobni skladatelji pišejo tudi samo mikrotonska dela. Avtor je sledil konceptu mikrotonskosti skozi dve plasti pojava. Na eni strani se je mikrotonskost obravnavala kot tehnično vprašanje, ki omogoča širitev glasbene izraznosti; ta plast je postajala čedalje pomembnejša po drugi svetovni vojni in je danes razširjena v različnih glasbenih praksah. Po drugi strani pa je mikrotonskost začrtana kot privlačen utopični koncept z več ideološkimi

1 Napačno zato, ker se koncept mikrotonskosti nanaša na intervalne postope med posameznimi toni, ne na tonalitetne funkcije, ki jih imajo toni v okviru tonalnosti (tonalitet). Zgovorno dejstvo, da se je v muzikologiji in teoriji glasbe uveljavil negativni koncept atonalitetnosti kot eden ključnih pokazateljev modernizma, je samo po sebi zgodovinska problematika, ki več prikriva kot razlaga. Glasbenozgodovinsko dejstvo je, da se širitev in odmik od tonalitetnosti v atonalitetnost na prelomu v 20. stoletje odvija skozi vrsto konceptov, kot nakazuje »terminološka zagata« poimenovanja mikrotonske glasbe. In v jedru zamisli o mikrotonskosti je prav pomik teoretičnega osredičanja glasbe od tonalitetne, ki je vselej funkcijsko pogojena, na diastematiko – intervale in zvoke, ki se ne iztečejo v priljubljeni zgodovinski topos o »emancipaciji disonance«, temveč v različne smeri »emancipacije tonov, zvokov in umetniških hotenj«.



obrazi, ki se razteza od panslovanske ideologije med vojnama do koncepta DIY ustvarjanja in razumevanja glasbe danes.

Rima Povilionienė v poglavju »From Tone Inflection to Microdimensional Glissando: Observations on Microtonal Manner in Contemporary Lithuanian Music« preučuje litovsko mikrotonsko glasbo v širšem mednarodnem okviru. V začetku dvajsetega stoletja so vedno večji poskusi ustvarjanja mikrotonske glasbe kot odziv na hitre spremembe v svetu in nalet tehnoloških inovacij. Mikrotonalni eksperimenti so spodbudili upad in preobrazbo enakomerne uglasitve, saj so uvedli teoretične ideje, kot so *el sonido trece* (Carrillo), šestinotonska lestvica (Busoni), bikromatična glasba (Möllendorff); zamisel je izpričana tudi v bogatem in rafiniranem opusu Višnegradskega in Hábe ter njihovih učencev in podpornikov. Tako so današnji opisi glasbe različnih kompozicijskih rešitev, ki ne temeljijo na enakomerni uglasitvi, pestri glede poskusov sistematizacije raznolikosti individualiziranih tehnoloških in estetskih pristopov. Prispevek naslavlja posamezne primere sistematizacije mikrotonske glasbe (npr. dvoplastno posploševanje, utemeljeno na podlagi opazovanj Werntza, Denyerja, Haasa idr.) in poudarja pomembne značilnosti mikrotonske glasbe. Predstavlja primere v litovski sodobni glasbi, ki se osredotočajo na delovanje z mikrotoni kot razširitvami enotnega tona (unison), oblikovanje glissanda, manifestacije integralne mikrokromatike (prim. ultrakromatika Višnegradskega) in druge.

Miloš Zatkalik v poglavju »Microtonal Music in Serbia: A Newly (Re)discovered Resource« razmišlja o širitvi mikrotonskih kompozicijskih rešitvah v Srbiji z zgodovinskega in analitičnega vidika. Čeprav je veliko mikrotonskih stopinj v srbski tradicijski glasbi, tako v ljudski kot cerkveni, mikrotonske zveze le redko najdemo v umetnostni glasbi, samo pri peščici tistih, ki so študirali pri Aloisu Hábi. Zato je izjemno zanimivo, da je šele v drugem desetletju tega stoletja prišlo do pravcatega izbruha zanimanja za mikrotonskost med mlajšimi generacijami skladateljev (praviloma pri doktorskih študentih). Njihova glavna skrb ni toliko z mikrotonskimi sistemi: mikrotoni se v večini primerov obravnavajo kot pregibi »navadnih« tonskih višin, ne pa kot samostojni intervali. Namesto tega se mikrotoni – skoraj vedno notirani kot  $\frac{1}{4}$ -toni – na splošno uporabljajo z namenom evociranja ljudskih tradicij (ne samo srbske) ali starodavnih in nezahodnjaških civilizacij. To je del očitno širše težnje k arhaiziranju, natančneje k vključevanju preteklosti v sedanjost.

Cilj raziskave poglavja »Microtonality in the Post-spectralist Context: Micro-intervalics in the Compositions of Gabrielius Simas Sapiega and Mārtiņš Viļums« Simasa Sapiega je pretvarjanje mikrointervaličnosti v glasbo druge

polovice 20. do zgodnjega 21. stoletja. Pojavne oblike novih mikrointervalov, ki so se začele pojavljati v t. i. avantgardni glasbi, so spodbudile spremembe kompozicijskih načel, preoblikovale so stare glasbene idiome ter rekonstruirale odnos med skladateljem in skladbo. Če pogledamo skozi prizmo teorije glasbe in poskušamo podrobno opisati različne strategije kompozicijskih tehnik, ki uporabljajo mikrointervale, se uporabljajo taksonomske kategorije prenosa, sinkretizma in sinteze (prim. Yayoi Uno Everett 2004). Še več, mesto mikrokromatike v skladateljevi refleksiji postavlja v ospredje mrežo komunikacijskih odnosov zgodovinske in teoretske dediščine. Končni in celovito utrjujoči krog pretvarjanja mikroprocesov razkriva skladbe, na katere vpliva transformacijski vidik kot najbolj radikalni ugovor, ne samo v smislu strategij uporabe mikrointervalov, temveč tudi kot pojmovanja funkcijskosti. Za razkritje transformacije mikrosistemov v končni dopolnitvi pretvorbe so podane analize izbranih skladb Simasa Sapiega in Mārīnšā Viļumsa po načelu filozofsko-estetskih spoznanj in metode analize mikrokromatike.

Drugo poglavje »Sodobna praksa skladanja in izvajanja glasbe z mikrointegrmi« obravnava vprašanja trenutnih mikrotonskih trendov v kompozicijskih in poustvarjalnih praksah. Ponuja osebne razmisleke skladateljev o estetskih usmeritvah in mikrotonskih kompozicijskih tehnikah, ki so jih v poglavjih predstavili Agustín Castilla-Ávila (Avstrija), Zoran Šćekić (Hrvaška), Rytis Mažulis (Litva) in Tomaž Svete (Slovenija). Poglavje se začne s člankom skladatelja in kitarista Agustina Castilla-Ávila o pisanju mikrotonov za kitaro ter o skladanju in izvajanju mikrotonskih stopinj na kitari. Avtor predstavlja 36-delni sistem, ki ga je ustvaril za klasično kitaro, in razpravlja o drugih načinih pridobivanja mikrotonov na kitari glede na njegove skladbe *Caged Music 3* (2006), *Canto de Nezahualcóyotl* (2018), *Dos Sonetos* (2014), *Sakura* (2012), *Tres Momentos Microtonales* (2001), *Tres Tristes Tríos* (2012) in nekaterih drugih.

Zoran Šćekić, ki izhaja iz lastnih bogatih izkušenj skladatelja, inovatorja, aranžerja, multimedijskega umetnika in džezovskega kitarista na področju pisane in improvizirane glasbe, se spopada z vprašanji mikrotonske harmonije. V poglavju »Introduction to the Five Limit Intervals Harmony« avtor predstavi izvorno harmonijsko teorijo, ki jo je razvil v knjigi *Five Limit Intervals – Theory & Praxis* in jo kreativno preizkusil v številnih mikrotonskih skladbah. Nujnost novega pristopa k harmoniji, ki temelji na mikrointervalih, je podrobno obravnavana s harmonskimi analizami Šćekićevih del iz odprte serije skladb *Just Music/Music for piano in five-limit Just intonation* (2015).

V obeh poglavjih (»Structural Cycles in My Microtonal Compositions« in »Composing Microtonal Melody«) Rytis Mažulis razkrije svoj ustvarjalni

laboratorij za skladanje mikrotonske glasbe. Skladatelj običajno komponira po načelu opredeljevanja ciklov sorazmernih ali menzurálnih kanonov. Za mikrotonsko glasbo je po njegovem mnenju treba razmisliti o različnih problemih skladanja melodike. Rezultat kompozicijskega pristopa in tehničnih sredstev je odvisen od tega, katera vrsta linearnega modela se uporablja. Po besedah skladatelja obstaja pet glavnih kategorij mikrotonskih melodičnih modelov: struktura, ki temelji na motivih; nihalno gibanje melodične linije; mikrofonska kontura; tehnika drsnih not; vzorčenje. Vsi ti modeli so ponazorjeni z Mažulisovimi vokalno-instrumentalnimi skladbami *Sybilla* (1996), *Palindrome* (1996), *Talita cumi* (1997), *ajapajapam* (2002) in *Canon mensurabilis* (2000).

Tomaža Svete v prispevku »Ekmelic Music in Slovenia« s slovenske perspektive skicira delček gibanja za emelično glasbo. Avtor deli izkušnje iz ustvarjalnega sodelovanja z ÖENM/Österreichisches Ensemble für Neue Musik in IGEM/Internationale Gesellschaft für Ekmelische Musik iz Salzburga.

Tretji sklop »The History of Microtonal Music in Central and Eastern Europe: Alois Hába and His School« se osredotoča na zgodovinsko raziskovanje zgodnje mikrotonskosti v srednji in vzhodni Evropi ter raziskuje mikrotonsko glasbeno šolo Aloisa Hábe in njene mednarodne razsežnosti. Mikrotonsko eksperimentiranje je bilo v tem delu Evrope najprej institucionalizirano na praškem konservatoriju, kjer je Alois Hába začel poučevati o mikrotonskosti leta 1923. V tridesetih letih 20. stoletja, ko se je v evropskih glasbenih središčih začela razprava o koncu eksperimentiranja in iskanju nove poti, so vzhodnoevropski mikrotonski skladatelji nasprotovali glasbenemu mainstreamu. V poglavju »Alois Hába: A Poet of Liberated Music« Vlasta Reittererová in Lubomír Spurný razpravljata o zgodovinski vlogi Aloisa Hábe kot vodilnega junaka srednjeevropske medvojne avantgarde, ki se je selila med Dunajem, Berlinom in Prago. Življenje in delo Aloisa Hábe sta po avtorjevih besedah pomembna vidika njegove ustvarjalne biografije. V splošni perspektivi glasbene zgodovine je Alois Hába običajno označen kot vodilni protagonist srednjeevropske medvojne avantgarde, ki se je gibal med Dunajem, Berlinom in Prago. Tudi v specifičnem kontekstu češke glasbe ima sloves zglednega inovatorja, vendar velja, da je bil močno zakoreninjen tudi v tradiciji. Hába je znan predvsem kot neumorni zagovornik mikrotonske in atematične glasbe, za katero je bil njegov izraz »osvobojena glasba«. V tej glasbi je dodal bolj subtilne intervale, kot so četrtoni, petinotoni in šestinoton, in opustil je tradicionalno obravnavo motivov. Hábove sanje o neomejenih možnostih nove glasbe so trajale približno dvajset let (1919–1939) in so našle pot v množico skladb, ki nihajo med diatoničnim in bikromatičnim sistemom. Javnosti je

želel predstaviti nove tonske sisteme z uporabo novo zgrajenih instrumentov in njegov napredek v tem pogledu bi lahko videli kot korak k institucionalizaciji lastnih skladateljskih inovacij. Končno je bil Hába neumorni organizator, ki je pomagal pri zagotavljanju, da se nova dela glasbe redno predstavljajo v praških koncertnih dvorinah. Številna Hábova dela so v tem času izzvala polemike in poslušalec bo danes zagotovo lahko objektivneje presodil njegov rezultat (103 opuse). Danes lahko vidimo Hábove ustvarjalne impulze ob ozadju širšega vzorca kulturne zgodovine, v katerem krajša obdobja razgrajevanja obstoječih umetniških norm odstopajo prostor novim obdobjem ustvarjalne sinteze.

V naslednjem poglavju tretjega sklopa – »The Alois Hába School, Jeronimas Kačinskas, and the Beginnings of the Microtonal Music in Lithuania« – avtorica Rūta Stanevičiūtė preučuje ustvarjalne impulze Aloisa Hábe, ki so postavili temelje za modernizacijo glasbe zunaj velikih središč nove glasbe v Evropi z raziskovanjem začetkov mikrotonske glasbe v Litvi. Sredi tridesetih let prejšnjega stoletja, z začetkom množičnega izseljevanja skladateljev iz Nemčije in Avstrije, so se okrepile pozicije praške šole mikrotonske glasbe v okviru glasbene avantgarde na mednarodnih sodobnih glasbenih prizoriščih in zlasti v okolju ISCM. Alois Hába si je takrat še posebej prizadeval za širše priznanje svoje šole, hkrati pa mu je uspelo promovirati lasten glasbeni nauk z aktivnostmi svojih učencev v srednji in vzhodni Evropi. Avtorica razpravlja o prizadevanjih za institucionalizacijo mikrotonskosti litovskega skladatelja Jeronimasa Kačinskasa (1907–2005), učitelja Hábe in enega izjemnih privrženecv mikrotonske češke skladateljske šole. V študijskih letih je Kačinskas postal eden najvidnejših privrženecv Hábove šole in v svojih delih v tridesetih letih 20. stoletja dosledno uporabljal četrtonski sistem. Ko se je leta 1931 vrnil v Litvo, je v Glasbeni šoli Klaipėda izkoristil priložnost, da ustanovi razred četrtonotske glasbe in v svojih delih začel širiti ideje o mikrotonski glasbi. Skupaj s kolegi glasbeniki je leta 1932 ustanovil glasbeno revijo *Muzikos barai* (Področja glasbe), ki je pogosto objavljala prispevke zagovornikov četrtonotske glasbe in glasbene avantgarde tistega časa, kot so Hába sam, Karel Ančerl, Karel Reiner in Mirko Očadlík. Da bi spodbudil širjenje četrtonotske glasbe v Litvi, je leta 1932 soustanovil Društvo naprednih glasbenikov s skupino podobno mislečih skladateljev, ki je istega leta organizirala prvo litovsko turnejo slavnega češkega Noneta. Skupaj z drugimi sodobnimi deli je na teh koncertih potekala svetovna premiera Kačinskaso-vega *Noneta* (1931–2/1936), napisanega posebej za to zasedbo, ki je bila pozneje vključena v program festivala ISCM leta 1938 v Londonu. Hába je Kačinskasov *Nonet* označil za najbolj izstopajoče dosežke sodobne glasbe v

tridesetih letih 20. stoletja in je to delo večkrat programiral na koncertih, ki so predstavljali njegovo kompozicijsko šolo.

Vendar je nenadna sprememba politične in umetniške klime sredi 20. stoletja preprečila uresničevanje Kačinskasovih ambicij v obsegu, ki si ga je bil zamislil. Po mnogih letih v emigraciji je Kačinskas z obžalovanjem priznal, da Hábov sistem ni uresničil svojega polnega potenciala, njegova mikrotonska teorija pa ni bila deležna širšega sprejema in ga je, kot je dejal, nadomestila *musique concrete*. Po izselitvi Kačinskasa v ZDA po drugi svetovni vojni je bil *Nonet* dolga desetletja edini znani primer njegove mikrotonske glasbe. Avtorica se opira na novo odkrite avtograme njegovih mikrotonskih del (na primer *Koncert za trobento in simfonični orkester*, 1930–1; *Trio št. 1* za trobento, violo in klavir) in komaj raziskane arhivske dokumente Kačinskasove mikrotonske glasbe in preučuje njihovo mednarodno širjenje v okviru šole Hába.

Četrto poglavje (»Ekmelic Music«) ponuja dve poglavji Franca Richterja Herfa – ustanovitelja koncepta ekmelične glasbe – in njegovih soavtorjev, ki predstavljajo pomemben zgodovinski vir znanja o preobrazbi mikrotonskosti v dvajsetem stoletju. Od leta 1970 sta se Franz Richter Herf in Rolf Maedel posvetila raziskovanju in sistematizaciji mikrotonov. To je privedlo do razvoja ekmelične glasbe. Herf je bil leta 1974 soustanovitelj Inštituta za temeljne glasbene raziskave v Salzburgu in je izdelal ekmelične orgle po lastnih načrtih. Prispevka »The Presence of Ancient Greek Music in the Today's Musical Work« in »Microtones«, ki jih je vljudno odstopilo IGEM/Internationale Gesellschaft für Ekmelische Musik, sta bila prvotno objavljena v sedemdesetih in osemdesetih letih prejšnjega stoletja.

V zborniku so torej predstavljene nove raziskave in nekatera pričevanja o bogatih in raznolikih teorijah in praksah mikrotonske glasbe na Češkem, v Sloveniji, na Hrvaškem, v Srbiji, Rusiji, Litvi, Latviji in Avstriji. Če gledamo kot celoto, ta zvezek ni niti izčrpen niti celovit pregled mikrotonskosti znotraj obravnavanih glasbenih kultur. Vendar pa posamezni prispevki in zbornik v celoti – in prav to sta si sourednika želela – spodbujajo nadaljnje primerjalno in interdisciplinarno zanimanje za zgodovino sodobnih glasbenih praks, ki vključujejo mikrotonskost kot nekaj samoumevnega, in sicer ne samo v srednji in vzhodni Evropi.



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