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Composing Microtonal Melody[1]

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.

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 Mykietyn (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).

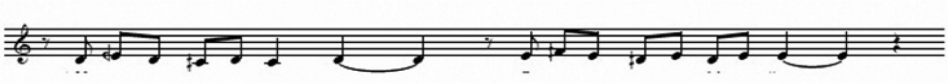
The basic structure of *Sybilla* consists of a simple diatonic scale of d–e–f–g–a–b–c. The melody is constantly transposed upwards, as in a spiral canon (there is also the Latin term *canon per tonos*). However, the initial motif, which is permanently repeated, includes altered notes (the distance of 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)

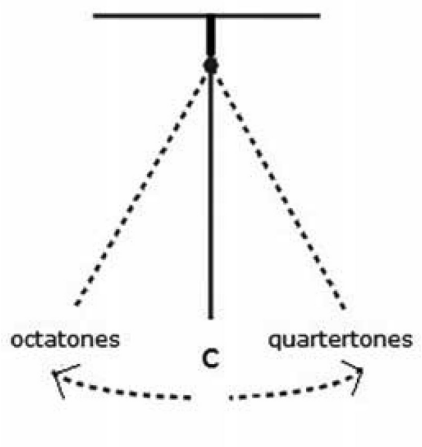
Example 1: Mažulis's Sybilla *(2015), graphical reduction of the score*



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.

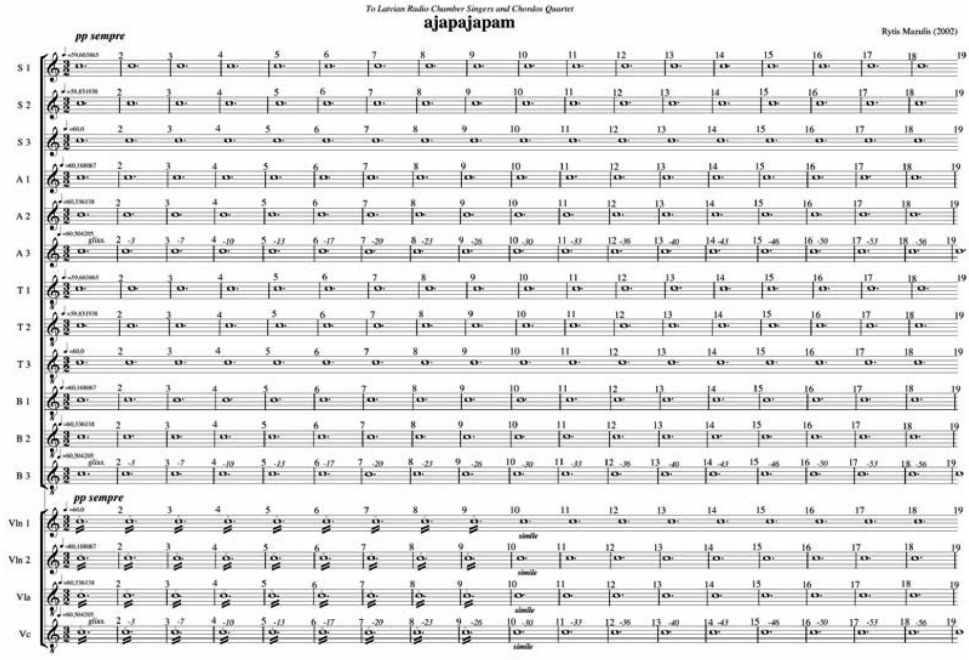
Regarding the perception of this music, musicologist Helga de la Motte wrote:

> 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).



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.

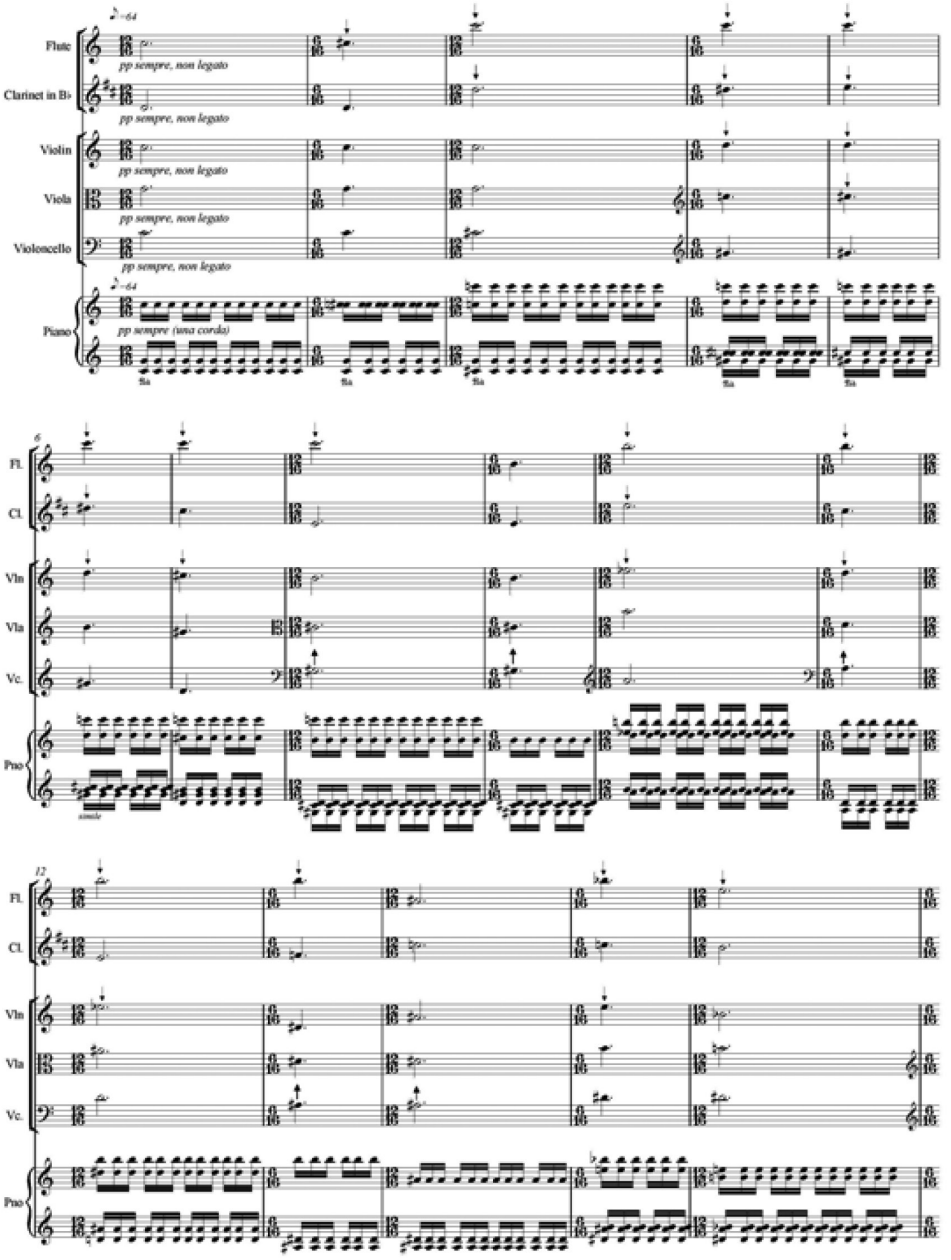
3 Conclusions

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.



Example 5: Mažulis's Canon mensurabilis *(2000), quarter-tone rows*

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