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Composing Microtonal Melody

Annotation

Dealing with microtonal music, various problems of composing melody should be considered. The result of the compositional approach and technical means depends on which particular type of the linear model is applied. There are five main categories of microtonal melodic models: motif-based structure (related with traditional melodic patterns); pendulum motion of melodic line; microphonic contour (hardly comprehensible changes of smallest microintervals); gliding notes technique (based on the application of extended *glissando* passages for the whole composition, in which the *glissando* gestures are not decorative, but strictly structuralized elements); resulting patterns (occurring in cases when the melodic pattern is not 'composed' as a line, but results from the interaction of various structural parameters). All of these models could be illustrated with my vocal and instrumental compositions "Sybilla", "Palindrome", "Talita cumi", "ajapajapam", "Canon mensurabilis".

Keywords: microtonal music, quartertones, linearity, canon technique, equidistant subdivisions, melodic models, motif-based structure, pendulum motion, microphonic contour, resulting patterns, gliding notes.

Dealing with microtonal music, various problems of composing melody should be considered. It is important to emphasize that the conception of linearity in microtonal music depends on two factors:

- role of microintervals in the musical material;
- perception of applied intervals.

When we are dealing with quartertone 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), like in some of my compositions that will be discussed later.

The composer, who decides to deal with microtones in his composition, should firstly make a choice, whether he is going to 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 in structural level.

The result of the compositional approach and technical means depends on which particular type of linear model is applied. Basically, these models were not derived theoretically, but rather developed on practical experimenting with different compositional means applied on microtonal material. So it is based on my experience and represent various decisions that were required working on compositions with different ideas and practical circumstances, like a collection of instruments in the ensemble, vocal or instrumental performance, possible mixing with electronics, or finally writing for computer-controlled instruments.

1. The roots of my microtonal music

I used microtones 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 quartertone steps. Yet another idea connected with poetic text from Vergilius (*par levibus ventis, volucrique simillima somno*) – the sound (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 there is just a breathing of air remained.

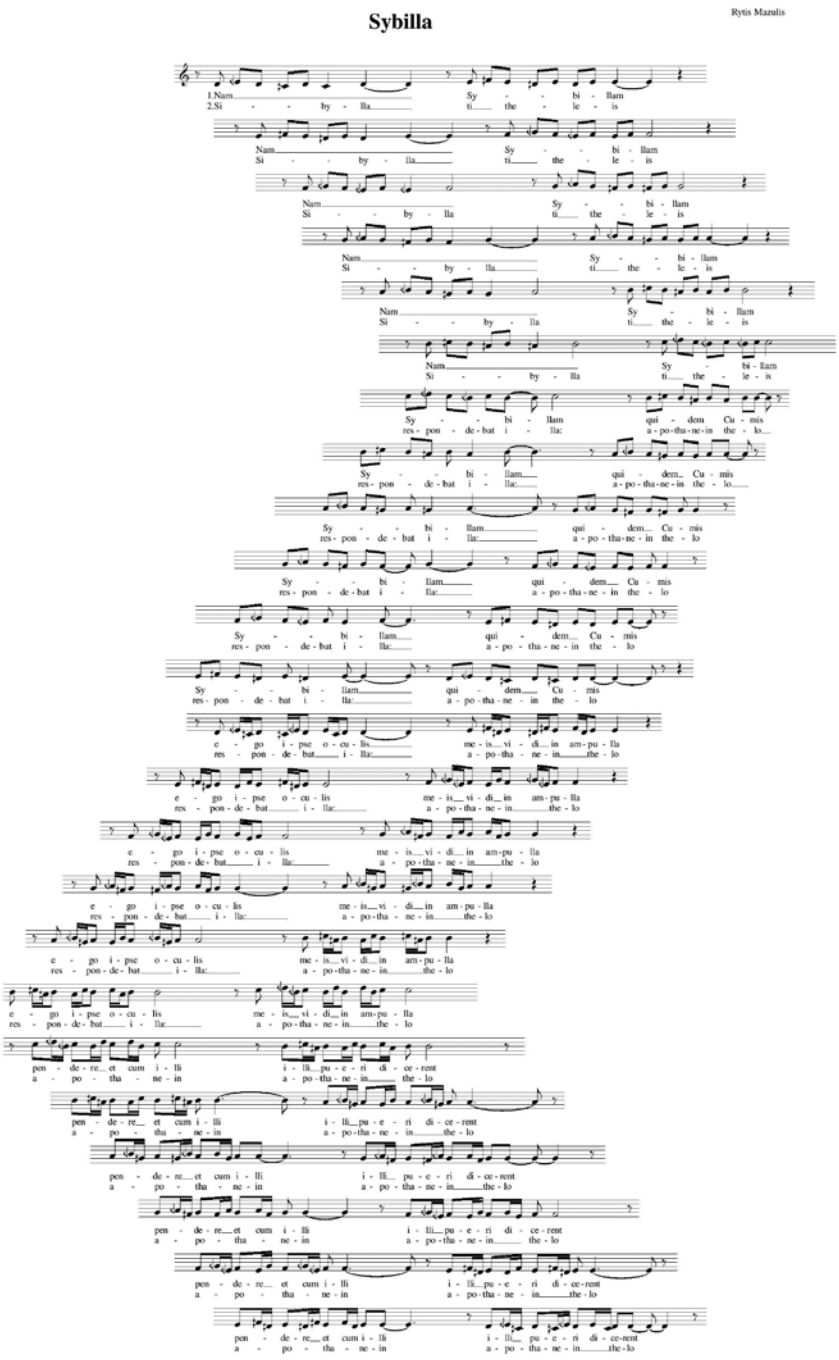
Starting with "Tranquility" I often deal with microintervals in different approaches, but the main principle, subdivision of the octave or tempered semitone into equal parts, remains. Whereas this principle might look quite artificial, it is also typical for some ethnic cultures, such as Javanese traditional music with the Slendro system. Some other contemporary composers also use similar concept of equal subdivision, such as Silvia Fomina (equipentatonic and equiheptatonic scales), Paweł Mykietyn (harmonic quartertone system), etc.

2. Five categories of microtonal melodic models

According to my experience, there are five main categories of microtonal melodic models. I am going to discuss each of them separately, together with five compositions where those structures were generated.

2.1. Motif-based structure

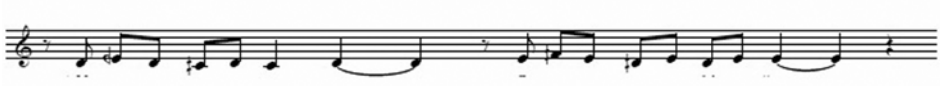
The first model is a motif-based structure. It is related with traditional melodic patterns and is perceived as a conventional linear motion despite of unusual microtonal alterations. As example, I would like to show an excerpt from the vocal canon "Sybilla", written in 1996. (Ex. 1)



Example 1. *Sybilla*

The basic structure of "Sybilla" consists of simple diatonic scale d-e-f-g-a-b-c. The melody is constantly transposed upwards, as in spiral canon (or there is a Latin term *canon per tonos*).

However, the initial motif, which is permanently repeated, includes altered notes (the distance of neighboring pitches is three quartertones: d – e/quartertone flat – d – c/quartertone sharp; Ex. 2). These alterations create an interesting harmonical effect, when 12 parts (6 female and 6 male voices) sound simultaneously. Harmony is the result of contrapuntal motion.

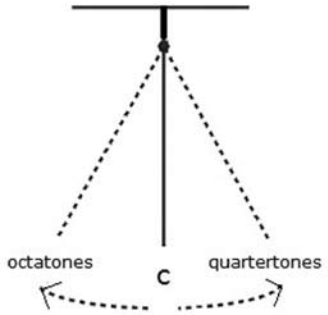


Example 2

As the musicologist Gražina Daunoravičienė mentioned, "*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 round, like Mažulis' 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."[1]

2.2. Pendulum motion

The second model, pendulum motion of melodic line, may be illustrated with the computer music piece "Palindrome", produced in 1996 (Ex. 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 quartertone scales. Therefore, the single melody encompasses both scales, which permanently alternate each other. In the process of composition, after the melody was created, the second step was to construct 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, getting the same result.



Example 3

2.3. Microphonic contour

The third model concerns the microphonic contour, which includes hardly comprehensible changes of small microintervals. In some of my compositions there are very small intervals 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 structures. Here the magic of composition owns 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."[2]

The term "microphonic" refers to Gerard Grisey when he talked on the liminality of music considering the sound phenomena that comes closer to the boundaries of the perception.[3] There are also scientific terms that refer to the smallest changes of the pitches a person is able to detect. According to Donald Hodges, the

1 Daunoravičienė, G. (2003). Sound architecture of Rytis Mažulis' microstructural canons (from 100 to 3,448275862 cents). In: *Menotyra* / Studies in Art, No. 1.

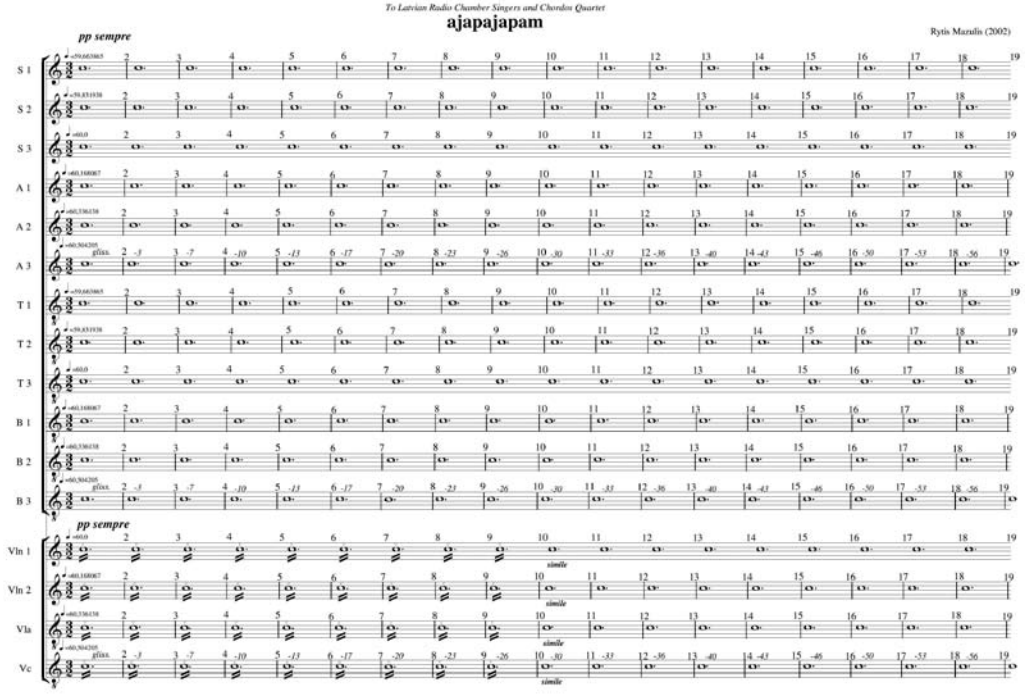
2 De la Motte, H. (1999). *Talita cumi*: the Audible in the Inaudible, booklet of CD Rytis Mažulis *Talita cumi*, Lithuanian Music Information and Publishing Centre, Akademie Schloss Solitude.

3 Rose, F. (1996). Introduction to the Pitch Organization of French Spectral Music. In: *Perspectives of New Music*, Vol. 34, No. 2 (Summer), p. 6–39.

Just Noticeable Difference (JND) can be from 0.5 to 4 Hz, depending on the frequency level.[4] For me it is important that a melody composed in such a scale may be considered as a linear phenomenon, and to be perceived as a succession of different individual pitches. Nevertheless, it depends on a listener's approach and 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, but strictly structuralized elements. As an example let us analyze the excerpt of my composition "ajapajapam", written in 2002 (Ex. 4).



Example 4. *ajapajapam*

The idea was to create a melodic *glissando* pattern, and to extend it in time, until the duration of around 35 minutes is 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.

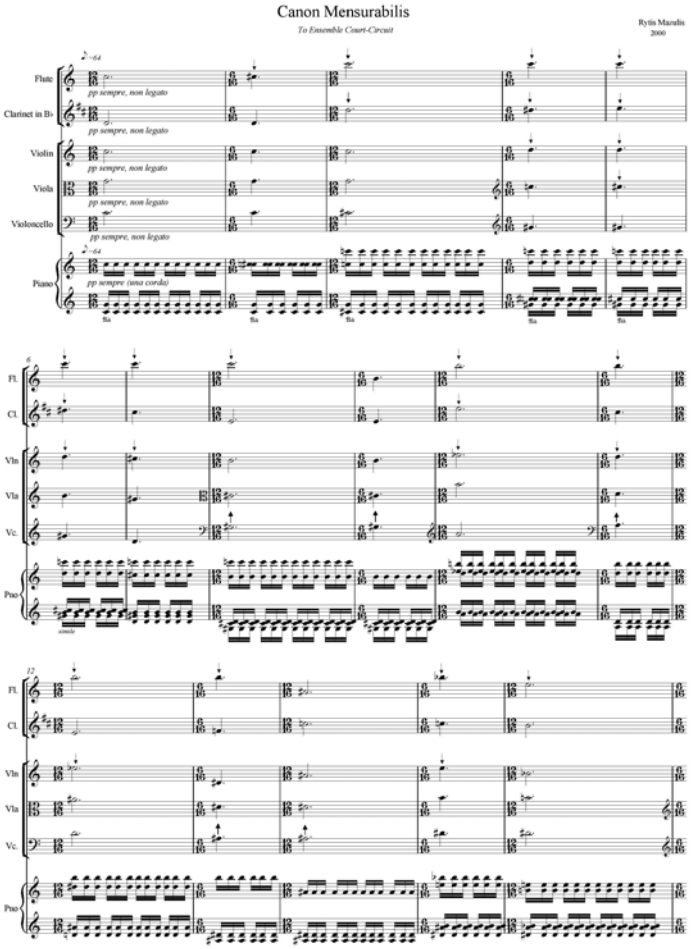
The linear process in this composition cannot be perceived as a row of different or individual intervals. It is rather an endless note, which multiplies into the polyphonic layers of sounds.

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 (Ex. 5), the quartertone 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

[4] Hodges, D., & Sebald, D. (2011). *Music in the Human Experience. An Introduction to Music Psychology.* New York and London: Routledge. Taylor & Francis Group, p. 117.

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.



Example 5. *Canon mensurabilis*

Conclusions

In conclusion, I would like to add that the final result of microtonal composition strongly depends on purely practical moments, like instrumentation. If we write for strings, woodwinds or singers, in general, for the instruments with the natural tuning, we could not expect the total accuracy of microtones. Even strictly calculated and structured material may sound as falsely intonated pitches. Therefore, the result may be negative. In this case 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 the instruments of fixed tuning, such as 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, which 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 some live spirit to the performance.

Finally, because almost all of my compositions are canons of various kinds, so there is always a basic principle: to derive everything from a single melody. (As the Latin regula says, *ex uno segmento totem operem deducere*[5] [to derive all piece from one segment].) Therefore, for me it is very important to create a melody. That is the first, initial step in my process of composition.

[5] The Latin quote was invented by musicologist Jonas Vilimas, during his presentation at the musicological conference in Druskininkai, 1994 ("Chamber Music Days by Young Composers").

References

Rose, F. (1996). Introduction to the Pitch Organization of French Spectral Music. In: *Perspectives of New Music*, Vol. 34, No. 2 (Summer), p. 6–39.

Daunoravičienė, G. (2003). Sound architecture of Rytis Mažulis' microstructural canons (from 100 to 3,448275862 cents). In: *Menotyra / Studies in Art*, Nr. 1.

De la Motte, H. (1999). Talita cumi: the Audible in the Inaudible, booklet of CD *Rytis Mažulis Talita cumi*, Lithuanian Music Information and Publishing Centre, Akademie Schloss Solitude.

Hodges, D., & Sebald, D. (2011). *Music in the Human Experience. An Introduction to Music Psychology.* New York and London: Routledge. Taylor & Francis Group.

Mikrotoninės melodijos kūrimas

Santrauka

Tyrinėjant mikrotoninę muziką reikėtų atsižvelgti į keletą melodijos komponavimo aspektų. Kompozicinis sprendimas ir techninės priemonės priklauso nuo pasirinkto linearaus modelio. Mikrotonines melodijas galima suskirstyti į 5 pagrindines kategorijas: motyvines struktūras (susijusias su tradiciniais melodiniais piešiniais); švytuoklinį melodinės linijos judėjimą (beveik nesuvokiamą mažiausių intervalų kaitą); glisanduojančių natų techniką (pagrįstą išplėstų *glissando* epizodų vartojimu visame kūrinyje, kuriame *glissando* figūros yra ne dekoratyvus, o griežtai struktūruotas elementas); rezultatyvinius pavidalus (susidarančius tais atvejais, kai melodinis piešinys nėra sukurtas lineariai, bet susiformuoja veikiamas skirtingų struktūrinių parametrų). Visi šie modeliai iliustruojami mano vokaliniais ir instrumentiniais kūriniais: „Sybilla", „Palindromas", „Talita cumi", „ajapajapam", „Canon mensurabilis".