

The theory of the state of tonality by Mdivani – Kholopov and the problems of musical analysis

Yaroslav Stanishevskiy

Independent researcher

In modern musical analysis, one of the important aspects concerns the description of the type of harmonic organization. Comparing music of different eras and styles, we operate with a series of concepts that are difficult to reduce into one system. We distinguish between tonal and atonal harmony, tonality and modality, harmony of various eras (some of which are united by the term “common practice harmony”), and, finally, unitonic (*unitonique*), transitonic (*transitonique*), pluritonic (*pluritonique*), omnitonic (*omnitonique*) tonalities, according to François-Joseph Fétis [1844].¹ But it is easy to see that these concepts raise many questions.²

The harmony which is characteristic to any era can be represented in the music of other eras. The boundaries between tonality and atonality are shaky, and a number of authors reject the latter term, such as Paul Hindemith (believed that music cannot be atonal, since it always consists of tones [1940, 183]), Alban Berg (because of its negative meaning referring to the concept of antimusik, *Unmusik* [1936, 2]), and Arnold Schoenberg (“it is on a par with calling flying ‘the art of not falling’” [1975, 210]), as well as the Soviet musicologist Yuri N. Kholopov (for similar reasons [2013, 515-516]), which will be discussed below. Similarly, the boundaries are shaky between tonality and modality when we talk about Renaissance or neo-modal music. A series of Fétis’s concepts also leads to questions when the music cannot be interpreted in the context of a major-minor system. Similar questions arise with the Soviet system, in which classical and extended, that is, major-minor and chromatic, tonalities are distinguished [Lyzhov 2016].³ Is the tonality characterized only by the scale and the types of relations between chords?

¹ According to Fétis, one type of tonality differs from another in its relation to the phenomenon of tonal modulation. For example, there is no modulation in the unitonic tonality. The transitonic tonality is determined by the presence of gradual transitions from one key to another with the help of tonal tension and resolution, forming a cadence. The pluritonic tonality is characterized by the use of enharmonic means of typical chords of a key in modulations, which generates the multiplicity of possible ways of transitions from one key to another. Finally, omnitonic tonality implies a harmonic system with extensive use of alterations for any chord passing into any key.

² It should be noted that only a few of the well-known concepts of the typology of harmonic systems are listed above. Other various concepts of harmonic organization in their relation to the concept of tonality was considered in detail, for example, in dissertation of Margarita Katunyan [1983].

³ According to the Soviet tradition associated with the theory of François-Auguste Gevaert [1905; 1907] in the interpretation of Georgy L. Catoire [1924; 1925], a key in classical tonality, based on the diatonic scale and classical tonal functions, can be extended by harmonies and relations borrowed from its parallel key (forming a major-

In the 1980s, to solve these problems, Soviet researchers Tatyana Mdivani and her teacher Yuri Kholopov developed a new understanding of tonality and introduced their own series of concepts, which had no analogues before, to characterize harmonic systems. First of all, it was obvious that the concept of tonality should not mean only a major-minor system (as it was tacitly considered in Soviet musicology before) and should be widely interpreted as a system that has a certain degree of centralization. This idea followed from the analysis of late Romantic music (and was generated by the era of interest in the phenomena of “new tonality” or “neotonicity”). Based on this, Mdivani proposed to distinguish between “states of tonality” [Mdivani 1983], various variants of which she identified and described using examples of music by Anton Bruckner, Hugo Wolf, Gustav Mahler and Max Reger. To estimate them, Mdivani elaborated a system of five criteria, such as a measure of centralization, a measure of the presence of tonics, a measure of functional connections, a measure of sonance of chords and a scale basis (see also: [Mdivani 2014]).

Several years ago, Kholopov made the system more formalized by removing the least representative and unstable criterion of the scale basis, renaming the criteria into “tonal indices” with a limited number of their values and assigning them special symbols. This opened up the possibility to extend the theory to a wider range of types of music and simplified its form of representation, which allowed it to be included in the textbook for students. According to Kholopov [1988], the state of tonality should be estimated by four criteria (four factors encoded for short in the form of four letters called “indices”): the presence of a center or centers (C), by the real presence of a tonic in music (T), by the presence of the action of harmonic functions (F) and by the role of dissonance in relation to consonance (S – from “sonance”). Kholopov distinguishes 10 states of tonality. And mainly for their brief characterization, Kholopov also adds “+” and “-” signs to each of the four “indices” (according to the principle of the presence of a factor or its absence, respectively). But in some cases, these two signs are not enough, so he uses other signs and even words chosen arbitrarily by association, which will be corrected here for greater clarity. Below, each type of tonality will be illustrated with examples that Kholopov referred to in his textbook [Kholopov 1988, 383-399].

The 1st one is a *functional tonality* or a *functionally organized tonality* (C⁺ T⁺ S⁺ F⁺). It is characterized by a strong center which is presented in musical text by a concrete tonic chord. The consonances prevail over dissonances and play the main role in harmony, the functions are

minor tonality, as in the Coda of *Romeo and Juliet* by Tchaikovsky) or from full chromatic system (forming a chromatic tonality, as in Hindemith's *Ludus tonalis*).

definite and clearly accentuate the tonic. Kholopov considers three types of such a kind of tonality.

The simplest one is a *strict functionally organized tonality of the diatonic mode*. Kholopov offers here the example of Beethoven's Piano Sonata Op. 2 No. 1, the 2nd movement (Ex. 1). In this example, the initial tonic triad and its alternation with classical dominant chords leaves no doubt from the first bars that this tonality is firmly based on a real-sounding central consonant chord, to which the rest of the chords are functionally subordinated.

Largo appassionato
tenuto sempre



staccato sempre

Ex. 1: L. van Beethoven, *Piano Sonata op. 2 n. 1*, 2nd movement.

Another type of such a tonality is an *extended tonality of combined major-minor system*. We can see the example of it in romance of Moussorgsky *Softly the Spirit Flew up to Heaven* (Ex. 2). As in the previous example, we see here the initial consonant chord of the tonic and a return to it, with the only difference that many subordinate chords go beyond the main scale and belong to a parallel key.

Sostenuto. Lamentoso. Mistico
Quasi recitando, ma cantando *p*



Гор-ни-ми ти-хо ле-те-ла ду-ша не-бе-са-ми,
Soft-ly the spi-rit flew up to [the hea-ven of] hea-vens,

ppp

Ex. 2: M. Moussorgsky, *Softly the Spirit Flew up to Heaven*.

The most complicated type of functionally organized tonality is an *extended tonality of chromatic system* which we can see in Prokofiev's Piano Sonata No. 8, the 1st movement (Ex. 3). Despite the initial tonic triad and clear half cadence on the dominant, already in the first bars the main scale of the tonality is destroyed by the inclusion of foreign tones that cover the entire chromatic scale and form chords belonging to remote keys. However, this does not weaken the strength of the tonic while maintaining an emphasis on consonances.

The image shows a musical score for the first movement of Prokofiev's Piano Sonata No. 8. The tempo is marked 'Andante dolce'. The score consists of two staves, treble and bass clef. The key signature has two flats (B-flat and E-flat). The first bar starts with a piano (p) dynamic. The second bar has a mezzo-piano (mp) dynamic. The third bar returns to piano (p). The music is characterized by chromatic movement and dissonant harmonies.

Ex. 3. S. Prokofiev, *Piano Sonata No. 8*, 1st movement.

The 2nd state of tonality is a *loose tonality* (which can be described by the German word “locker”). This kind of tonality is characterized by a clear centralization with real presented tonic; here, the consonant chords prevail over dissonant but the functions of harmonies do not accentuate the role of tonic by the reason of incoherent direction of harmonic movement (C⁺ T⁺ S⁺ F⁻).

For an example of this tonality, Kholopov considers the 2nd theme of the Moussorgsky's piece *The Great Gate* from the *Pictures at an Exhibition* (Ex. 4). As we can see, in this fragment, despite the consonant chords, it is impossible to unambiguously determine which of the chords is tonic. Although the Eb minor triad begins the theme, claiming to be the tonic, other chords do not confirm this fact due to the avoidance of clear cadences and tense dissonant relations that could create a tendency to resolve. As a result, at the boundary of the 3rd and 4th bars, the role of the tonic can equally belong to both the G major triad and the C major triad, and later other triads also become candidates for this role.

Ex. 4: M. Moussorgsky, *Pictures at an Exhibition*, *The Great Gate*, 2nd theme.

The 3rd state of tonality is a *dissonant tonality* (C⁺ T⁺ S⁻ F⁺) in which we can state the center (thanks to the functional system) and this center may be presented in music texture by real tonic chord but... the main type of chords is not consonant, and the tonic too. The example of this state of tonality is presented by Scriabin's Piano Sonata No. 9 whose first bars obviously use the *c#-f-g-b* chord as a tonic, emphasized by a metrical accent and repetitions (Ex. 5).

Ex. 5: A. Scriabin, *Piano Sonata No. 9*.

The 4th state of tonality is a *soaring (or floating) tonality* (which is the same as *atonality*, C⁺ T⁻ S⁺ F⁺) and derived from Schoenberg's idea of "schwebende Tonalität" ("fluctuating tonality"). This kind of tonality have all features of a usual tonality but we never hear the tonic chord. The interesting example of it is the Boyars' chorus from Borodin's opera *Prince Igor* (at the Finale of the 1st act) in which the classical combination of subdominant and dominant chords creates the effect of a half cadence in Eb minor, but the tonic chord does not appear (Ex. 6).

Andantino

Ex. 6: A. Borodin, *Prince Igor*, Boyars' chorus (from the Finale of the 1st act). Piano reduction.

The 5th state of tonality is an *inversive tonality* ($C^{(1)2} T^+ S^+ F^+$). Here, Kholopov shows the example of the motive of paradise flowers from Rimsky-Korsakov's opera *The Legend of the Invisible City of Kitezh*. In this music, D major, surrounded by dominant chords, is not accentuated and its consonant form is avoided (Ex. 7).

Ex. 7: N. Rimsky-Korsakov, *The Legend of the Invisible City of Kitezh*, the motive of paradise flowers.

The 6th state of tonality is an *alternating tonality* ($C^{1/2} T^+ S^+ F^+$). It is a system with two equal usual keys which alternate one another from time to time. These may be two parallel or closely related keys. And the rare example is Glinka's *Chernomor's March* from the 4th act of the opera *Ruslan and Lyudmila* where we hear the alternation of the remote keys, namely E major at the beginning and C major at the end (Ex. 8).

Ex. 8: M. Glinka. *Ruslan and Lyudmila*, Chernomor's March (from the 4th act).

The 7th state of tonality is an *oscillating (or swinging) tonality* ($C^{1-2-3...} T^+ S^+ F^-$). In this kind of tonality, we can't find only one key and indicate concrete functions of chords in it. The music

slides from one key to another, therefore we can put the minus near the letter F. The simplest example of this situation is the Russian folk song *Katen'ka is jolly* (*Katen'ka vesyolaya*) in which we hear quite clearly first *d*, and then *b* and *e* as tonics (Ex. 9).



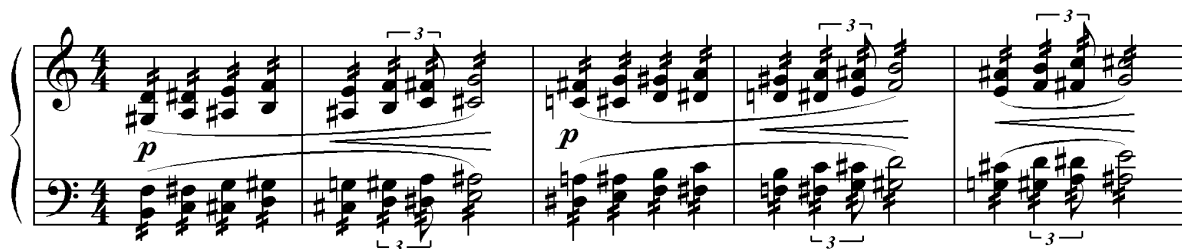
Ex. 9: Russian folk song *Katen'ka is jolly* (instrumental version).

The 8th state of tonality is an *ambiguous tonality* ($C^{1+2} T^+ S^+ F^-$) when we can equally indicate all functions in two different keys and we can't choose only one of them. For example, we can hear the chords equally in F major and in Bb minor in Rachmaninov's *Prelude in Bb minor* (Ex. 10).



Ex. 10: S. Rachmaninoff, *Prelude in Bb minor*.

The 9th state of tonality is the most complicated kind. It is an *eliminated (suspended) tonality* which correlates with Schoenberg's term "aufgehobene Tonalität" ($C^? T^- S^- F^-$). Here we can't correctly indicate neither one center nor concrete function in any key, and there are no tonic chords. We have only dissonances like in Liszt's *Preludes* at the beginning of development (succession of diminished seventh chords). This state of tonality we often call as atonality (Ex. 11).



Ex. 11: Liszt, *Preludes*. The beginning of development.

And finally, the 10th and the last state of tonality according to Kholopov is a *polytonality* ($C^{1+2} T^{1+2} S^{1+2} F^{1+2}$).⁴ This kind of tonality doesn't require the example; it is commonly known.

So, what can we say about theory of Mdivani – Kholopov in general? In fact, the theory of the states of tonality covers all variants of harmonic organization, as they are perceived by ear. And it's obvious, if we turn to the analysis of composing techniques, such as serial or sonoristic, the estimation of the states of tonality loses its sense, because the technique doesn't define what we hear. For example, we can use the method of serial composition to compose music with a clear tonality, and vice versa we can use the tonal technique like Liszt and compose the music without any concrete center or tonic. So, the theory by Mdivani – Kholopov is good in this aspect. However, the problem of analyzing the states of tonality is not so much related to this fact, as to the fact that the authors did not describe the length of the fragments for analysis. Obviously, in a musical composition, the principles of harmonic organization change during development. Therefore, the interesting Mdivani – Kholopov theory requires correction in this aspect.

Some musical examples show that their development should not be regard in context of an influence to the definition of the state of tonality. For instance, it seems to be that Kholopov was incorrect when he indicated, for example, that Bach's *Crucifixus* from *Hohe Messe* or Chopin's Second Ballad represent an alternating tonality by the reason of difference between initial and final keys. Probably it is a usual functionally organized tonality. From the other hand, isn't it the variant of slowly oscillating tonality?

And this ambiguity leads us to the next question: is oscillating tonality similar to a loose tonality? To be honest, there is no big difference between harmonic principles in fragment from *The Great Gate* of Moussorgsky and *Katen'ka is jolly*, which idea consists in sliding from one center to another, from one tonic to another, from one key to another.

The same situation is with difference between atonality and inversive tonality. Both of them tend to avoid tonic chord in texture.

So, it seems to be that the Mdivani – Kholopov theory requires some corrections also in number of different kinds of tonality. Really, it is well-known in Russia that despite of 30 years of this history it is still hard for musicologists to correctly define the states of tonalities in music which is out of the examples given by Kholopov. Analyzing music from the point of view of this theory, not only students, but also mature researchers are constantly faced with the problem of

⁴ Purely theoretically, polytonality could combine even three or more systems, but in practice it usually combines only two systems, since the auditory effect of a more complex combination loses its meaning.

choice. However, purely mathematically, according to combinatorics, even if we leave only a choice between plus and minus for each index, we will get more than 10 states. And theoretically, this number is even greater because we have the strange situation when some indices take not only positive and negative values, but also other ones.

There is no doubt that the case of polytonality is exceptional. Each of the components of this system may have its own characteristics. However, other cases raise questions. Returning to the problem of the relationship between oscillating (*Katen'ka is jolly*), alternating (*Chernomor's March*), loose (*The Great Gate*) and functionally organized tonalities in the context of the length of the fragment for analysis, let us try to eliminate ambiguities. The apparent difference between the examples disappears with a detailed analysis. First of all, doubt arises due to the different interpretation of functionality in the context of indicating the presence of tonics. In fact, if we are talking about a tonic, it means that something has pointed us to its role. Of course, its role may be insignificant and fleeting (as is especially noticeable in *Katen'ka is jolly*), but the very presence of this function contradicts the thesis about the lack of functionality in the system. Thus, all these examples differ only in the frequency of transition from one tonic to another, but in fact they are variants of a functionally organized tonality. The opposite situation concerns the eliminated tonality, in which dissonance and the inability to determine the tonic automatically implies a lack of functionality. At the same time, the example of ambiguous tonality (Rachmaninoff) also contradicts the thesis about the lack of functionality. Without it, we would not be able to judge the presence of tonics.

Thus, it seems to be that the main problem is connected with functionality. But what happens if we exclude this index? It is easy to see that the absence of this index does not change anything. The different types of tonalities still differ in their characteristics. However, the question of the relationship between atonicity and inversive tonality remains unclear.

Let us turn again to examples from the music of Rimsky-Korsakov and Borodin. The absence of the tonic in the latter case is beyond doubt. However, a completely different answer can be given regarding a fragment from the *Legend of the invisible city of Kitezkh*. According to Kholopov, we can hear the tonic, but it is not presented in a clear way, hiding behind a dissonance that tends to resolve into a different key. One can argue with this thesis, since it does not give an unambiguous answer about the presence or absence of the tonic. If we take into account that the presence of a tonic implies only its specific form (the result of resolution or a chord that creates a rest effect), then this example shows the absence of a tonic. In fact, replacing the tonic with a dissonant chord containing its sounds creates the same effect of lack of resolution as in

the case of no tonic at all. Thus, the examples from the music of Rimsky-Korsakov and Borodin should be considered similar.

What can be said about the results of the consistent exclusion of controversial cases? Excluding polytonality, we can clearly define only 4 states of tonality (functionally organized, dissonant, eliminated tonality, as well as atonicity). It is interesting to note that most of the excluded states of tonality differ only in the index of the center, the designation of which was full of variety. It is not difficult to conclude that this index mainly showed the number of possible tonics (starting from zero in the eliminated tonality) determined simultaneously or sequentially.

Thus, the main indices determining the state of tonality are only the presence of tonics and sonance. Using only the “+” and “-” signs, we can characterize the 4 main states of tonality: functionally organized ($T^+ S^+$), atonicity ($T^- S^+$), dissonant ($T^+ S^-$), eliminated ($T^- S^-$). If we try to coordinate the remaining states of tonality described by Kholopov with these 4 main types, then by adding the index of the center, which will take only a numerical value concerning the number of centers determined simultaneously, we will get the following list:

$T^+ S^+ C^1$ – functionally organized (purely);

$T^+ S^+ C^2$ – ambiguous;

$T^- S^+ C^1$ – atonicity;

$T^+ S^- C^1$ – dissonant;

$T^- S^- C^0$ – eliminated.

Finally, if we consider the number of centers in the context of time, then in order to include the remaining three states of tonality in the theory (those are, oscillating, alternating and loose, but excluding inversive and polytonality), it is necessary either to depart from the principle of specifying the number for the index of the center, or to introduce a new index reflecting the frequency of center change.

In fact, the number of centers and the frequency of their change can be different regardless of the other two indexes (excluding the case of eliminated tonality in which the center is missing). This opens the way for identifying (if necessary) other states of tonality, as Kholopov wrote in his textbook [Kholopov 1988, 397]. However, in this context, adding new types will not violate the logic of the theory.

The only detail that can be considered only as an addition to the theory concerns the last index, which was the first to be excluded in the analysis process, namely functionality. It seems

that the criterion regarding the importance of functional relationships in the system should not be completely excluded. Obviously, it can be assumed, for example, that not every chord alternation can form a tonality (with a consonant center or with a dissonant one). However, the functions of the center and the tonic are inseparable from the concept of functionality. Therefore, functionality should be considered either as a dependent parameter, or as a parameter characterizing the type of functional relations that is not related only to tonal categories (for example, the functionality of relations in serial or sonoristic music). But in this case, it goes beyond the problem of the states of tonality and requires a separate study.

Anyway, the theory of the states of tonality by Mdivani – Kholopov is of great interest from the point of view of the methodology of harmonic analysis and allows us to identify an interesting aspect concerning the auditory effect of various combinations of tonal factors (indices) possible within the framework of such a principle of harmonic organization as tonality.

Bibliography.

BERG A. (1936), *Was ist atonal?*, «23. Eine Wiener Musikzeitschrift», 26/27, 8 Juni 1936, pp. 1-11.

CATOIRE G. L. [КАТУАР Г. Л.] (1924), *Theoretical course of harmony [Теоретический курс гармонии]*, Part I, Gosudarstvennoye izdatelstvo; Muzykalnyy sektor, Moscow.

CATOIRE G. L. [КАТУАР Г. Л.] (1925), *Theoretical course of harmony [Теоретический курс гармонии]*, Part II, Gosudarstvennoye izdatelstvo; Muzykalnyy sektor, Moscow.

FÉTIS F. J. (1844), *Traité complet de la théorie et de la pratique de l'harmonie*, Maurice Schlesinger, Paris.

HINDEMITH P. (1940), *Unterweisung im Tonsatz, I (Theoretischer Teil)*, Neue, erweiterte Auflage, Mainz, B. Schott's Söhne.

GEVAERT F. A. (1905), *Traité d'Harmonie Théoretique et Pratique, 1-er partie*, Henry Lemoine et C-ie, Paris.

GEVAERT F. A. (1907), *Traité d'Harmonie Théoretique et Pratique, 2-me partie*, Henry Lemoine et C-ie, Paris.

KATUNYAN M. I. [КАТУНЯН М. И.] (1983), *Evolution of the concept of tonality and new harmonic phenomena in Soviet music: diss. ... Ph. D. in Art Studies [Эволюция понятия тональности и новые гармонические явления в советской музыке : дис. ... канд. иск.]*, Moscow.

LYZHOV G. I. [ЛЫЖОВ Г. И.] (2016), *The ways of the evolution of tonality in the 19th – 20th centuries according to Yu. N. Kholopov [Пути эволюции тональности в XIX–XX веках по Ю. Н. Холопову]*, «Journal of the Society for Theory of Music» [«Журнал Общества теории музыки»], 12/1, 2016, pp. 1-17.

KHOLOROV YU. N. [ХОЛОПОВ Ю. Н.] (1988), *Harmony: Theoretical Course [Гармония: Теоретический курс]*, Muzyka, Moscow.

KHOLOROV YU. N. [ХОЛОПОВ Ю. Н.] (2013), *Harmony. Practical Course. Part 2: Harmony of the 20th century [Гармония. Практический курс. Часть 2: Гармония XX века]*, Kompozitor, Moscow.

MDIVANI T. G. (2014), *Spätromantische harmonische Techniken, oder besondere Tonalitätszustände im Schaffen von R. Strauss und G. Mahler*, «Austrian Journal of Humanities and Social Sciences», 11-12, 2014, S. 17-21.

MDIVANI T. G. [МДИВАНИ Т. Г.] (1983), *The Problems of the Late Romantic Harmony in the Works of Austro-German Composers of the Late 19th – Early 20th centuries : A. Bruckner, H. Wolf, G. Mahler, M. Reger : diss. ... Ph. D. in Art Studies [Проблемы позднеромантической гармонии в творчестве австро-немецких композиторов конца XIX – начала XX веков : А. Брукнер, Х. Вольф, Г. Малер, М. Регер : дис. ... канд. иск.]*, Minsk.

SCHOENBERG A. (1975), *Style and idea: selected writings*, ed. by L. Stein, with trans. by L. Black, Faber and Faber, London.