

CHORAL INTONATION AND TUNING IN PLURIVOCAL MUSIC

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SUMMARY. As constituting elements of the musical performance, choral intonation and tuning are part of the essence of the art of music, representing one of the most important and, also, complex components of plurivocal music, as the elements that can provide each interpretation with correctness, intelligibility, coherence and a plus of expressiveness. In the absence of a correct intonation and a perfect sound balance between the voices of the choir, one cannot speak of style or of an interpretative concept.

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A thorough approach of the issues concerning choral performance entails a detailed clarification of all the elements that help delineate plurivocality and the starting point in this endeavour should be represented by intonation and the tuning of the choir. In the absence of a correct intonation and a perfect sound balance between the voices of the choir, one cannot speak of style or of an interpretative concept.

As constituting elements of the musical performance, choral intonation and tuning are part of the essence of the art of music, representing one of the most important and, also, complex components of plurivocal music. According to the definition provided in the *Dictionary of Musical Terms*, "intonation" is "the exact rendering of musical pitches, in vocal and instrumental interpretation"². Musical tuning means "reaching a sound balance that is necessary to the performance, within the musical ensemble"³. Hence, choral intonation represents the accuracy of pitch in

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² Dicționar de termeni muzicali (*Dictionary of Musical Terms*), 3rd Edition, Scientific coordinator Gheorghe Firca, The Encyclopedic Publishing House, Bucharest, 2010, page 280.

³ *Idem*, pag. 22.

singing the melody in unison (within a vocal section, on groups of voices or within the entire choral ensemble), whereas choral tuning is based on the precise relations between pitches and it refers to the correct intonation of musical chords and of other sound structures.

In the case of vocal music, a correct intonation means, primarily, a controlled breathing and a proper vocal attack. The imprecise attack, triggered by a "mute sound" and frequently accompanied by a preceding lower *appoggiatura*, must be avoided and even forbidden by the conductor, as neglecting this extremely detrimental incorrectness causes sonorous ambiguity, timbral unclarity and harmonic imprecision. The resolve of this acute issue in choral singing should represent a permanent preoccupation of the conductor, when working with their ensemble. The choir conductor should make sure that, before singing the notes, each choir member has a clear mental image of both the starting pitch, as well as of the intensity and tone colour. We must emphasize here the term "mental image", so as not to mistake it for "emission of sound with the mouth closed". In some amateur choirs, the choir members have developed the improper habit of "humming" the first notes of the song, after the conductor gives them the tone from the piano, thus creating an unaesthetic babble that "pollutes" the intonation. This practice is incorrect, and its main cause is the power of habit, lack of concentration and an incorrect vocal emission of the choir members.

At the same time, we must emphasize the fact that having the correct intonation has nothing to do with vocal range or presence – it depends on the phonatory organs, the quality of the auditory cortex, the receptor organ (the ear) and the precision of attack. Hence, the voice may have a wide vocal range; it may be elastic and extremely powerful, without necessarily being precise, in terms of intonation.

After solving attack-related issues, another problem that may arise is *singing off-key* and this can have multiple causes (improper breathing, an erroneous harmonic dosage, lack of concentration, routine). Due to all these factors, the choir may fail to stay in key, even in a short choral work. In this case, the conductor must insist both on the accuracy of melodic interpretation by each vocal section, but also on the vertical tuning, setting a precise hierarchy of the chord elements. As regards horizontal intonation, a clear distinction must be made between *legato* and *portamento*, which is often overlooked by performers, due to the lack of concentration. From the *legato* articulation, one must eliminate those more or less approximate slidings from one pitch to another, which do nothing but compromise the quality of the performance.

Within the performing process, no musical sound can be isolated, as it directly influences other pitches, which are close by. In the case of singing

in unison, but also in the case of homophonic structures, the sum of pitches emitted individually by each member of the ensemble leads to the formation of a new sound, due to the so-called phenomenon of *fusion*⁴. This can be attained both within the choral sections, as well as in the various combinations between the voices of the choir, leading to the emergence of new elements within the general sonority of the ensemble. According to univ. prof. Dorel Pașcu-Rădulescu, PhD, this process can be achieved only when there is a perfectly synchronized vocal attack, as well as a judicious control of the pitches and intensities. Hence, creating a correct and expressive choral sonority starts with each choir member. Only through an exemplary individual interpretation, doubled by the aware renouncing to the vocal section identity, one can get closer to perfection.

Returning to the musical fragments sung in unison, we want to emphasize here that, although acoustically speaking, we are dealing with the same sound waves emitted by each choir member, most of the times, the absolute frequencies of the pitches sung simultaneously do not correspond – this is where the phenomenon of “vocal wobble” occurs (an overly wide vibrato of the voices). This is why frequent disturbances occur in the *euphony*⁵ of the ensemble, giving the sensation of negligence, timbral unclarity and even intonational imprecision. Because of this, it is extremely important to choose the intonational system for each musical fragment, depending on the syntax of that particular segment.

There is no novelty in the fact that the human voice is a natural, untempered instrument and, hence, each choir member must be aware of this problem. It is extremely important to know how to use this vocal quality, in order to confer a plus of expressiveness to the music we perform.

Musical tuning, which became largely widespread in Europe, before the shift to its modern form, has undergone a complex, century-old process of formation and development. The structures of sound organization differ from one historical period to another and from one culture to the other. In ancient Greece and in the early Middle Ages, thanks to the monodic and then polyphonic music, the tuning used was favourable to horizontal developments, yet impracticable in the case of harmonic overlapping. There are well-known the old constructions of 22 sub-units (called *shruti*) in India, which were also taken over by Anton Pann in *Theoretical and Practical*

⁴ Dorel Pașcu-Rădulescu, *Esența fenomenului sonor muzical (The Essence of the Musical Phenomenon)*, Agir Publishing House, 2000, page 36.

⁵ Euphony is defined as a good sonority, as the quality of being pleasing to the ear, thanks to an ensemble of pitches that are in coherent intonational relations between them (Dorel Pașcu-Rădulescu – op. cit. page 59).

Basics of Church Music (1854)⁶. There is no doubt that these musical scales are specific to monodic music, being inapplicable to plurivocal works.

In choral singing and conducting treaties, intonation is strictly regarded as a system of intervals. In his work, *"The Choir and How to Direct It"*⁷, conductor Pavel Cesnokov states that large intervals must be sung high (by enlarging the intonation) and small intervals - low, by diminishing them. Ascending chromatic intervals ought to be executed higher (↑), whilst the descending ones – lower (↓).

Here is the diagram for singing the natural major scale, according to Pavel Cesnokov:

I II ↑ III ↑ IV ↓ V _ VI ↑ VII ↑ I _ VII ↑ VI ↓ V _ IV ↓ III ↑ II ↓ I

The minor scale derives from its major relative scale and the main scale degrees (I, IV, V) of the minor key, represented scale degrees VI, II and III, in the major key. This gives the minor scale certain instability. The third scale degree must be sung lower, as it is regarded as a characteristic of the minor mode.

According to the same P. Cesnokov, the diagram for singing the melodic minor scale looks as follows:

I II ↑ III ↓ IV ↑ V ↑ VI ↑ VII ↑ I _ VII ↓ VI ↓ V ↑ IV ↓ III ↓ II ↑ I

This type of approach may help solving the issues pertaining to melodic intonation, yet it does not cover the harmonic area. In plurivocal music, the harmonic tuning requires a thorough approach, which would contribute to the achievement of the choral performance.

In the case of monodies, of melodies with *ison*, as well as in the case of prolonged unisons, it is recommended to use *Pythagorean tuning*, an untempered system in which the interval of perfect fifth is the generating element or *generator*, with the acoustic-mathematical value of 3:2. Over the years, this system of intonation has had an extraordinary contribution to the development of monodic music, yet it became impracticable for homophonic or polyphonic works. In Pythagoras, "the major thirds are too large and the minor ones are too small"⁸, so that the system cannot be

⁶ Dragoş Alexandrescu, *Teoria muzicii* (Music Theory), vol. II, The Publishing House of the National University of Music, Bucharest, 2004, page 84.

⁷ See Pavel Cesnokov, *Corul și conducerea lui* (The Choir and How to Direct It), The Didactic and Pedagogical Publishing Housă, Bucharest, 1957, page 46-55.

⁸ Victor Giuleanu, *Tratat de teoria muzicii* (Treatise of Music Theory), The Musical Publishing House, Bucharest, 1986, page 113.

applied to scores with several vocal lines, as it creates, rather, the sensation of out-of-tune singing.

In the 15th-17th centuries, with the development of homophonic harmonic music, priority was given to the vertical musical writings. Hence, a radical reform of the system was needed. In Zarlino's theorized system, things are exactly opposite from the Pythagorean tuning system and, consequently, it is recommended for use in the case of plurivocal music⁹. For instance, the major third should be larger in the case of monodic chanting and a little smaller in homophonic writings. Hence, a monody can be better executed with the Pythagorean intonational system, with which it gains a striking emotional load, whereas the overlapping of several voices forces the performers to use Zarlino's system. It is extremely important that the differences between the two systems of intonation do not refer merely to acoustic differences, but they also have an enhanced impact on the feelings awoken and expressed in the performance.

In those works in which the syntax is represented by accompanied melody, the voice stating the melody shall be led by the principle of horizontal, melodic thinking. The other voices, which make up the harmonic support, despite of having, each of them, a specific melodic development, shall be subjected to the laws of harmonic intonation.

The intonation of melodic intervals is achieved with a wider range of intonational variations, as compared to the intonation of the harmonic ones. Melodic intervals are more flexible and, hence, more expressive. Harmonic intervals, although allowing some flexibility, are still sung more strictly, due to the principle of consonance. Through simultaneous intonation, the pitches start interacting with each other and intonational deviations are much more easily detected and, hence, solved.

Each musical pitch is accompanied by a set of harmonic pitches; therefore, plurivocality generates multiple interactions between them. Thus, the accuracy of harmonic intervals is characterized through a lack of collisions between these harmonics. The phenomenon is virtually absent in the case of perfect intervals (the perfect unison, fourth, fifth, octave). They are easily detectable in thirds and sixths and constitute a distinct

⁹ In this system, the Pythagorean major third ($81/64$) is reduced by a syntonic comma (the one that makes the difference between the major tone and the minor tone) in order to be put in accord with the fifth harmonic from the natural resonance. (The Pythagorean major third – 102.30 savarts, Zarlino's major third – 96.91 savarts. Therefore, $102.30 - 96.91 = 5.39$ savarts (1 syntonic comma)). The fifth maintains the same acoustic-mathematical value of $3/2$, whereas the major third is extracted from the natural harmonic series ($5/4$). Hence, within each fifth, Zarlino inserts a major third.

characteristic of seconds and sevenths, as well as of the augmented fourth. In music theory, we speak of the stability of intervals and we classify them into consonant and dissonant: perfect consonances (the unison, the perfect 4th, 5th and 8^{ve}), imperfect consonances (3m, 3M and 6m, 6M) and dissonant (2m, 2M and 7m, 7M, 4 +).¹⁰

By insisting upon the issues pertaining to choral tuning, it is worth drawing the attention upon the dosage of the chords' constituting elements. Frequently, this apparently insignificant detail makes the difference between a mediocre performance and a correct and expressive one. The weigh of each pitch from a chord structure must be tightly correlated with the type of chord and its position. Hence, in the major triad, the hierarchy of its elements is: *fundamental, fifth, third*, the fundamental being emphasized because, in the first six superior harmonics of that pitch, all the chord elements can be found. In essence, ideally, two similar chord structures are being overlapped: the first - sung by the choir's vocal sections, and the second one – generated by the natural resonance of the fundamental pitch. In the case of the minor triad, this hierarchy is disrupted, as the fifth of the chord becomes the element that needs to be highlighted. When the fundamental of a minor chord is emphasized, the two thirds will collide (the minor third of the minor chord, with the major third from the natural resonance). This is why, the dynamic hierarchy of the elements in the minor chord is: *fifth, third, fundamental*. This problem arises especially in the lower register, when the harmonics of a fundamental pitch can sometimes be heard much more strongly than the real, sung pitch. In those cases when the chord is positioned in the upper register, its natural harmonics exceed the limit of audibility.

In conclusion, we want to emphasize that both the choir's intonation and tuning must represent the conductor's permanent concern when working with his/her ensemble, as these are the elements that can provide each musical performance with correctness, intelligibility, coherence and a plus of expressiveness.

¹⁰ Dragoş Alexandrescu, *Teoria muzicii (Music Theory)*, vol. I, The Publishing House of the National University of Music, 2004, page 170.

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