Abstract: In music there are several terms permanently used, whose meaning changed in time, depending on the historical moment or cultural space; among them, consonance and dissonance, diatonic, chromatic, and enharmonic.

Tonality appeared during baroque era and was finalized by J.S. Bach. After that, it grew up in the music of Haydn, Mozart, Beethoven, Chopin, Liszt – for about 150 years.

At the end of 19th century, Wagner created the expanded tonality – the last step of the tonal system evolution. This tonal type represents an original, ingenious synthesis between all historical phases of the system evolution; meantime it contains the germ of polytonality and atonality.

In other words, Bach and Wagner marked the beginning and end of the tonality.

Key-Words: consonance, dissonance, diatonic, chromatic, enharmonic, tonality, expanded tonality, tonic.

1 Introduction

During the European music history, there is a short period – 18th century – when the tonality was adopted. The tonal system is founded on acoustical bases, is clearly exposed, remarkably applied by the Classical Masters, and it also continues to be functional nowadays, in spite of the new-born sound systems of 20th century and more.

It is quite exciting to follow the meaning changing of a few terms – in fact so familiar to all musicians – like the above ones, along the known history of music.

It is beyond doubt that during the European musical history of the last three hundred years, tonality is the most familiar, agreeable, well-known, and preferred sound system by the most musicians and music lovers. Tonal harmony confers special senses to dissonance, to chromatic or enharmonic terms. More than that: Classical and Romantic aesthetic in music is based on the relationship between the above notions.

These are the reasons we chose to refer bellow at two of the most important contributors in the tonality evolution: Bach and Wagner.

2 Brief Theory and History

Let’s take the triad diatonic, chromatic and enharmonic. The terms’ definitions are both imprecise and unclear; they also do not reflect the historical meaning changes; actually they claim a generally accepted meaning, not a scientific one.

2.1 Definitions

Diatonic

Etymology: Greek dia toniké = by tones
Disposition of the tones and the semitones by the natural order, in a musical structure. ‘Natural order’ refers to the acoustic estate of sounds and intervals.[1]

According to Dolmetsch Dictionary a diatomic scale means: "notes that occur naturally in a standard major or minor scale, without being modified by accidentals other than the sharps or flats in the relevant key signature"[2]

The definitions are vague enough. Both of them generate a few questions: What precisely ‘natural order’ is? What ‘acoustic estate’ and also a ‘standard scale’ are?
2.2 Before Tonality

The ancient Greeks used the terms in their modal system theory. They classified the modes by the tetrachord structure, into three genres: diatonic – by tones and semitones, chromatic – by tones, semitones and augmented seconds, and enharmonic – by tones and microtones (quarter of tone).

Byzantine modal system has continued the Greek one, by maintaining the meanings and the structure of the three modal genres.[9]

At the same time, on 20th century, the Romanian folklorists applied the same rules in the folklore researches. Professor Gheorghe Ciobanu, for example, observes that in the Romanian musical folklore,”the main condition to consider a mode being chromatic is to include one or two augmented seconds.”[10]

Therefore, in the religious traditional music, as well as in the Romanian musical folklore, we find the same triad applied to the modal systems structure.

2.3 Tonal Meanings of the Terms

Tonality is one of the most interesting and complete system of sounds ever conceived. At the same time, its existence is not as long as it seemed to be: Bach and his generation concluded its structure, and Wagner began its dissolution; that means about 140 years, considering from 1722 (Bach composed the first book of the Well Tempered Clavier), to 1859 (Wagner finished Tristan and Isolde). During this (short!) period, the rules and the principles used to be as strict and precise as they can be, considering the specificity of art (so different from the science).

Tonality significantly changed the meanings of diatonic, chromatic and enharmonic, among other reasons by the appearance of the equal temperament [11] tuning.

The term chromatic, for instance, becomes the opposite of diatonic as following: diatonic means ‘constituent part, owner’, while chromatic is ‘change, new, different’.

According to this, the Romanian musicologist Gheorghe Firca initiated a new term as diatonically chromatic, which means that a tonality – or rather a mode – could enclose constantly a chromatic sound, interval or chord; therefore, this sound, interval or chord maybe considered as a diatonic part of the tonality/mode.[12] We can mention as an example the harmonic version of the minor tonality, where the augmented second is a diatonically chromatic interval.

Enharmonic in the tonal system also acquires a different meaning than the Greek, the Byzantine or
the folklore ones. In equal temperament tuning, an octave is divided into a series of equal steps (equal frequency ratios between successive notes). For classical music, the most common tuning system is twelve-tone equal temperament. By consequence, two enharmonic sounds/interval/chords have different names and identical pitches.

Enharmonic generates all sort of tonal modulations. It is well known, for instance, the identical sonority of the dominant seventh chord and augmented sixth one; the difference appears by their resolution only (Fig. 2).

Enharmonic generates all sort of tonal modulations.

The same happens in the enharmonic modulations. Let’s take, for example, the passage between the second and the third movements in Beethoven’s 5th Piano Concerto. The main tonality of the first and the last movements is E flat major – the ‘Imperial’. The second movement is written in B major. Actually the true tonality should be C flat major! In order to be easier performed, Beethoven preferred to C flat key its enharmonic version – B major. (Fig. 3)

2.4 Consonance and Dissonance in the Classical Way
Tonality involves two other important notions: consonance and dissonance. As we mentioned above, the meaning of these terms is also imprecise and historical changeable. The tonal harmony specifies the significance of consonant and dissonant chords, their features and methods of combining them; above all, the tonal harmony specifies how to prepare, to use and to solve dissonant chords.

Nowadays, there are no practical limits between consonance and dissonance.

3 The Tonal Era, from Bach to Wagner
The gradual transition from Bach’s tonal harmony to Wagner’s expanded tonality represents an interesting implication of the terms in question here. For Bach and Viennese classics, tonality used to be one tonic functional system. Nowadays, every professional musician knows the basics of tonal harmony: principal and secondary keys, authentic and plagal cadences etc.

In spite of the strict rules of the beginnings, tonal harmony became more and more permissive, especially during the 19th century: from Beethoven, to Chopin, Liszt, and above all to Wagner.

As usual happens in art domain, practice is the exception to the theory. Beginning with 19th century, dissonance became more exciting than consonance. It wasn’t so cautiously treated anymore; it was not prepared and not resolved all the time; it became the ‘condiment’ of the romantic harmony. At the end of the Romantic period, the one-tonic system became a multiple-tonics one.

3.1 Bach and the ‘New-Born’ Tonal Harmony
Let’s take the Prelude No. 1, C major form the Well Tempered Clavier, Book I. The harmony claims the strict rules of the tonality. The chords relations are entirely authentic; there is a single modulation, from C major to G major – between close related keys (Fig. 4, Table 1).
Prelude

Comparing to the Wagner’s style.

expanded tonality considered a practical demonstration of the different tonal configuration. Actually, it could be towards the new born system was definitely formed yet, so the composer’s attitude harmony was young, inexperienced, rules were not talking here about a scholastic or simplistic C major ‘territory’. At the same time, we are not modulation to G major, the harmony remains on the tonic, by an eight bars long pedal on G (Dominant) in order to increase the final effect; moreover, he delays the final chord on tonic, by ‘playing’ on C pedal for three more bars. (Fig. 6)

In the above four bars (Fig. 5), even there is not tonal stability, the principal key, C major, is there all the time, implicitly.

The composer deliberately delays the cadence on the tonic, by an eight bars long pedal on G (Dominant) in order to increase the final effect; moreover, he delays the final chord on tonic, by ‘playing’ on C pedal for three more bars. (Fig. 6)

In the 35 bars of the Prelude, except the short modulation to G major, the harmony remains on the C major ‘territory’. At the same time, we are not talking here about a scholastic or simplistic harmony – it is the genius of Bach after all! Bach’s tonality was young, inexperienced, rules were not definitely formed yet, so the composer’s attitude towards the new born system was to construct, to strengthen and not to destroy.

Table 1 Bach’s C major Prelude. First 7 bars harmony

<table>
<thead>
<tr>
<th>Bar No.</th>
<th>Key</th>
<th>Tonal Function</th>
<th>Chord</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>2</td>
<td>II</td>
<td>7</td>
<td>II</td>
</tr>
<tr>
<td>3</td>
<td>V</td>
<td>7</td>
<td>V</td>
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<tr>
<td>4</td>
<td>I</td>
<td>6</td>
<td>I</td>
</tr>
<tr>
<td>5</td>
<td>VI</td>
<td>7</td>
<td>VI</td>
</tr>
<tr>
<td>6</td>
<td>(C) G</td>
<td>7–V</td>
<td>G</td>
</tr>
<tr>
<td>7</td>
<td>G</td>
<td>6</td>
<td></td>
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We hardly found a definition of the ‘expanded tonality’:

“... extension of the common practice tonality. It results in highly chromatic music, where remotely related regions/harmonies are introduced, often in rather dense manner, free use of extended chords (9ths, 11ths, 13ths) as well as quartal harmony. Basically, it is all about quite free use of the whole chromatic gamut, while still maintaining a sense of central tone (tonic), though it is often hard to determine if you are in major or minor due to the high degree of chromaticism.”[13].

Even this one is vague enough – it is like everybody knows the meaning, yet nobody can explain it! The definition mentions terms like ‘chromatic’ and ‘central tone’ / tonic. Even it is true that these are essential terms, the main explanation is missing. As it is quite obviously in Wagner’s music, expanded tonality is neither just chromatic, nor modal or atonal harmony.

At the end of the 19th century, the tonality has grown up – it has become a mature (even old aged!) system. After many important experiences – like those of Mozart, Beethoven, Chopin, Liszt, Brahms – it seemed that nothing should be shocking or forbidden anymore in the tonal harmony. Diatonic and consonance became benches in theory more than in practice. Their presence was rather implied than explicit, in order to augment the effect of chromatic, enharmonic as well as of the dissonance. This profound change has culminated in Wagner’s music. The most spectacular and synthetic page illustrative for the Wagnerian harmony is, no doubt, the Prelude at Tristan and Isolde.

The Prelude encloses in the 110 bars, one of the most profound and intense emotion ever exposed through music. As an overview, the musical fluid flows continuously, growing to a climax, and then decreases to the end. The most effective method to increase the emotional tension is here the dissonance without resolution as well as a permanent tonal instability – some kind of harmonic ‘suspiense’. As a matter of fact, in Wagner’s harmony there is more relaxation rather than resolution, we dare say.

Of all dissonant chords, Wagner choses ‘the dominantic’ ones: their acoustic effect is more dramatic, more tensioned, more close to the virtual (not explicit) tonic than any other dissonant chord. This is – we consider – ‘the secret’ of the expanded Wagnerian tonality! In other words, it’s not any ‘dissonance’ or chromatic matter – it is the dominantic dissonance we are talking about. This peculiar sonority maintains the tonal feature of the
music. Meantime, it defines a new, special kind of tonality: the multiple tonics one.

Wagner uses four sorts of ‘dominantic chords’ [14], as following: the dominant seventh (V7 – 7_m/5/3M – Fig. 2), chords by diminished fifth and diminished seventh (7-/5-/3_m – Fig. 2), chords by diminished fifth and minor seventh (7_m/5-/3_m) and the augmented sixth (6_ – Fig. 2, Fig. 8).

![Fig. 7 Diminished seventh chord (7-/5-/3_m)](image)

Therefore, Prelude at Tristan and Isolde is a long line of tonal ‘hints’ directed to several tonal centers. By consequence, the same could be the expanded tonality definition: a line of dominantic chords, not necessarily resolved, referring to different keys – by consequence and briefly calling it a multiple tonics system.

4 Conclusions

– The scientific methods and principles are not entirely applicable to the art. Therefore, the definitions in the artistic domain could be rather imprecise, depending on the time (historical moment) and on the space (cultural area).

![Fig. 9 Wagner, Prelude, bars 1–20. The first resolution in this line of chords happens on bar 17.](image)

– In art, a term may have more than one sense; sometimes their meanings could be rather distinct.

– During its short historical existence, tonality changed enough, from the one-tonic system, in Bach, Haydn and Mozart times, to the multiple-tonic system in Wagner and his followers’ times.

– The rules of tonal harmony changed – especially regarding the meaning and using the dissonance.

– The evolution of consonance and dissonance meaning became an exciting one. On the ‘forbidden fruit’ principle, consonance does not represent a temptation, while everybody is dreaming at the ‘spicy’ dissonance!
Regarding the tonality history, Bach sits on the tone-modal confluence. In his harmony, he keeps modal traces, same as he ends the tonality shape. (Fig. 10)

Fig. 10 Bach, Fugue for organ D minor BWV 565, last four bars. Last three chords create modal harmony: V (minor chord!) – IV (minor chord) – I (without third).

Following the tonality evolution from Bach to Wagner, also considering the expanded tonality specific structure, we may conclude that this is the last frontier to polytonality, atonality and tonal-modalism in the 20th century.

References:

[9] Answers.com
[10] ”We mean by this all chords directly dependent/closely linked to a key/tonic. These chords are unstable, dissonant (in the tonal sense) and, above all, they demand resolution to a tonic/tonal centre.”

"for example A flat and G sharp, which on an equal tempered keyboard instrument are played with the same key, but which on a flexibly tuned instrument, like a violin, can be perceptibly different.” Dolmetsch Dictionary, 08.01.2012 http://www.dolmetsch.com/defsec.htm
[11] ”One of the three basic type of genus, with a characteristic interval of approximately a 'major 3rd' at the top of the tetrachord, then 2 successive intervals of approximately a ‘quartertone’ at the bottom, making up a 4/3, ‘perfect 4th’.” Dolmetsch Dictionary, 08.01.2012 http://www.dolmetsch.com/defsec.htm