

The ethos of the musical modes possible correlations with the physical features

Octavian VELESCU¹

Abstract: *The sounds are the substance of music, and by different combinations will generate sound structures with a certain meaning. Any musical discourse is based on vocabulary, which has as its primary source the sound material represented by musical modes or musical scale. The specificity of the mode transmits its features to all the sound structures and its characteristic elements is identifiable in almost any song that belongs to that musical mode. This feature is understood as the ethos of the musical modes and sometimes is seen as the defining element in establishing the meaning of a musical work. These features of musical modes have been known since ancient times.*

Keywords: *Musical modes; ethos; diatonic tetrachords;*

Introduction

The association between music and certain attitudes has been a topic of interest since antiquity. To emphasize the connection between the two, the ancient Greeks assigned to each mode an ethos through which they tried to capture a certain character that could be transferred to songs or musical works that used a specific musical scale.

In Plato's Republic, Socrates proposes a selection of musical modes used to determine those that evoke certain feelings, or feelings considered to be the most appropriate to serve the formation and education of a city. Thus, the *Mixolydian* and *Syntonolydian* modes were considered specific to mourning and interpreted as useless, as were the *ionic* modes or some of the *Lydian* modes considered "tiring and suitable for parties with a lot of drinking"². Following the selection, it is recommended to use two modes *Dorian* and *Phrygian* considered to be the most appropriate and sufficient to express the attitudes necessary for moderate and balanced feelings.

In rhetoric, *ethos*, along with *pathos* and *logos*, form the group of three modes of persuasion. *Ethos* is responsible for the audience's trust in the speaker. In this way the *ethos* can transfer the authority of the presenter to his speech increasing the power of persuasion and the argument of the presentation. Perhaps that is why Socrates' analysis refers to the ethos of the modes, behind which one can imagine the basis that gives the message the power of persuasion, being the part that offers the credibility of the musical work due to the moral quality of the sound scale in which the song is composed. Ethical virtue is naturally taken over by the public and is "acquired by habit"³, which is why setting a standard is necessary to achieve the requested results.

Another reference to the ethos of musical modes can be found in Aristotle, who considered that listeners experience different feelings depending on each mode: sad at "some

¹ Faculty of Arts, Ovidius University of Constanta, octavian.velescu@365.univ-ovidius.ro

² Plato, *The Republic*, Book III

³ Aristotle, *The Nicomachean Ethics*, Book II, 1103.

so-called *Mixolydian*, others by a calm mood" such as desire or "enthusiastic" like the *Phrygian*. Starting from these bases, Aristotle distinguishes three groups of modes: *systolic* (sad, depressing), *diastaltic* (ecstatic, open) and *medium* (calming, calming)⁴.

In the absence of proper musical documents, the main references to the style of ancient music are made by reference to this modal ethos which thus becomes the main notion of style⁵ and which places music in direct relation to certain states of mind. *Dorian* considered to be seriously majestic musical mode, the *Phrygian* belonging to the Dionysian area, and the *Lydian* having a funerary character. However, it should be emphasized that not only the mode itself but rather the relationships between sounds and the specific cadences of these musical modes are the ones that carry the meaning, the semantic content⁶.

From Plato's Republic we distinguish, as we have seen, two modes considered suitable for musical expression. Over time, two other musical scales provided enough basic material for musical expressions made for a long time: the major and minor key scales. Also in ancient times, theories on rhetorical discourse were established. The dichotomy between the two modes will later develop two more different typologies: the *Attic* or *Apollonian* and the *Asian* or *Dionysian*⁷.

This bipolarity is observed, following the example of F. Gevaert, in the fact that the ancients used two forms of the same modes, differentiated especially by the final sound. We thus encounter musical modes in the *syntonos* form (intense) in which the melodic unfolding was performed at the top of the scale and the *aneimenas* (relaxed) form in which the register of the melody was in the bass area, and the cadence was done on the fundamental sound⁸. It seems that these different forms of the same mode represented opposite expressive characters, the intense one having an excessive, pathetic character, and the relaxed one was calm, gentle. These did not change the structure of the scale, but only the ambitus and cadence formulas. Later, bipolarity led to the pairing between the authentic mode and its plagal⁹ where the different character of the two was given by the relations between the sounds and the specific cadences.

The idea of establishing an ethos for each mode attributes to its musical content a complex component formed by a set of phenomena that shape its character, with moral, ethical and aesthetic attributes. Musical mode is directly reflected in the organization of the song where the scale behaves as a summary of all possible sound or interval combinations, being thus identified as a sound structure bearing a certain meaning. Should only the musical scale alone be able to differentiate a moral music from an immoral one? The ancients thought so, but today we can say that most of the time, these evaluations are made by referring to certain cultural conventions.

Tetrachords analysis

The present study aims to provide a link between the musical content, expressed by certain physical parameters, responsible for the sound organization of the mode and the effects they transmit psychologically. Starting from the idea that the modes are "carriers of an ethos

⁴ Giuleanu, Victor. 2013. *Tratat de Teoria Muzicii*. București: Editura Grafoart. p. 296

⁵ Sandu-Dediu, Valentina. 2010. *Alegeri, Atitudini, Afecte: Despre stil și retorică în muzică*. București: Editura Didactică și Pedagogică, R.A. p. 44

⁶ Sandu-Dediu, Valentina. p. 44

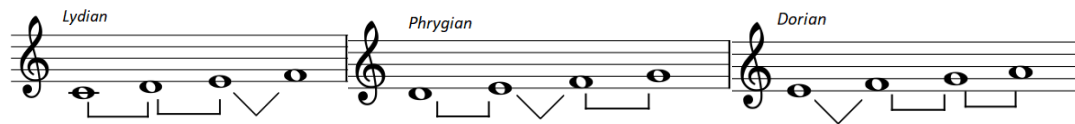
⁷ Sandu-Dediu, Valentina. p. 45

⁸ Giuleanu, Victor. p. 291

⁹ Giuleanu, Victor. p. 291

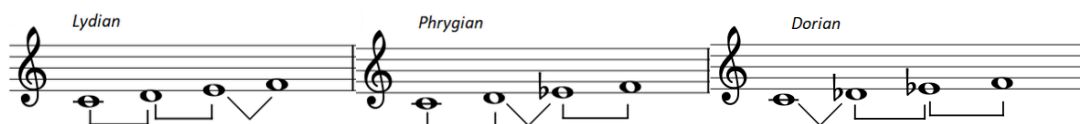
determined by the role of each pitch and the relationships between them in the whole¹⁰ we proposed an analysis model that concerns several physical parameters

The starting point is the structure of the three types of diatonic tetrachords, and for example we chose the structure of the modes from the ancient period¹¹: *Dorian*, *Phrygian* and *Lydian*.



Solving the problem of the ethos of modes is outlined more as a matter of principle. That is why the attempt to identify and directly correlate some musical modes with certain feelings is not the subject of this approach. What is interesting is the idea behind the correlation of the musical content and its association with certain attitudes. Over time, musical models have taken many forms and have various transformations, the medieval period keeping, for example, the names of some modes but changing their structure. The semantic content itself has undergone changes that “differ depending on the historical period and the cultural context. For modern man, the four tetrachords, *Ionian*, *Dorian*, *Phrygian*, and *Lydian*, carry a specific ethos and are the basis of many melodic constructions in which this emotional potential is well controlled.”¹²

Comparing the three tetrachords *Dorian*, *Phrygian* and *Lydian* we see three different structures: *Dorian* - with the semitone at the base, *Phrygian* - with the semitone in the middle and *Lydian* - with the semitone at the top. To facilitate the analysis, we will build the tetrachords starting from the same fundamental sound (C).



In general, the processing of musical information is done by evaluating the melodic contour and tonal structure¹³. The complexity of the phenomenon required a multi-level analysis, and the evaluation followed either the interval relations between the mode steps, or the intervals that appear in the relationship between the final sound and the other sounds, or the proximity of the sounds to a center determined by reference to the natural order of sounds (the sequence of perfect fifths), either by resembling the pattern represented by the sound scale from natural resonance.

1.1 Structure

A first consideration can be made by identifying the structures of the tetrachords and analyzing the interval ratios between steps. The alternation between tones and semitones or more precisely the steps between which the semitone is placed in the organization of sounds is different for each tetrachord: *Lydian* (III-IV); *Phrygian* (II-III); *Dorian* (I-II).

¹⁰ Tiberian, Mircea. 2015. *Domeniul Muzical o lume cu patru dimensiuni*. București: Editura Grafoart. p. 49

¹¹ Giuleanu, Victor. p. 289

¹² Tiberian, Mircea. p. 51

¹³ Hallam, Susan. 2019. *Music. Psihologia muzicii*. București: Editura Prior p. 26

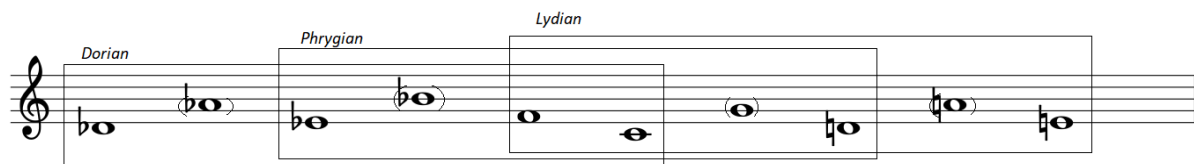
1.2 Intervals

Another appreciation considers the intervals that appear within the tetrachord, an important place being the relationship of the other stages with the final sound. Thus, the special structure of the tetrachords will result in the appearance of different intervals specific to each mode. These will then be found inside the melodic profile as vocabulary elements of that mode.

Tetrachord	Intervals		
<i>Lydian</i>	2M	3M	4p
<i>Phrygian</i>	2M	3m	4p
<i>Dorian</i>	2m	3m	4p

1.3 Placing the sounds in the sequence of the fifths

Relating the sounds of the mode to the natural order of the sounds (the perfect fifths sequence) whose origin derives from natural resonance can be another way of evaluation. In this case, we can see that each of the three tetrachords covers, in equal extent, each within the limit of five perfect fifths. The difference between the tetrachords in this case is the position of the sounds relative to the center of reference, for example the final sound. The perfect fourth interval that marks the limits of the tetrachord can thus become the reference axis to which the other sounds in the tetrachord relate in ascending or descending direction.



We notice here that the most balanced situation is found in the case of the Phrygian tetrachord (with the semitone in the middle), the space it occupies being symmetrically divided between the two areas: ascending and descending.

Tetrachord	The perfect fifths sequence		
	Descending	Axis	Ascending
<i>Lydian</i>	0	<i>C – F</i>	+ 4 (p 5-ths)
<i>Phrygian</i>	– 2 (p 5-ths)	<i>C – F</i>	+ 2 (p 5-ths)
<i>Dorian</i>	– 4 (p 5-ths)	<i>C – F</i>	0

1.4 Interval quality

The connection to a sound center considers both the correlation with the real fifths sequence and the analysis of the quality of the interval. One of the ways to explain the tonal hierarchy is according to F. Lerdahl, the *Tonal Pitch Space Theory*, which suggests that "listeners perceive pitches and chords as relatively close to or distant from a given tonic in a logical order."¹⁴ The sequence of perfect fifths can also be imagined as a scale for the intervals that appear within the tetrachord in which both the distance between the elements and their direction (ascending or descending) can be considered as a determining factor.

¹⁴ Hallam, Susan. p. 27

<i>Intervals</i>	Perfect fifths	Direction
<i>4p</i>	1 (p 5-ths)	Descending
<i>2M</i>	2 (p 5-ths)	Ascending
<i>3m</i>	3 (p 5-ths)	Descending
<i>3M</i>	4 (p 5-ths)	Ascending
<i>2m</i>	5 (p 5-ths)	Descending

We can see here that the intervals from the *Lydian* area are major in relation to the fundamental sound and are mainly in the area of the ascending fifths while in the *Dorian* tetrachord all the intervals are minor and are placed in the area of the descending fifths.

Tetrachord	Intervals					
<i>Lydian</i>	2M	2↑	3M	4↑	4p	1↓
<i>Phrygian</i>	2M	2↑	3m	3↓	4p	1↓
<i>Dorian</i>	2m	5↓	3m	3↓	4p	1↓

1.5 Analogy with natural resonance

Another parameter of analysis is the relation of the sounds of the mode with the phenomenon of natural resonance, as proximity to the model proposed by the superior harmonics of a fundamental sound. Thus, the major intervals are closer to the main body of the superior harmonics, while the minor intervals appear at the top of the harmonics being further away from the base. This can explain the wide spread of the major key in which "the first 4 harmonics of steps I, IV and V are all the sounds of the Ionian mode (major range) the most used mode in Western music"¹⁵.

Conclusions:

The idea from this study was to correlate the musical content with certain emotions, thus trying to explain the ethos of the mode through the relationships between sounds. The connection between certain physical features of sounds and some semantic specifications is found in many situations, but their establishment has often been made in various cultures and historical periods by convention. But the correlation of the musical content with some emotions is certainly achieved through a complex of elements.

A decisive factor may be the approach to the concept of consonance which would be understood as a state of calm, tranquility while moving away from the consonant area creates tension. This tension has acquired various meanings, a large part of the musical literature being imagined as an alternation between consonance and dissonance. Over time, moving away from the sound stability of consonance was also seen as an exploration of elements in more and more remote areas, which gradually led to the evolution of the concept of dissonance, which is more related to the level of education and understanding of music.

Although music theory has attributed to the consonant external elements related to universal laws such as mathematics or physics, a recent experiment on members of an isolated Amazon society has shown that both consonance and dissonance are equally pleasing.¹⁶ However, it is difficult to show that the naturalness and simplicity of musical communication is largely due to cultural conventions, especially in terms of shaping an aesthetic appreciation.

¹⁵ Tiberian, Mircea. p.82.

¹⁶ Hellmuth Margulis, Elizabeth. 2019. *The Psychology of Music: A very short introduction*. New York. Oxford University Press. p. 21.

We can say that both the natural sound phenomenon and the cultural dependence are those attributes of music that have the power to transmit messages about the "culture and identity while feeling direct and unmediated".¹⁷

Of course, not only are the sounds of the music scale are responsible for transmitting emotions, but rather music as a set of phenomena that includes modes, but especially the relationships between sounds, pitch ratios, cadences, or other interval relationships that arise within the musical mode. However, the component sounds of the mode may give some image of the sound relationships that may arise during the song being in fact a brief presentation of all the sounds encountered during the whole musical piece or a fragment developed within that mode. Maybe that explain why the ancients did not question the specific melodic patterns, routes, or cadences, but treated the problem through the modes, the musical scales seen as a summary of all possible sound relationships. We can say that the sounds of the same interval can contain different information depending on the musical mode of which they are part, being seen as components of an implied sound structure. The sound, the interval or the sound structure can have different meanings not only depending on the musical mode to which it belongs, but also on the melodic context in which it is located or the moment of its presentation.

Beyond the interval relationship between the steps of the musical scale, the location of its elements in the sequence of perfect fifths or other physical correlations, in the evaluation of the meaning or psychological significance of the musical material must also be considered cultural aspects. These conventions have undergone multiple changes over time due to various external factors. For example, if we were to refer to a heroic song, it could be happy or sad depending on the element to be evoked: sacrifice or victory. For this reason, the attempt to establish comprehensive associations of all musical works that link the semantic content with the type of modes used is a very general one that will require for a correct analysis a careful observation of all the elements. The relationship between the structure of the mode and the semantic content does not consider an absurd framing but rather an orientation towards certain semantic spheres whose correct analysis will require for each work flexible solutions and separate judgments adapted to each situation, the subjective factor being observed both to the work of art as well as to the type and manner of analysis patterns.

Bibliography

Books:

- Aristotle, *The Nicomachean Ethics*, Book II, 1103.
- Giuleanu, Victor. 2013. *Tratat de Teoria Muzicii*. București: Editura Grafoart.
- Hallam, Susan. 2019. *The Psychology of Music. (Music. Psihologia muzicii*. București: Editura Prior).
- Hellmuth Margulis, Elizabeth. 2019. *The Psychology of Music: A very short introduction*. New York. Oxford University Press.
- Plato. *The Republic*. Book III.
- Sandu-Dediu, Valentina. 2010. *Alegeri, Atitudini, Afecte: Despre stil și retorică în muzică*. București: Editura Didactică și Pedagogică, R.A.
- Tiberian, Mircea. 2015. *Domeniul Muzical o lume cu patru dimensiuni*. București: Editura Grafoart.

¹⁷ Hellmuth Margulis, Elizabeth. p.21.