

# Generative Syntaxes: Macro-Heterophony and the Form of ‘Synchrony’

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## I. INTRODUCTION

**Abstract**—One of the most powerful language innovation in the twentieth century music was the heterophony–hypostasis of the vertical syntax entered into the sphere of interest of many composers, such as George Enescu, Pierre Boulez, Mauricio Kagel, György Ligeti and others. The heterophonic syntax has a history of its growth, which means a succession of different concepts and writing techniques. The trajectory of settling this phenomenon does not necessarily take into account the chronology: there are highly complex primary stages and advanced stages of returning to the simple forms of writing. In folklore, the plurimelodic simultaneities are free or random and originate from the (unintentional) differences/‘deviations’ from the state of unison, through a variety of ornaments, melismas, imitations, elongations and abbreviations, all in a flexible rhythmic and non-periodic/immeasurable framework, proper to the *parlando-rubato* rhythmic. Within the general framework of the multivocal organization, the heterophonic syntax in elaborate (academic) version has imposed itself relatively late compared with polyphony and homophony. Of course, the explanation is simple, if we consider the causal relationship between the sound vocabulary elements – in this case, the modalism – and the typologies of vertical organization appropriate for it. Therefore, adding up the ‘classic’ pathway of the writing typologies (monody – polyphony – homophony), heterophony – applied equally to the structures of modal, serial or synthesis vocabulary – reclaims necessarily an own macrotemporal form, in the sense of the analogies enshrined by the evolution of the musical styles and languages: polyphony→fugue, homophony→sonata. Concerned about the prospect of edifying a new musical ontology, the composer Ștefan Niculescu experienced – along with the mathematical organization of heterophony according to his own original methods – the possibility of extrapolation of this phenomenon in macrostructural plan, reaching this way to the unique form of ‘synchrony’. Founded on *coincidentia oppositorum* principle (involving the ‘one-multiple’ binom), the sound architecture imagined by Ștefan Niculescu consists in one (temporal) model / algorithm of articulation of two sound states: 1. monovocality state (principle of identity) and 2. multivocality state (principle of difference). In this context, the heterophony becomes an (auto)generative mechanism, with macrotemporal amplitude, strategy that will be grown by the composer, practically throughout his creation (see the works: *Ison I*, *Ison II*, *Unisonos I*, *Unisonos II*, *Duplum*, *Triplum*, *Psalmus*, *Hétérophonies pour Montreux (Homages to Enescu and Bartók etc.)*). For the present demonstration, we selected one of the most edifying works of Ștefan Niculescu – *Symphony II*, *Opus dacicum* – where the form of (heterophony-)synchrony acquires monumental-symphonic features, representing an emblematic case for the complexity level achieved by this type of vertical syntax in the twentieth century music.

**Keywords**—Heterophony, modalism, serialism, synchrony, syntax.

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IN a historical retrospective, twentieth-century music stands out by the unprecedented amplitude of its diversity as far as stylistic orientations, trends and tendencies are concerned. In this context, innovation in compositional technologies became a primary focus, leading, especially in the latter part of the century, even to some experimental excesses [1].

Nevertheless, time has decanted some undisputable values and some musical writing solutions that are both interesting and expressive. One of these phenomena is **heterophony**, an instantiation of the vertical syntax embraced by many composers, such as George Enescu, Pierre Boulez, Mauricio Kagel, György Ligeti and others.

In folk music, plurimelodic simultaneities are free or random and they originate in the (involuntary!) distancing / “deviation” from the state of unison, through a wide range of ornaments, melismas, imitations, elongations or abbreviations – everything within a flexible, non-periodical / non-measurable rhythm framework, specific to the pattern of the *parlando-rubato*.

The European art music tradition used heterophony in a sporadic fashion and almost always in association with polyphony. A primary phenomenon irreducible to monody, homophony and polyphony, rather neglected at first, heterophony managed to progressively take hold in the creation of Romanian composers as well [2].

One of the most important twentieth-century composers to have introduced the principle of heterophony into worldwide art music was **George Enescu** [3]. In his music, **monody** and **unison** became favourite expressions (see, for instance, the famous *Prelude in unison* from *Suite no 1 for orchestra*, op. 9), progressively gaining a major role and a compulsory frequency.

## II. ȘTEFAN NICULESCU. A UNIQUE VIEW OF THE CONCEPT OF HETEROPHONY

The essential premise on which Ștefan Niculescu builds his work is archaic Romanian (monodic) music.

From the perspective of time, heterophony is defined as oscillation between a state of **unison** and one of **multivocality** [4], through the alternation of intersection / synchronization areas with separation/desynchronization areas. This pendulum strategy is defined by Ștefan Niculescu with the expressions of “node” and “antinode” (corresponding to the vibration of air in tubes or the vibration of strings).

In order to achieve heterophony, i.e. an oscillation between unison (chord or rest) and texture, the most diverse working

techniques may be used, from aleatoricism to mathematical control.

Ștefan Niculescu has the merit of having demonstrated that, at the level of our capacity to perceive music, we distinguish three types of sound events: **rarefied**, **detailed** and **agglomerated**.

The most natural field where heterophony may become manifest is, without any doubt, the area of **agglomeration**. Here, a large number of events happen at once during the minimal time unit of our perception, losing their individuality, so we are no longer able to hear them distinctly, but only globally. Placed in an agglomeration, homophony and polyphony tend towards heterophony. Actually, any sound phenomenon in an area of agglomeration becomes heterophony and, likewise, any agglomeration is more or less heterophony. Examples of such events are to be found in Xenakis, Stockhausen, Ligeti, the Polish “school”, etc.

### III. HETEROPHONY IN A MACROTEMPORAL PROJECTION: THE FORM OF “SYNCHRONY”

Within the general framework of multi-vocal arrangement, compared to polyphony [5] and homophony, **heterophonic syntax** in its elaborated (academic) version took hold relatively late. Of course, the explanation is simple if we take into account the relationship of causality existing between the elements of the sound vocabulary – in this case, modalism – and the vertical arrangement typologies that would suit it.

Using an analogy inspired by history to talk about the relationship of indetermination existing between syntax elements and the musical form, Ștefan Niculescu considers that, since homophony progressively led to homophonic forms, such as the *lied*, the *rondo*, or the *sonata*, and polyphony to polyphonic forms – the *motet*, the *ricercar*, the *fugue*, heterophony should also produce some heterophonic forms.

This is why, being preoccupied with the perspective of building a new musical ontology, – besides the mathematical arrangement of heterophony according to his own, original methods – Ștefan Niculescu experimented with the possibility of extrapolating this phenomenon at the macrostructural level, thus achieving the unusual form of “**synchrony**”. The latter is founded on the principle of *coincidentia oppositorum* (involving the binomial “one-multiple”), and the sound architecture imagined by Ștefan Niculescu consists in a (temporal) model/algorithm used to articulate two sound states: 1. the state of monovocality (the principle of identity) and 2. the state of multivocality (the principle of difference). In this context, heterophony becomes a **(self)generative mechanism** of macrotemporal amplitude, a strategy that the composer actually cultivated throughout his entire creation. The titles of Ștefan Niculescu’s works are emblematic expressions clearly referencing the concept of heterophony, the aesthetics and the technology of the composition based on this phenomenon. Here are some of the most significant: *Ison I* (1973-1974); *Ison II (Concerto for brass and percussion – 1975)*; *Unisonos I* and *Unisonos II* (1970, 1971); *Aforisme de Heraclit [Aphorisms by Heraclitus]* (*Toate sunt unu [All are*

*one]* – 1969); *Eterofonii pentru Montreux [Heterophonies for Montreux]*; The chamber cycle encompassing works such as: *Duplum, Triplum, Sextuplum, Octuplum* etc.

One of the most edifying forms of **synchrony** is to be found in **Symphony no 2, Opus dacicum**, finalized by the composer in 1980. As early as its first audition, this work enjoyed a resounding success, becoming, soon after, a referential landmark in the evolution of twentieth-century music.

The subtitle *Opus dacicum* was inspired by the composer’s contact with the ruins of the sanctuary in the ancient city of Sarmiszegetusa, from the Orăștie Mountains (Transylvania, Romania), seen by archaeologists as having a unique architectural structure.

In this contribution we are going to consider only the Second Movement of the *Symphony*, which is built in its entirety on the principle of **synchrony**.

Thus, the architecture of the (macro)temporal segment, with an extension of 90 bars (4/4), shows a syntax built drawing on the ratio ONE-MULTIPLE, and, respectively, **synchronic** (monody solo/unison = ONE) – **asynchronic** (plurivocal heterophony = the sum of the various instantiations of the ONE included in the MULTIPLE).

The sound matrix generating the synchrony is made up of a (finite) number of **7 melodic figures**, conceived as invariable monovocal entities (the strictly contextual apparition of some minimal intonational and/or rhythmic variations does not affect their identity in any way; as shown in Figs. 1-7).



Fig. 1 [6, p. 62]



Fig. 2 [6, p. 62]



Fig. 3 [6, p. 62]



Fig. 4 [6, p. 62]



Fig. 5 [6, p. 62]



Fig. 6 [6, p. 62]



Fig. 7 [6, p. 63]

These 7 elements represent the branches of a generative “tree” linked by obvious relations of similarity (see the various interval and rhythm analogies); this statement is an argument in favour of the primary (causal) construction of a potentially heterophonic variational algorithm. By virtue of this (expository) algorithm the composer is able to organize/control the entire strategy involving the gradual passage from asynchrony to synchrony (and backwards).

Even if they keep their initial status (of linear/horizontal entities), the 7 melodic figures become, through multiple reiteration, the component levels of a heterophonic sound whole (a state of maximal agglomeration corresponding to the stage of asynchrony).

Therefore, subjected to a continuous **repetitive-permutative** process, the 7 melodic figures interact in increasingly complex combination, generating a “sound delta” in full expansion (from one to 18 voices), which means a permanent “change of context” (Figs. 8 (a) and (b)).

It is also here that it should be mentioned that the multivocal texture of the 18 voices competing in the construction of this unusual form of “synchrony” is woven both by imitative relations and by heterophonic relations.

The (macro)temporal strategy of constructing the form encompasses two stages:

*A. Asynchrony (Accumulation/Agglomeration)*

A **repetitive-evolving** process definable by each voice’s progressive adhesion to the state of **heterophony** resulting from the **desynchronised** stratification of the 7 melodic segments; it is a projection with an irreversible aspect that covers the distance from the minimal threshold of sound density (the limit-state of **rarefaction** = the solo of the contrabassoon) and the maximal threshold of sound density (the limit state of **agglomeration** = the simultaneity of the 18 voices; Fig. 9).

*B. Synchrony (Elimination/Rarefaction)*

A (reverse) **repetitive-non-evolving** [7] process definable by each voice’s progressive (re)adhesion to the state of **monody** (unison) in the context of preservation of multivocal density (the same 18 voices); it is a reversible projection resulting from the progressive elimination of the melodic segments 1-6 in favour of the **synchronization** of all levels based on the repetition of a single segment – F7 (Figs. 10 (a) and (b) and 11 (a) and (b)).



Fig. 8 (a) Intermediate state of accumulation/agglomeration/desynchronization [6, p. 63]

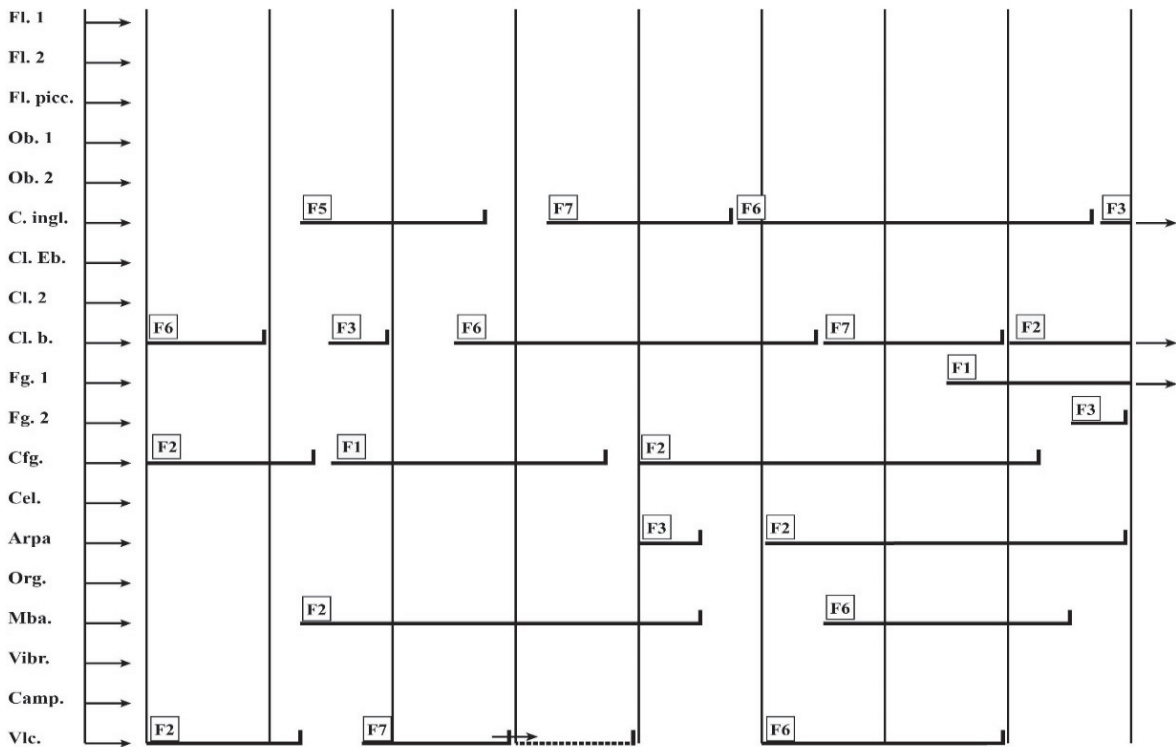


Fig. 8 (b) Intermediate state of accumulation/agglomeration/desynchronization; graphic representation [6]

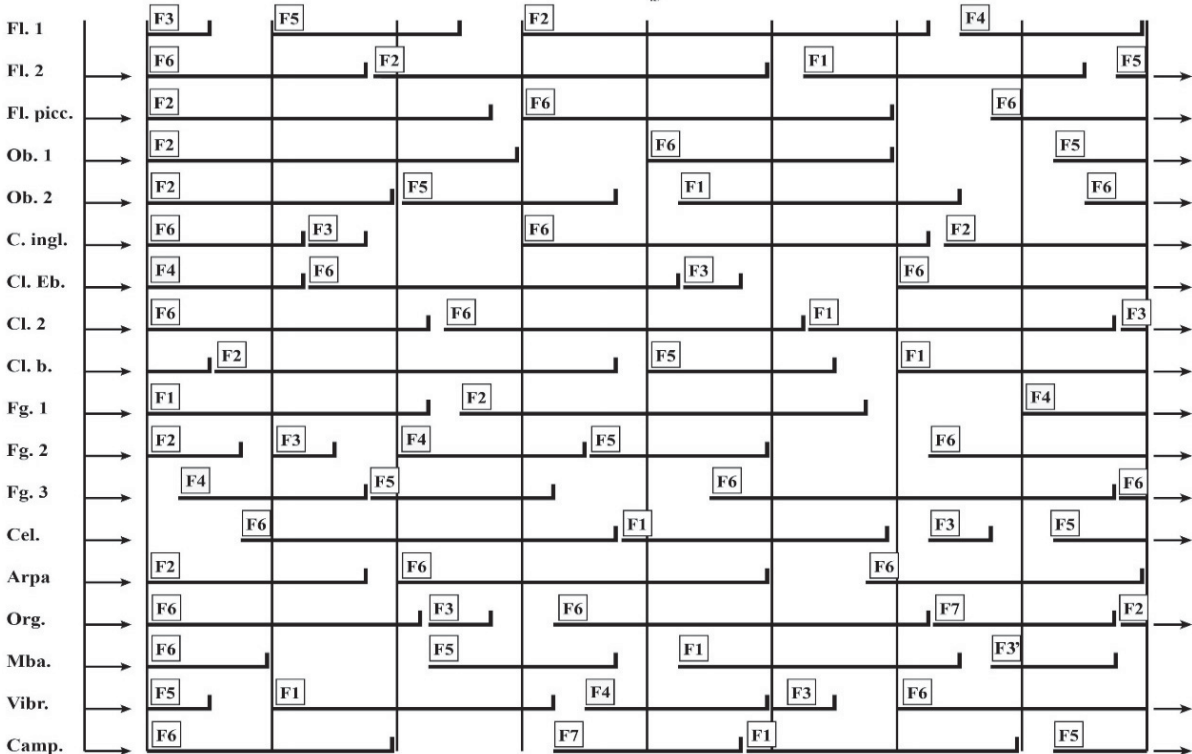


Fig. 9 Advanced state of accumulation/agglomeration/desynchronization; graphic representation [6]

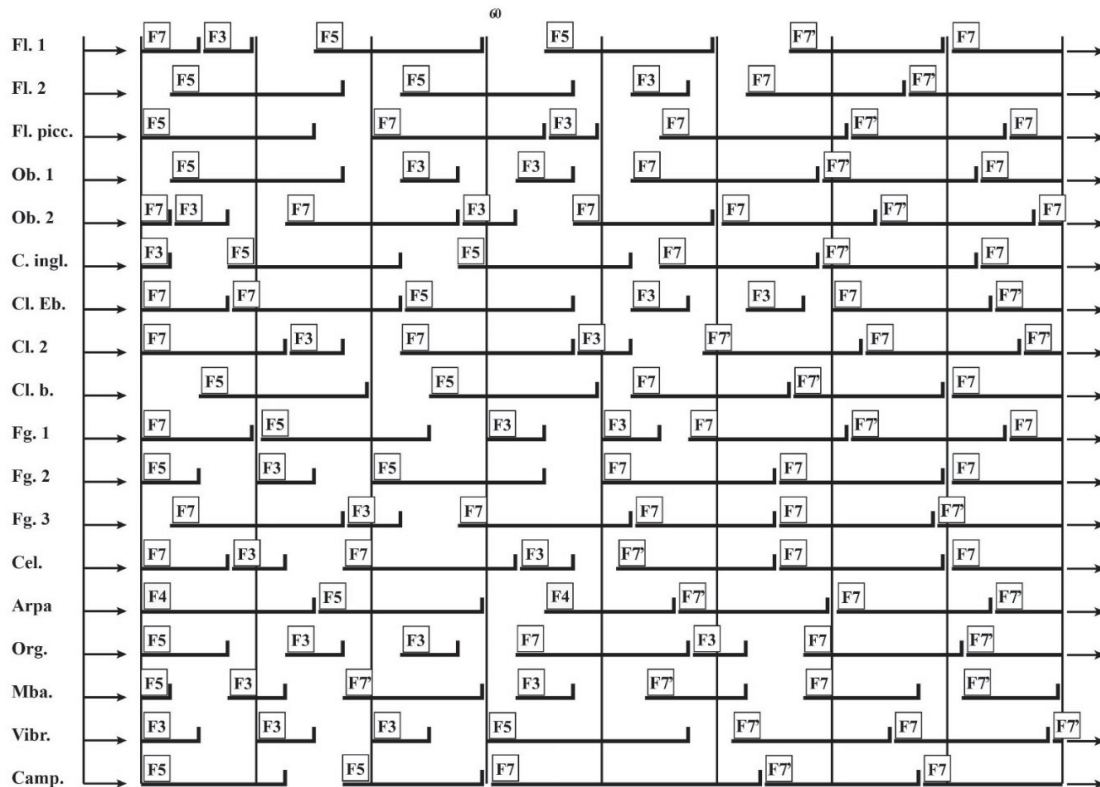


Fig. 10 (a) Beginning and continuation of the process of elimination/rarefaction; graphic representation [6]

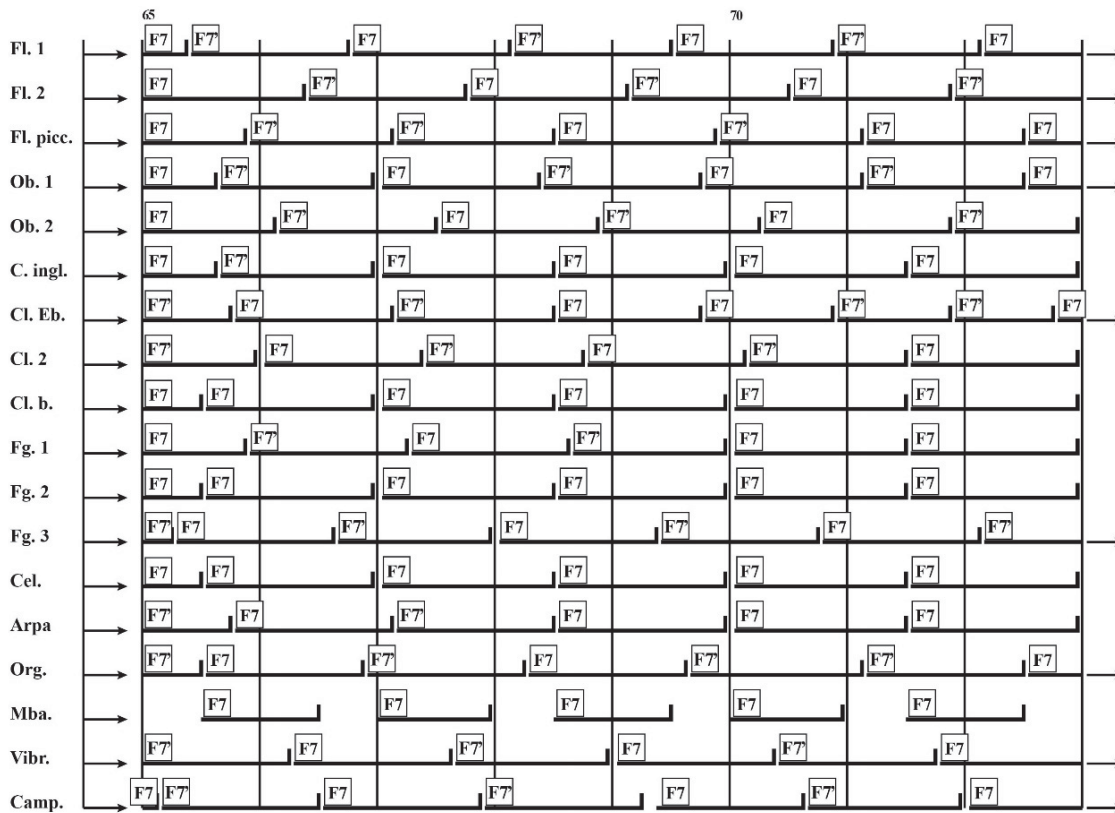


Fig. 10 (b) Beginning and continuation of the process of elimination/rarefaction; graphic representation [6]

A musical score for a symphony orchestra, showing staves for Flutes (Fl.), Flute piccolo (Fl. picc.), Oboes (Ob.), Clarinet in G (C. ingl.), Clarinet in Bb (Cl. mi b), Clarinet 2 (Cl. 2), Clarinet in C (Cl. basso), Bassoon (Fg.), Cello (Cel.), Arpa, Organ, Mba, Vibr., and Campi. The score is in 4/4 time with a tempo of quarter note = 76. It features various dynamics such as *f*, *p*, and *mp*, and includes performance markings like *acc.* and *rit.*. The score is divided into measures, with some measures containing multiple notes and rests.

Fig. 11 (a) State of synchrony [6, p. 80]

A graphic representation of the state of synchrony for the orchestra, showing F7 chords for various instruments. The instruments listed are Fl. 1, Fl. 2, Fl. picc., Ob. 1, Ob. 2, C. ingl., Cl. Eb., Cl. 2, Cl. b., Fg. 1, Fg. 2, Fg. 3, Cel., Arpa, Org., Mba., Vibr., and Camp. The diagram shows a grid of F7 chords for each instrument, with a tempo of quarter note = 76. The chords are arranged in a grid, with a tempo of quarter note = 76. The diagram shows a grid of F7 chords for each instrument, with a tempo of quarter note = 76. The chords are arranged in a grid, with a tempo of quarter note = 76. The diagram shows a grid of F7 chords for each instrument, with a tempo of quarter note = 76. The chords are arranged in a grid, with a tempo of quarter note = 76.

Fig. 11 (b) State of synchrony; graphic representation [6]

## IV. CONCLUSION

Heterophonic syntax has a particular history of its becoming, which translates into a succession of various conceptions and writing techniques. However, the trajectory of the decanting of this phenomenon is not necessarily linked to chronology: there are highly complex primary stages and advanced stages marking a return to simple forms of writing.

The “open” form (multidirectional linkage), the emergence of improvisation (nostalgia for an oral musical culture) as well as the weight of the present in relation to the evolution from the past to the future (the new sense of time) are just a part of the new trends in music that seem to be responsible for the generalization of heterophony in the second half of the twentieth century.

## REFERENCES

- [1] Luminița Duțică, *Concertul pentru orchestră în creația compozitorilor români: vol. I Tipologii Ansambluri, vol. II Repere stilistice – Modele ale genului* (Concerto for Orchestra in Romanian composers creation: vol. I Typologies - Ensembles; vol. II Stylistic References - Models of the genre). București: Editura Muzicală, 2013.
- [2] Dan Dediu, *Fenomenologia actului componistic. Arhetip, arhetrop și ornament în creația muzicală* (The phenomenology of composition. Archetype, archetrop and ornament in music creations), Doctoral thesis. București: Academia de Muzică, 1995.
- [3] Gheorghe Duțică, *Perpetuum Enescu. Paradigms of Polymodular Time*. București: Editura Muzicală, 2016.
- [4] Ștefan Niculescu, *Reflecții despre muzică* (Reflections about music). București: Editura Muzicală, 1980.
- [5] Gheorghe Duțică, *Universul gândirii polimodale* (The Universe of Polymodal Thinking). Iași: Junimea, 2004.
- [6] Ștefan Niculescu, *Symphony no 2, Opus dacicum*. București: Editura Muzicală, 1980.
- [7] Gheorghe Duțică, *Romanian Compositional Horizons*. București: Editura Muzicală, 2016.



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**Books and articles published:**

- L. Duțică, *Concertul pentru orchestră în creația compozitorilor români: vol. I Tipologii Ansambluri, vol. II Repere stilistice – Modele ale genului* (Concerto for Orchestra in Romanian composers creation: vol. I Typologies - Ensembles; vol. II Stylistic References - Models of the genre). București: Editura Muzicală, 2013.
- L. Duțică, *Colindul românesc – arhetip monodic generator de sintaxă verticale / Romanian Carol – Monodic Archetype generating Vertical Syntaxes*. Frankfurt of Main: Edition Peter Lang, 2013.
- L. Duțică, *Synchronism and specific features in the language of Romanian composers of the second half of XX century* (ISI

Thomson), SGEM International Multidisciplinary Scientific Conferences on Social Sciences and Arts, Albena, Bulgaria, 2014.

- L. Duțică, *Obsession of Time and the New Musical Ontologies. The Concert for Saxophone, Daniel Kientzy and Orchestra by Myriam Marbe* (ISI Thomson Reuters, CiteSeerX, Google Books, Google Scholar, EBSCO, SCOPUS, ERA, ProQuest), ICAH-17<sup>th</sup> International Conference on Arts and Humanities, Paris, Franța, 20-21 iulie 2015, eISSN: 1307-6892, International Scholarly and Scientific Research & Innovation, waset.org, Part VII, article 307.



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*Decoding of Musical Signs (Solfeggio and Dictation Techniques); Fundaments of Musical Rhetoric. Published Books: Perpetuum Enescu. Paradigms of Polymodular Time*. București: Editura Muzicală, 2016; *Romanian Compositional Horizons*. București: Editura Muzicală, 2016; *Universul gândirii polimodale* [The Universe of Polymodal Thinking]. Iași: Junimea, 2004; *Conceptul ritmic și tehnica variațională – o viziune asupra Barocului și Clasicismului muzical* [Rhythmic Concept and Variational Technique – a View on Musical Baroque and Classicism]. Iași: Artes, 2004 (with Luminița Duțică); *Solfegiu, Dictionar, Analiză muzicală* [Solfeggio, Dictation and Musical Analysis]. Iași: Artes, 2004; *Fenomenul polimodal în viziunea lui Olivier Messiaen* [The Polymodal Phenomenon in Olivier Messiaen's View]. Iași: Artes, 2003; *Structură. Funcționalitate. Formă. Perspective contemporane în analiza fenomenului muzical* [Structure, Functionality, Form. Contemporary Perspectives in the Analysis of the Musical Phenomenon]. Iași: Artes, 1999 (with Laura Vasiliu). **Published Studies:** *Muzica* and *Artes* Journals; Proceedings: “George Enescu” International Musicology Symposium, WSEAS/AMTA International Conference on Acoustics and Music: Theory and Applications; IACSIT/ICFCC International Conference on Future Computer and Communication; The International Musicological Conference/*Eastern European Studies in Musicology Collection*, Peter Lang GmbH, etc.