

## Structural Principles of Orchestration in the Second Half of the 20th Century

**Abstract.** The second half of the twentieth century demonstrates us a great variety of individual composing techniques, creative concepts and entirely new ways of organizing the orchestra. In order to highlight this diversity and uncover different structural principles, this article seeks to define and analyze the most prominent orchestral concepts and structural principles of this period, revealed in the works of Olivier Messiaen, Witold Lutosławski, Gyorgi Ligeti, Gerard Grisey, Giacinto Scelsi and other composers. Five different types of orchestral structure are introduced and analyzed in this paper.

**Keywords:** orchestra, orchestration, structural principles, texture, timbre, sound color, instruments, orchestral groups, sound spectrum.

### 1. Introduction

The symphony orchestra as well as its structuring principles and techniques of orchestration varied through the course of history, thus revealing the diverse and sometimes unexpected orchestral sound capabilities. Many individual composing techniques, including new ways of structuring and approaching the orchestra were exposed in the second half of the twentieth century. Despite the fact that the composition of instruments (instrumentation) and external structure of the orchestra did not change radically for several centuries (otherwise it would no longer be a symphony orchestra), the ways of using it and the so-called structuring principles changed periodically, thus ensuring an entirely different, unexpected sound results from the same symphony orchestra.

The aim of this article is to reveal the specific features of orchestration and inner structure of the orchestra of the period in question, formulate the main structural types and characterize them. It is equally important to define the aspects from which we can analyze the orchestra and get the right results. Although in the orchestral music of this period, we can find various approaches that come from the past and represent the development or direct continuation of romantic, impressionistic, neoclassical and other orchestral styles, this article will focus on the most innovative examples, the ones that showed the symphony orchestra in a new light and revealed new concepts.

### 2. Elements of the orchestral structure

In order to be able to speak about the types of the orchestral structure and their peculiarities in the second half of the 20th century, we need to set some guidelines for analysis. What is meant by the term “orchestral structure”? What musical parameters and what elements of orchestration determine its differences? Finally, on what basis can we classify these types and justify their differences?

Different authors, writing about the orchestra and analyzing orchestral scores, highlight slightly different structural elements as the most important ones.

We cannot start without mentioning one of the most fundamental classical works by Nikolay Rimsky-Korsakov, where he describes the structure of the orchestra of his time and emphasizes the following orchestral elements<sup>1</sup>:

- a) usage of musical instruments, joining them into orchestral groups, their proper application;
- b) economy of timbres and constant timbral renewal throughout the score;
- c) structure and character of musical texture, formation of different layers of texture (solo line, background, orchestral pedal, *tutti*, orchestral crescendo, etc.), balance between layers and single instruments.

Adam Carse analyzing the orchestral styles of different periods mostly emphasizes the importance of the musical instruments and their evolution, as well as the differences in usage and function. Thus, the evolution of the orchestra is mainly represented through the use of musical instruments and orchestral groups. He says, “Intimately and inseparably connected with the history of orchestration are: progress in the art and technique of musical composition; improvements in the construction of musical instruments, both of which are again associated with the growth of instrumental technique”<sup>2</sup>.

<sup>1</sup> Rimsky-Korsakov, Nikolay (1964/1922). *Principles of orchestration*. New York.

<sup>2</sup> Carse, Adam (2012/1925). *History of Orchestration*. Minneapolis: Dover Publications, p. 1.

Ertugrul Sevsay formulates six main elements of orchestration and suggests them as the basic aspects for analysis of orchestral music, and especially for the scores of the 20th century<sup>3</sup>:

- a) musical instruments;
- b) instrumental registers;
- c) orchestral registers;
- d) dynamics;
- e) articulation;
- f) methods of sound production.

Talking about 20th century music, he gives some unusual examples of possible usage of the above-mentioned elements: “We can think about a composition in which the contrasts are generated by different dynamic values: some instruments play decrescendo, others crescendo, others remain constant in their dynamics ... It would also be possible to conceive a composition in which only different registers are used to produce contrasts, while the other elements remain unchanged.”<sup>4</sup>

Some analytical guidelines are also found in Samuel Adler’s work<sup>5</sup>. He focuses mainly on musical instruments, their technical possibilities as well as proper combinations of individual instruments or orchestral groups. The main types of textures and the way they function are also briefly mentioned.

It can be noted that each of the aforementioned authors looked at the phenomenon of the orchestra from its own perspective, highlighting the aspects that either are important within the scope of the individual approach or could be applied only to one particular period of the history of orchestration and have quite narrow coverage.

From the perspective of today, the lack of systematic and versatile approach to the structure of the orchestra and the phenomenon of orchestration can be seen. Korsakov perfectly describes the specifics of the orchestra of his time and uses quite comprehensive and versatile aspects. However, these aspects mainly reflect the needs of romantic orchestra (i.e. represent only one structural type) and not always they can be useful for the musical scores of later periods. In order to be able to evaluate the diversity of orchestral types, which is especially pronounced in the 20th century, a significant extension of the approach is necessary. Sevsay focuses mainly on the technical-instrumental aspect of orchestration, without getting deeper into the orchestral structure or different principles of approaching orchestra. Adler concentrates on important, but only elementary, technical elements of orchestration, which in many respects coincide with those of Korsakov. Carse highlights the aspect of instrumental structure, yet he emphasizes its changes and a certain evolution and comes closer to the general principles of the organization of the orchestra.

Keeping in mind the experience of the aforementioned authors, we could, and definitely have to complement it trying to expand wider and go deeper into the essence of the orchestral phenomenon. Therefore, we can formulate the following aspects of analysis. They also describe the structural elements of the different levels of the orchestra. On this basis, we can effectively analyze the principles of orchestration and orchestral structure in any orchestral piece.

1. **Structural unit of the orchestra.** It is the most important and basic structural element from which the whole orchestra is built. Using different structural units to form an orchestra, we get completely different final results.
2. **Principle of grouping orchestral instruments.** Since separate orchestral instruments usually tend to join bigger orchestral groups, it is important to find out the main principle of this process. The most common and natural is the use of instruments grouped into classical orchestral groups (strings, woodwinds, brass, percussion), i.e. based on similarities of construction and timbre. However, there are many different and less usual principles for grouping orchestral instruments into a particular structure.
3. **Interaction of instrumental groups or instruments.** Are groups (or single instruments) of equal importance, is there a certain hierarchy, do they interact with each other or not, how does interaction work, etc.?
4. **Layers of orchestral texture.** The amount of layers, their characteristic features, interaction between different layers and other similar issues are analyzed. A more careful look at the principles of forming, functioning and interacting of different layers of texture, may reveal a lot of important information about the processes that are used in the orchestra.

<sup>3</sup> Sevsay, Ertugrul (2005). *Handbuch der Instrumentationspraxis*. Kassel, p. 607–609.

<sup>4</sup> Ibid., p. 607.

<sup>5</sup> Adler, Samuel (2002). *Study of Orchestration* (3rd edition). New York.

5. **Dominant timbre(s).** It deals with the issue of the presence or absence of dominant timbre (soloist, particular instrumental group, layer of specific sound color, etc.). Certain dominance when one or several timbres appear more often than others are characteristic of many orchestral works. By finding out what timbres dominate and how their domination is achieved, we can reveal principles of the timbral organization and relationship (equal, hierarchical, etc.) of different timbres.
6. **Means of timbral stability.** Any structure must have its own stable elements, a certain axis, a foundation, which stabilize the changes that are taking place around it. It can be achieved by using dominant timbres, *tutti* textures (as a unified, generalized orchestral sound), and other means.
7. **Dominant musical parameter(s).** Based on different approaches, some musical parameters (pitch, timbre, texture, harmony, rhythm, etc.) become more important and more exploited than others do. It is not difficult to imagine, that the orchestra, which uses pitch as the main parameter will sound quite different from the one using timbre or rhythm.
8. **Features of the orchestral dramaturgy.** Changes of orchestration in time, within the form of a piece and specific means used to achieve it.

By describing all of above-mentioned aspects (or at least most of them) in any selected orchestral score, we can form a sufficiently detailed view of the use of the orchestra in that work.

### 3. Structural types of orchestra

Based on the specific features and combinations of the aforementioned elements (aspects), different structural types of orchestra can be defined. We can distinguish the following five main types in the symphonic music of the period in question:

- Orchestra as a combination of individual soloists;
- Orchestra as a sound mass with constantly changing sound color;
- Orchestra as a composition of separate instrumental blocks;
- Orchestra as a means for coloring a sound;
- Orchestra as a function of sound spectrum.

#### 3.1. Orchestra as a Combination of Individual Soloists

Contrary to the classical concept of an orchestra, this type of orchestra functions as a large group of solo instruments. It is not considered as a unit in itself, but rather as a secondary result of the individual use of the soloists. Therefore, we do not find most of the elements typical of classical orchestration. Usual orchestral groups (strings, woodwinds, brass, percussion) are replaced by individual instruments and their various combinations. There are no usual texture layers with different functions, such as a melodic line, background, pedal, etc. In this case, all the layers of texture perform the same function and are equally important. Thus, the main structural unit of this type of orchestra is a solo instrument (or solo timbre), and the result is a simultaneous coexistence of independent soloists, that do not interact or interact very little with each other.

One of the first examples of this principle can be seen in the introduction of Igor Stravinsky's *Le sacre du printemps*. Perhaps the most obvious example is found in Olivier Messiaen's *Reveil des oiseaux* (Ex. 1). In the example, we see a *tutti* episode with many independent simultaneously sounding layers<sup>6</sup>. Soloists in this piece could be grouped into two types: pure soloist (melodic line is performed by one instrument, timbre is clearly recognizable), and synthetic soloists (melodic line is doubled by several instruments, we hear the mixed timbre of these instruments). Orchestral dramaturgy is based on fluctuations between a very transparent texture (in which we clearly hear individual soloists and their timbres), and dense texture episodes, reaching *tutti* in its climax (where we hear combined sound of all soloists playing together simultaneously). The piano timbre plays a very important stabilizing role here. It is clearly dominant in this work and appears as sort of an axis that combines the variety of all other individual timbres around itself. The role of the stabilizing element in this case is very important, because, as already mentioned, the orchestra (with its usual elements of texture and instrumental structure) does not exist here as a whole unit. Therefore, an important task for the composer is to properly stabilize, assemble and control the group of individual, almost non-interacting musical instruments (timbres).

<sup>6</sup> According to the composer's original idea, each separate instrument (or a small group) represents a specific bird. Every layer of texture (a certain melodic line) is nothing but a real bird song written down by Messiaen himself. He also indicates the exact name of the bird at the beginning of each line. "This score consists solely from the birdsongs. All of them were heard in a forest and are absolutely authentic. The players must try to reproduce attacks and timbres of the birds as much as possible." (Preface to the score. O. Messiaen. *Reveil des oiseaux*. Moscow, 1981).

Example 1. O. Messiaen. *Reveil des oiseaux*

### 3.2. Orchestra as a sound mass with a constantly changing sound color

The main purpose of the orchestra of this type is to merge, disguise, and combine individual timbres, instruments or instrumental groups in such a way that a solid sound mass is obtained in which none of the components can be heard separately, but form an integral whole, a specific sound color. This sound mass can be defined as the main structural unit of the orchestra. We mostly find examples of this type in the scores of sonoristic, textural music (Gyorgy Ligeti, Krzysztof Penderecki, partly Kaija Saariaho, etc.).

The following essential components of this orchestra can be highlighted:

- mixed and unified timbre of separate musical instruments;
- harmony of different intensity (chords, clusters);
- micropolyphonic textures of different density and intensity;
- orchestral register<sup>7</sup> and dynamics as additional secondary elements of sound color.

It is the whole of these components that form the sound mass of a specific sound color<sup>8</sup>. Instruments are grouped according to the needs of a required sound color, therefore very different combinations of instruments as well as various playing techniques are possible. In most cases, one massive layer of texture consisting of many micro-layers is formed.

<sup>7</sup> The notion of *orchestral register* is widely used by E. Sevsay. This is how he describes the difference between orchestral register and instrumental register: “Orchestral register is used to refer to different levels of the orchestral range (e.g., soprano register, baritone register, alto-tenor register, etc.),” while “instrumental register strictly refers to the instruments and indicates the different locations throughout their range (e.g. low register on the flute, high register on the trumpet, etc.)” (Sevsay 2005: p. 10, 12).

<sup>8</sup> Pierre Michel emphasizes the process of “coloring a cluster” as one of the main procedures used by Ligeti in his orchestral pieces (*Apparitions, Atmospheres*). He distinguishes the following components of a colored cluster: range, internal structure, degree of movement, intensity, timbre. Michel Pierre (1995). *Gyorgy Ligeti*. Minerve, p. 46.

In the example (Ex. 2) we can see the orchestral sound mass, which could be described as one solid orchestral layer. Sound color in this case gradually and purposefully changes: some instruments gradually stop playing (crn., tr., trb., vn. I, vn. II), leaving only the lower strings. The rhythm of micro-layers becomes more and more intensive. Instrumental techniques and dynamics also constantly change: *tremolo* of lower strings is introduced, *crescendo* is leading to *forte*.

The created sound masses usually evolve in two ways: either by gradually transforming one into another or contrasting, thus resulting in a sudden change of timbre. The fluctuations between gradual and sudden changes, as well as constant renewal of sound color, make the basis of orchestral dramaturgy. Often the existence of a dominant timbre can be noticed. For example, when it comes to Gyorgy Ligeti's orchestral works (*Atmospheres*, *Apparitions*, *Lontano*), it is often expressed as a periodic return to the string instruments (though using quite different playing techniques), or periodically appearing *tutti* episodes that show a generalized timbre of the whole orchestra.

Example 2. G. Ligeti. *Lontano*, mm. 100–103

### 3.3. Orchestra as a composition of separate instrumental blocks

The entire orchestral body (*tutti*) is cut into smaller structures (ensembles, instrumental blocks, groups) that interact in different ways: overlap, contrast, merge, modulate, etc. Each instrumental block functions as a separate element of the orchestral structure. Therefore, the orchestra is perceived not as a whole (*tutti*), which can be divided into smaller elements (instrumental groups, separate instruments, etc.), but rather as a construction made of more or less individual instrumental blocks. Thus, the instrumental block becomes the main structural unit.

It can be characterized by the following basic parameters:

- mixed timbre (total timbre of the instruments forming the block);
- specific texture of a certain density uniting the instruments involved in the block into a single layer;
- harmony of a certain intensity.

This principle is most evident in the orchestral works by Witold Lutosławski (*Symphony No. 2, Livre pour orchestre*, etc.). Orchestral dramaturgy of this structural type is formed by various combinations of the above-mentioned instrumental blocks. On the one hand, it seeks for partial timbral renewal; on the other hand, the architecture of the blocks varies from the discrete demonstration of separate blocks, through the various ways of combining them (overlapping, gradual transition, multi-layer layout) to the full orchestra. Therefore, as the main goal of all the changes and combinations, the orchestral *tutti* is most often achieved, representing

the synthesis of all previously used instrumental blocks. *Tutti*, as the most commonly achieved result, also performs a significant function stabilizing the structure of the orchestra. It is also worth mentioning that, for example, in *Livre pour orchestre* by Lutosławski another stabilizing factor is apparent – periodically repeated timbres. The first three movements start with a string group, which at the beginning of each movement functions independently as a kind of string orchestra. The finale grows out from a second stable element – periodically recurring aleatory material. Interaction between orchestral layers varies by combining instrumental blocks in various ways (one layer – several layers – multilayered *tutti* – homogeneous *tutti*).

In the example (Ex. 3), we see four separate contrasting instrumental blocks:

1. Timbre of string instruments (vn. I, vn. II, vle., vc.);
2. Timbre of brass (tr., crn., trb.);
3. Mixed percussion timbre (5 tom-toms, gong, tam-tam, 2 piatti sosp.);
4. Mixed timbre of low range instruments (cfg., tuba, fn., cb.).

Each of them has its own timbre, as well as texture and harmonic characteristics. In addition, the first three blocks in this case coincide with the classical orchestral groups (1st – strings, 2nd – brass, 3rd – percussion), which ensures maximum contrast, while the fourth block consists of three different timbres united by a very low range.

The image displays four numbered musical excerpts from the score of *Livre pour orchestre*, 1st movement, by W. Lutosławski.

- 1.** A section titled "Piu mosso (♩ = 160)" featuring the string section: vn I div., vn II div., vle div., and vc div. The music is characterized by dense, overlapping textures.
- 2.** A section starting at measure 106, featuring the brass section: tr. 2, crn. 1.2 and 3.4, and tn. 1 and 2. The music shows complex rhythmic patterns and dynamic markings.
- 3.** A section featuring percussion: 5 tomt., gng (with "b. di legno" marking), tamt., and 2 piatti sosp. (with "b. di legno" marking).
- 4.** A section starting at measure 107, marked "AD LIB.", featuring low range instruments: cfg., tb., pf., and cb. (with "ca 1" marking).

Example 3. W. Lutosławski. *Livre pour orchestre*, 1st movement

### 3.4. Orchestra as a means for coloring a sound

Each musical instrument is treated as a distinctive, separate and equal timber of the whole orchestra, which (as a separate structural element) is used to color a sound (pitch) and provides gradual timbre transformations. The orchestra's structural unit in this case is a separate timbre; it is usually associated with a particular musical instrument, as well as a specific playing technique. Various combinations, mixtures, gradual or sudden transitions are shaped using these separate timbres. Thus, diverse and changing coloring of a sound is achieved.

The most important elements are:

- individual timbre of a particular instrument;
- transformation of a sound by means of different playing techniques and methods of sound production;
- blending of individual timbres, gradual transitions and other combinations;
- micro changes in texture and pitch, gradual changes in dynamics and registers used as additional sound coloring devices.

Since all orchestral resources are used for the tone coloring function, such musical elements, which usually appear as significant and independent (harmony, rhythm, fragments of melodic lines), are used here as the additional ones of the same coloring and do not function independently. Musical instruments are grouped and the entire orchestra is structured according to the needs of tone coloring, resulting in a very diverse, gradually changing and quite unstable instrumental groups. Thus, constant variation of sound color is achieved. We can also detect more or less distinct dominant timbre or a group of timbres, which serve as a stable element for the whole orchestral structure. Texture usually has one complex layer containing several micro layers in it. There is a clear tendency towards the expansion of the texture layer (followed by contraction): unison expands into microtones, minor and major seconds, sometimes even larger intervals; rhythm intensifies from long notes towards active pulsations; the degree of dynamics and number of instruments increase; timbre becomes more complex – from one instrument to a homogeneously merged group.

This structural organization of the orchestra can be most clearly illustrated by Giacinto Scelsi's works. In the example (Ex. 4) we see the single pitch  $A_b$  being colored by the aforementioned means of orchestra. The timbre of this note is gradually transformed with a slight change in the composition of instruments (crn. – sax. – tr.). The harmonic field also expands (unison – minor second – major second), the rhythm gradually intensifies (from long values to fast *tremolo*), the dynamics increase (from *ppp* to *f*). In this way, the single sound (or pitch) and the need to show different variations of its timbre form a unique way of using the orchestra, concentrating all orchestral means to achieve this purpose. In other words, single sound and the need to color it structure the entire orchestra.

Example 4. G. Scelsi. *Quattro pezzi su una nota sola*, III, mm. 21–23

### 3.5. Orchestra as a function of sound spectrum

Instruments are grouped according to the structure and requirements of the sound spectrum. In other words, the orchestra is used to orchestrate a particular spectrum, so it functions very differently compared to the classical or romantic symphony orchestra.

The main features that characterize this type of orchestra are:

- equalized dynamics of musical instruments (balance is achieved by using mutes for brass instruments, choosing appropriate instrumental registers and playing techniques, etc.);
- equalized timbre characteristics of different instruments (it mostly concerns vertical layout, chords);
- formation of instrumental groups based on the layers and harmonic structure of the sound spectrum used, and not on instrument types (strings, brass, percussion, etc.).

In this case, the main structural unit of the orchestra is the spectrum itself and the homogeneous harmonic-timbral structure formed by it. These units can interact very differently in orchestral texture, starting with the exposure of one spectrum (or a fragment of it), forming a single coherent layer and ending with multilayer combinations of several groups. It is important to emphasize that the orchestra itself and the use of orchestral

instruments or groups in this case obeys the logic of spectrum procedures (transformations, fragmentations, overlaps, modulations, etc.). Stability in this type of orchestra is also ensured by the spectrum-dictated stable harmonic structure and the aforementioned orchestration of vertical cords (equalized dynamics and timbres in a cord). Although sometimes we may notice certain dominant timbres and combinations of instruments, their stabilizing role in this case is secondary. Orchestral dramaturgy is not only shaped by the spectral procedures, which are most obvious in the parameter of harmony, but also by the more conventional means, such as the renewal of orchestral colors. It is also interesting to note that change between harmonic and inharmonic spectra (quite common in spectral music) in orchestration is often realized as move from harmonic instruments with clear pitch towards instruments (or ways of playing) with indefinite pitch, including a variety of mixed combinations, gradual transitions or sudden contrasts. This can play an important role in orchestral dramaturgy, as well.

Such principle of structure is found in the scores of spectral composers (Gerard Grisey, Tristan Murail, etc.). In the example (Ex. 5) we find the orchestrated spectrum, which forms two contrasting orchestral groups: a) all string instruments + cow bells, b) all woodwinds + muted brass + tubular bells. The groups are composed in such a way that all sounds in the cord have as similar dynamic capabilities and similar timbre as possible, thus, achieving timbrally and dynamically balanced chords that best respond to the characteristics of the orchestrated spectrum. By using entirely different instruments, the clear contrast between the groups is achieved. In this episode two groups modulate from one to another by gradually exchanging instruments.

The image shows a page of a musical score for Example 5, G. Grisey's *Modulations*, measures 30-40. The score is a full orchestral score with multiple staves for various instruments. Two groups are highlighted with black boxes: group 'a' (strings and cowbells) and group 'b' (woodwinds, muted brass, and tubular bells). The score is written in a complex, multi-measure rest notation, characteristic of spectral music. The instruments listed on the left include Flute (Fl.), Clarinet (Cl.), Bassoon (Bsn.), Trumpet (Tr.), Trombone (Tbn.), Percussion (Perc.), Violin (Vln.), Viola (Vla.), and Cello (Cb.).

Example 5. G. Grisey. *Modulations*, mm. 30–40

#### 4. Concluding remarks

We can say that a number of completely new approaches to the orchestra were created in the second half of the 20th century. In many respects, they do not coincide with those of the earlier periods. It greatly enhanced and extended the perception of the symphony orchestra. The most distinctive and significant are five structural types or, in other words, five ways to approach the orchestra: orchestra as a combination of individual soloists, orchestra as a sound mass with constantly changing sound color, orchestra as a composition of separate instrumental blocks, orchestra as a means for coloring a sound, orchestra as a function of sound spectrum. They are by no means the only approaches in the orchestration of the second half of the 20th century, and the list could probably be slightly extended, however, as we could ascertain, all types analyzed in this article represent individual and significant conceptions that do not repeat or duplicate each other.

We can summarize all the main features of five structural types in this table:

TYPE ASPECT	I Orchestra as a combination of individual soloists	II Orchestra as a sound mass with constantly changing sound color	III Orchestra as a composition of instrumental blocks	IV Orchestra as a means for coloring a sound	V Orchestra as a function of sound spectrum
1. Structural unit	Soloist	One multilayered sound mass	Instrumental block	Individual timbre	Spectrum
2. Principle of grouping orchestral instruments	No obvious groups. Simultaneous coexistence	Grouped according to the required sound color	Grouped according to the required sound color	Grouped according to the requirements of tone coloring. Single mixed timbre is created	According to the structure, and other properties of the used spectrum
3. Interaction of instrumental groups or instruments	Individual. None or very little interaction	Blending, gradual transformation	Contrast, overlaying, gradual or sudden transitions	Linear. Constantly changing timbre	According to interrelationship and/or procedures applied to spectrum or its segments
4. Layers of orchestral texture	Individual layers of equal significance	One layer, homogeneous multilayered sound mass	Different combinations of instrumental blocks: one layer, several layers, multilayered <i>tutti</i> , homogeneous <i>tutti</i>	One layer, sometimes consisting of several micro layers	One or several layers, according to the procedures of spectrum
5. Dominant timbre(s)	Can exist in some cases, but not necessarily	Can exist, but not necessarily	Usually exist (strings and/or other pure or mixed timbre)	Usually exist	Can exist, but not necessarily
6. Timbral stability	Dominant timbre(s), <i>tutti</i> episodes	Dominant timbre (usually strings), <i>tutti</i> episodes	<i>Tutti</i> as a final result, dominant timbre	Dominant timbre	Structure of spectrum
7. Dominant musical parameter(s)	Melodic line	Timbre, texture, dense harmonic structures, (orchestral registers, dynamics)	Timbre, texture, Harmony	Pitch, timbre	Harmony, timbre
8. Orchestral dramaturgy	Alternation between transparent textures (different solo timbres can be identified) and dense textures ( <i>tutti</i> or almost <i>tutti</i> )	Alternation between gradual and sudden change of sound color, regular renewal of sound color	Different combinations of instrumental blocks, renewal of timbre, <i>tutti</i> as a result	Differently colored pitch, renewal of timbre, stabilized by one dominant timbre	Procedures applied to spectrum or its segments, renewal of timbre, alternation between pitched and percussive (sonoric) sound

Each of the types has clear individual traits. The most important thing to emphasize is that the structural unit for each type of orchestra is different, and this undoubtedly is the main guarantor of the individuality of each type. In addition, the basic procedures that are performed with the structural unit in most cases are also different, which leads to a completely different results. On the other hand, elements such as the features of orchestral dramaturgy, principles of timbral stability or existence of dominant timbres partly coincide. These elements help to maintain continuity and historical connections with the orchestras of earlier periods. They partly represent historic heritage adapted to a certain specific way.

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## Orkestro struktūriniai principai XX a. antrosios pusės simfoninėje muzikoje

### Santrauka

Straipsnyje analizuojamos ryškiausios orkestrinės koncepcijos, susiformavusios XX a. antrosios pusės kompozitorių kūrinuose. Siekiama bent iš dalies atskleisti orkestruotės ir orkestro sudėties specifika, suformuluoti ir apibūdinti pagrindinius struktūrinius principus ir jais remiantis išskirti ryškiausius orkestro tipus.

Norint kuo išsamiau ir įvairiapusiškiau išnagrinėti objektą, suformuluoti aštuoni svarbiausi orkestro analizės aspektai, kurie kartu apibūdina ir skirtingų lygmenų struktūrinius orkestro elementus: tai orkestro struktūrinis vienetas; orkestro instrumentų grupavimo principas; instrumentinių grupių tarpusavio santykis; orkestrinės faktūros sluoksnių kiekis ir jų tarpusavio santykis bei pobūdis; dominuojančio tembro (solisto, instrumentinės grupės arba tembrinio-faktūrinio sluoksnio) buvimas arba nebuvimas; orkestro struktūros tembrinio stabilumo priemonės; dominuojantys muzikiniai parametrai (melodija, tembras, faktūra, harmonija ir kt.); orkestrinės dramaturgijos dėsningumai.

Remiantis minėtais aspektais išskiriami penki pagrindiniai orkestro struktūriniai tipai.

**Orkestras kaip individualių solo instrumentų visuma.** Tokio tipo orkestro struktūros pagrindinis statybinis vienetas yra solo instrumentas, o rezultatas – savarankiškų, tarpusavyje nesinchronizuotų ir mažai arba beveik nesąveikaujančių solistų vienalaikis skambesys. Vienas pirmųjų šio principo pavyzdžių randamas I. Stravinskio baleto „Šventasis pavasaris“ (*Le sacre du printemps*) įžangoje; kitas ryškus pavyzdys galėtų būti ir O. Messiaeno kūrinys „Paukščių pabudimas“ (*Reveil des oiseaux*).

**Orkestras kaip kintančio tembro garso masė.** Šio struktūros tipo orkestruotės pagrindinis tikslas yra sulieti, užmaskuoti, sujungti individualius tembrus, instrumentus ar instrumentines grupes taip, kad būtų išgaunama vientisa garso masė, kurioje nė vienas iš komponentų nebūtų girdimas atskirai, bet sudarytų vientisą garsinę visumą, savotišką garso spalvą. Ši garsinė masė ir galėtų būti įvardyta kaip pagrindinis orkestro struktūrinis vienetas. Tokio tipo pavyzdžių daugiausiai randame įvairiose sonoris-tinės muzikos partitūrose (G. Ligeti, K. Pendereckio, iš dalies K. Saariaho ir kt.).

**Orkestras kaip atskirų instrumentinių blokų derinys.** Orkestro visuma (*tutti*) yra tarsi sukarpomą į mažesnius darinius (ansamblius, instrumentų grupes), o jie sąveikauja tarpusavyje įvairiais būdais (persidengimas, susiliejimas, staigus kontrastas, nuoseklus perėjimas ir pan.). Kiekvienas instrumentinis blokas funkcionuoja kaip atskiras orkestro struktūros elementas. Taigi orkestras suvokiamas ne kaip visuma (*tutti*), kuri dar smulkinama į mažesnius elementus (instrumentų grupes, atskirus instrumentus ir pan.), o kaip daugiau ar mažiau individualių instrumentinių blokų lipdinys, jų sąveikos rezultatas. Šis principas akivaizdžiausias W. Lutosławskio orkestriniuose kūrinuose (Simfonija Nr. 2, „Knyga orkestrui“ (*Livre pour orchestre*) ir kt.).

**Orkestras kaip garso nuspalvinimo priemonė.** Kiekvienas muzikos instrumentas traktuojamas kaip savitas, atskiras, lygia-vertis orkestro visumos (*tutti*) tembras; juo, kaip atskiru struktūriniu elementu, spalvinamas garsas (tonas) ir siekiama laipsniškų tembro transformacijų. Struktūriniu vienetu šiuo atveju tampa atskiras tembras. Jis dažniausiai būna susietas su konkrečiu muzikos instrumentu ar grojimo būdu. Iš tembrų lipdomi įvairūs deriniai, mišiniai, daromi laipsniški ir staigūs perėjimai. Taip pasiekiamas įvairus, kintantis tono nuspalvinimas. Šis struktūros principas akivaizdžiausiai atsiskleidžia G. Scelsi orkestrinėse partitūrose.

**Orkestras kaip garso spektro funkcija.** Instrumentai grupuojami pagal garso spektro poreikius ir struktūrą, t. y. orkestras pasitelkiamas konkrečiau garso spektro orkestravimui. Pagrindiniu struktūriniu vienetu šiuo atveju tampa pats spektras ir jo suformuoti vientisi harmoniniai-tembriniai dariniai. Orkestrinėje faktūroje šie dariniai gali sąveikauti labai skirtingai: nuo spektro (arba jo fragmento) vienasluoksnio eksponavimo iki keliasluoksnio arba daugiasluoksnio skirtingų grupių derinimo. Šiuo struktūros principu pagrįstos spektrinės muzikos kompozitorių partitūros (G. Grisey, T. Murailio ir kt.).

Visi aptarti orkestro struktūriniai tipai yra pagrįsti skirtingais, nepasikartojančiais principais, gerokai nutolusiais nuo ankstesnių laikotarpių simfoninio orkestro sampratų. Kiekvienas iš minėtų orkestro tipų turi ryškius individualius bruožus. Struktūrinis orkestro vienetas kiekvienu atveju yra skirtingas, ir tai yra pagrindinis bet kurio orkestro tipo individualumo garantas.