

Structural and spatial aspects in *Phalaenopsis I* for orchestra

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Abstract: *The use of space as a musical parameter dates from the early period of the Renaissance. This aspect gradually became a very used parameter in building the dramaturgy of various works from the Classical and Romantic periods. After the appearance and development of the electro-acoustic music, the idea of spatialization became a very important aspect of the entire trend. From then, researchers developed various technologies and computer applications with which various installations and pieces were and are created. In Phalaenopsis I for large orchestra I tried to create multiple spatialization effects using different strategies: placing performers offstage, creating various trajectories by creating dialogues between different groups from the ensemble or just working with dynamics. The resulted colors or timbre where improved by the use of different combinations between instruments, by using the organ and of course, by creating a rich acoustic environment.*

Key-words: *spatialization, structure, form, textures, timbre.*

The way in which space is exploited in music is documented since the 16th century where the polychoral style was developed by Adrian Willaert and his successors. The appearance of the opera genre has clearly contributed **in this direction** by exploiting the space of the stage and the placement of the characters. The expansion of the directional orientation outside the concert stage was also used. Placing a performer outside the stage was known from the Classical period until our days. Modern and contemporary composers frequently use this aspect in both acoustic and electroacoustic works.

*Phalaenopsis I*² is my first large scale project in which I used space as a musical parameter. The work was commissioned by Carmina Bratu³ in order to present it in the “Gheorghe Dima” Music Academy annual concert season. The title of the work is not a reference through an extended programmatic approach. It can be called a semi-programmatic work for its sound construction that brings forward the color of sound. The entire piece is built on an alternation principle similar to the rondo form. The orchestral ensemble was chosen in order to create various colors; it uses similar instruments to the romantic orchestra with small additions: three offstage trumpets, multiple percussion instruments and an organ.

From a stylistic point of view, *Phalaenopsis I* combines a series of trends from the 19th and 20th century. The use of various language elements such as parallel chords (attributed to Impressionism), spectral harmonies and heterophony are combined and fortified with different spatial effects given by the offstage performers and the dynamic or polyphonic use of the material. Another style feature used is the aleatoric writing, but not in the spirit of the avant-

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² Phalaenopsis- flower species – orchid.

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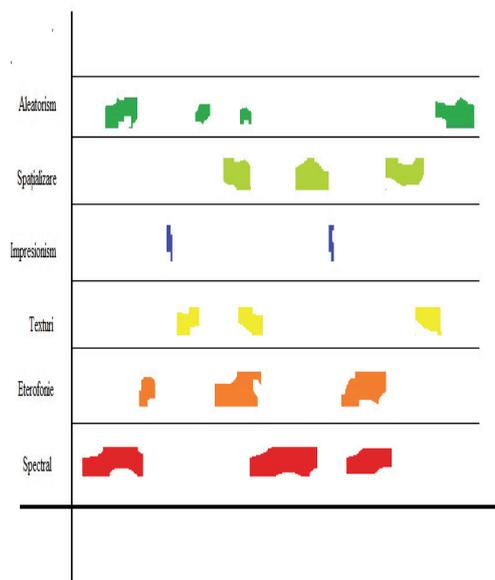
garde composers, but in order to create special effects with harmonic glissando and other non-conventional effects that will be revealed in the next rows. The manner in which I used many stylistic elements does not suggest a poly-stylistic work. I consider that in this piece, all these elements are combined in a measured way in order to avoid contrasts or ruptures in the sound structure.

Throughout the whole piece, the use of different language elements strictly targets the contrast parameter. Furthermore, we can achieve a hierarchy in which we can demonstrate the fact that the style elements used throughout the piece do not have similar weights.

Style elements	Weights
Spectralism	45 %
Heterophony	25 %
Textural writing	15 %
Improvisation writing	5 %
Aleatoric writing	10 %

Table 1. *Style elements weights*

As the table shows, the prevailing musical languages used are connected by the least present ones in the score. The textural writing, the impressionism moments, the aleatoric and the spatialization are used in order to enrich the sound of the piece:



As I outlined above, the piece is based on the alternation between a series of sounds⁴ and various harmonic and melodic progressions. Each pitch used is associated with a different progression based on harmony, melodic or gesture development. The five sounds (E, C, B, E

⁴ The 1st pitch used was chosen of timbre reasons: I wanted to create a small culmination out of a small sound that can be passed throughout all the orchestral instruments sections using a small dynamic indication (first violas and 2nd violins with the *sul ponticello* indication, then clarinet, horn, and harp).

flat and B) will have different evolutions by using various orchestrations and adding several non-conventional effects.

The first harmonic-melodic progression is based on the alternation between the strings and woodwinds sections. The musical material is made of two chords (E-F-A \flat and F-C-F \sharp -B-D \sharp):

Fig 1. the 1st chord

Fig 2. the 2nd chord

Fig. 3 the 1st first pitch (E)

Fig. 6 the 3rd progression (heterophony)

The fourth alternation describes a series of events that are manifested through gesture and timbre. The event path consists of three stages: an introductory one with melodic elements in the woodwinds section, the 2nd harmonic moment present in the brass section followed by the ending stage in which we can observe a lyrical diatonic theme in the woodwinds section. The last alternation has a reprise role, by remembering a series of moments from the first sections.

If we analyze at a macro structural scale we can observe a gradual development of the sound material that forms the progression sections. The most elaborated segments are 3 and 4 while sections 1, 2 and 5 have an introduction, transition or ending character.

The structure of the work is based on an alternation of various pitches and their different progressions. If we would want to associate in a programmatic way the structural aspects we could conclude that the pitch expositions represent the bud of the flower and the

progressions represent the stage when the flowers are opened and colorful. In another vision we can create an assumption that the piece is written in a strophic form: A-B-A (modified).

Melodical exposition		
A	B	A
E	Harmony progression	C

Table 2. *Melodical exposition*

Elaboration				
C	A	D	A	E
Pizzicato texture	B	Offstage spatialization	B	Fast section

Table 3. *Elaboration section*

Reprise				
A	F	B	G	A
E ♭	Spatialization Harmonic dialogue	Harmonic progression	Culmination + Spatialization	Coda B

Table 4. *Reprise section*

For an even greater understanding of the structural as aspect we will proceed by analyzing the strophic vision. The rondo vision was exposed in the previous paragraphs.

The first section **A** has a strong introductory character due to the slow progression and low density regarding the sound events. The presence of the non-conventional effects in the woodwinds and string orchestra give a narrative and meditative aspect: the strings glissando, the wind effect from the French horns and the percussive effects from just pressing the winds keys give a pastoral nature to the sound. The harmonic and melodic elaborations are achieved

gradually in all the orchestra sections through sustained notes, textural structures and dispersed chords using arpeggios. The movement impression is achieved in two stages using multiple style elements: figurate harmonization, pointillist themes, and dialogue using sudden dynamic changes. The transition between section **A** and **B** contains parallel fourth and fifth chords and is technically applied using the junction method.

The three subsections that form the **B** section are strongly contrasting by character, orchestration and other miscellaneous techniques like heterophony or spatialization. The section debuts with a strong contrast. The character becomes suddenly dynamic by using different rhythm levels that result in a classical texture in the string section (using *pizzicato*) and doubled by the woodwinds. The first spatialization appearance is exploited by the offstage trumpets. The transition between the last two sections is given by a density regression: from a harmonic moment to a single pitch unison.

Section **A (varied)** has a pronounced reprise character through several repetitions. The three segments that form this section have both melodic and harmonic contrasts. In this section we can observe another use of the material in order to create various spatialization effects. The first harmonic progression contains four layers in which the main theme is overlapped with multiple chords, effects and various chromatic gestures.

Fig. 7 overlapped elements in section A (varied).

The last two segments includes a last exposure of the musical material from the 1st section and its lead towards the climax. The apogee is built by adding different doublings and chords that are gradually led to a B major 7th chord that will resonate for several bars. The changing timbre effect (from *tutti* to organ + brass (with offstage trumpets) and finally to organ solo) resonates with the finale from Mahler's 8th symphony and progressively fades out into wind effects in the string and woodwinds sections.

The musical score for the last reprise segment of *Phalaenopsis I* for orchestra is presented in a standard orchestral format. It includes parts for Flute 1 and 2, Oboe 1 and 2, Clarinet 1 and 2, Bassoon 1 and 2, and Trumpets 1, 2, 3, and 4. The Flute 1 part is marked [SOLO] and begins with a mezzo-forte (mf) dynamic. The Oboe 1 part starts with mezzo-piano (mp). The Bassoon parts start with pianissimo (pp) and feature dynamic markings of mf and pp. The Trumpet parts start with pp and have dynamic markings of mf and pp. The score is in 4/4 time and includes various musical notations such as slurs, accents, and dynamic markings.

Fig. 8 last reprise segment.

The way in which I treated the spatialization highlights both acceptations of space. Here we refer both in real (through the placement of the performers) and imaginary (through the manipulation of the perceptual aspect) sense. The reason for which I choose trumpets for the offstage spatialization parts is strictly regarding the acoustical environment.

The hall in which the premiere took place is weak in this regard so I had to choose instruments with a strong acoustic power. During the rehearsals the placement of the entire ensemble suffered multiple changes. In the first hypostasis of spatial management, the musical material was treated in a polyphony manner through free imitations and sound pickups within the harmonic segments. Both plans (traditional and spatial) were treated in the same manner due to the fact that the entire piece flow does not use significant contrasts.

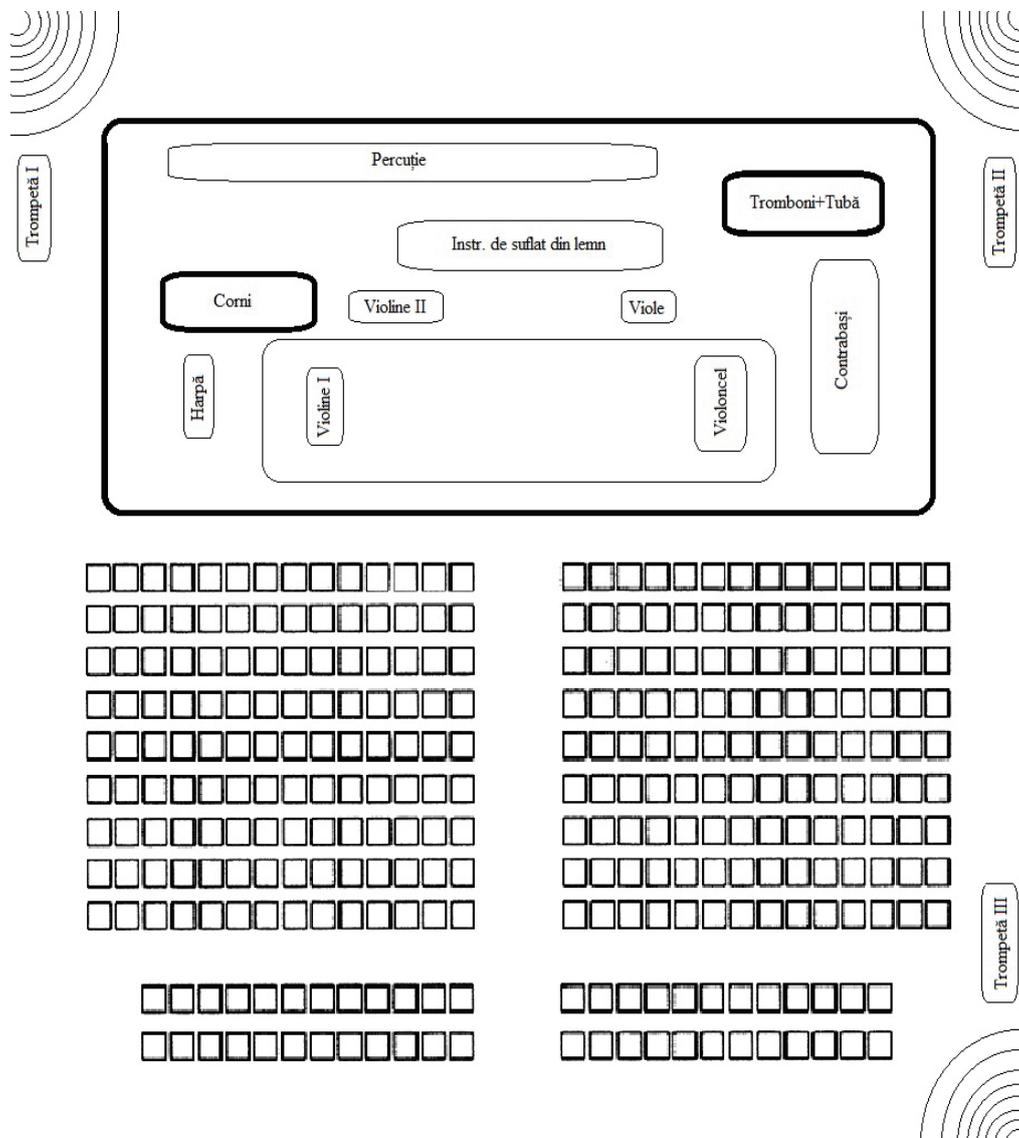


Fig. 9 placement scheme.

The resulted trajectories are made especially from a slow circulation of the sound through the entire concert hall. The placement of the brass sections and the offstage trumpets and the way in which the dynamic aspect is treated is developed into an enrichment of the timbre aspect.

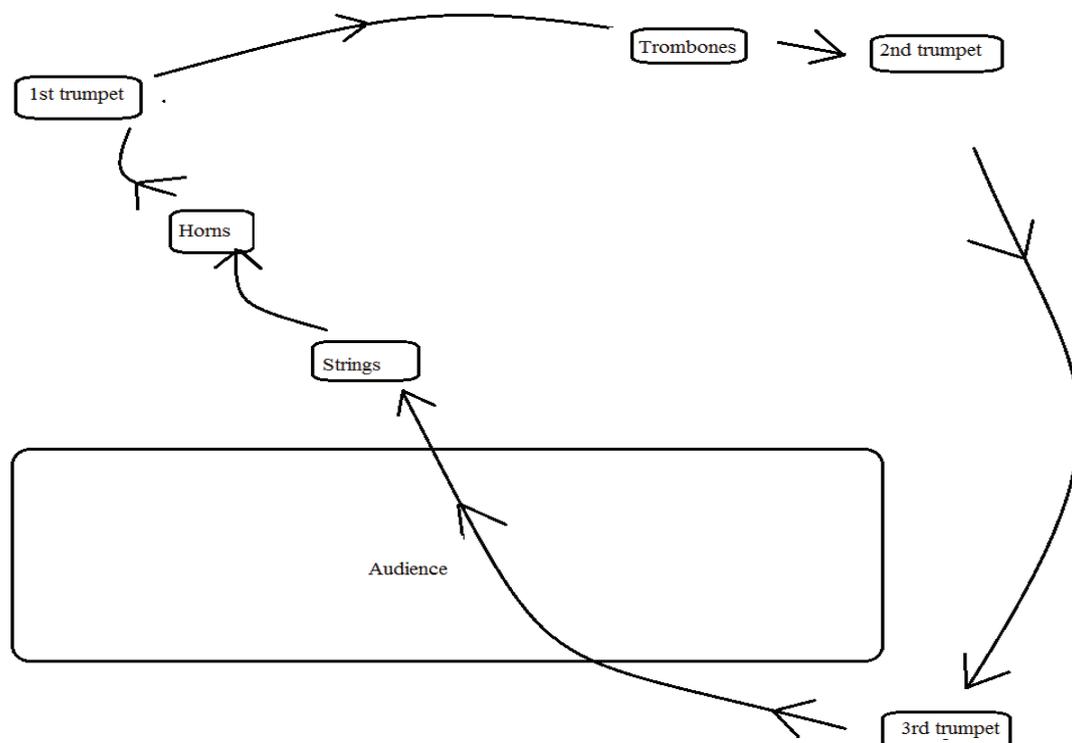


Fig. 10 sound trajectories.

After the premiere, a new sketch was made for a different version with several doublings and added instruments in order to enhance the spatial aspect in other concert halls. Doubling the horn section and placing it outside the ensemble and a different separation inside the orchestral ensemble shape an even more complex acoustic image. The new trend in concert hall architecture regards a vision in which the audience surrounds the orchestra. This aspect is contrary to spatial music. But the multiple balconies that are usually inserted in these type of structures improve a spatial approach. Henry Brant mentioned in a report published in 1978: „New concert halls continue to be built much like old ones, with the fixed seats and stage area which severely inhibit the variety and flexibility of musical space plans. The concept of a hall specifically designed to accommodate the spatial music of the past, present and future, a space with moveable walls, floors and ceiling, is still a project for the future.”⁵

⁵ Henry Brant, *Spatial music progress report*, prezentarea unor experimente și viziuni, 1978
http://www.henrybrant.com/wp-content/uploads/2015/06/SPATIAL_MUSIC_PROGRESS_REPORT.pdf.