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Lithuanian Academy of Music and Theatre  
Lithuanian Composers' Union

<b>Muzikos Komponavimo Principai: nuo audijavimo link komponavimo</b>	<b>Principles of Music Composing: links between audiation and composing</b>
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### **The Golden Section in *Estampes* by C. Debussy**

Art acts as a component of culture, implicitly reflecting the reality embodied in a particular form, which is given to the receiver by certain means inherent in a particular type of art. The beginning of the twentieth century is a bright movement of artists from musical canonical forms, the desire to merge all the means of art into a single cultural process. The genre and style of the imaginative art in music is to become an important aspect of this process. Arts are generated by spiritual atmosphere of an era. It stipulates that between the works of different kinds of arts which are belonged to the single space-time continuum, we can see some analogies and integration processes. The unity of any artistic cultures can be showed in a closeness, connections of the specific musical and scenic things. The integration of these arts can demonstrate closer and organic character.

The problem of integrating the arts is one of the most difficult in theoretical researches in Arts. Tendency of uniting of arts and their mutual influence on each other are caused by the phenomena of social life and various forms of social consciousness. During the evolution and in the process of differentiation and acquisition of the specific features, updating means of expression, the kinds of art have never been isolated from each other and have always been interconnected, basing on a single cultural-historical process.

This situation in music requires considerable attention to the study of individual components of artistic works, among which the most popular is the composition as a means of disclosing content and creating a form. The composition as a plan and scheme of constructing a work, as a correlation and organization of its sections, parts, characters, as the subordination of the whole and its elements, is inherent in all artistic works. The study of music culture is primarily aimed at highlighting the personalities of creators, studying the works of different composers in intramusical area. The category of musical culture often is used by scientists as a synonymous of the creative works of the greatest artists of nations and eras. Integrative, primarily, is understood as a interpenetration of elements despite of their fragmentation. These kinds of art have a genetic kinship and communications between different directions of arts. Cultural integration is recognized as a process of deepening cultural interaction and mutual influence in sociology and cultural studies. In the process of historical development, various art forms such as music, painting, sculpture, architecture come to integration processes of assimilation and sharing stylistic and compositional means. The music of

composers reflects reality in all its manifestations. We can see an assimilation and a transformation of genres and styles, an imagery paradigm of figurative aspects of one kind of art and implement them in music. In this context the music is considered. Fine arts have inspired musical culture in Europe of XX-th century. The musical heritage, inspired by painting, has a wide range of instrumental and vocal, symphonic embodiment. Thus, the main trend of contemporary art as a form of art is a synthesis of art and represents the polylogue of different times and specific techniques from other arts.

In the process of cultural-historical development and differentiation of the arts the principle of the golden section is an important component of the structural characteristics of artistic (visual, musical, poetic, cinematic) works and is connected with the concept of composition. The principle of the golden section is manifested in all compositional aspects: it embodies continuity, discreteness, symmetry, quantitative proportions of similarity and contrast, subordination and harmony of form. It allows us to say about real logic of composition construction. It is this principle that allows you to capture the transition of visual representations to the rank of artistic images and the reverse movement - the formation of the ultimate concept of musical work.

In painting, there are many ways to determine the compositional features of the canvas in terms of the golden section. Conditionally, the golden section crosses the ratio of  $3/2$ , points are obtained at the intersection and will be points of the golden section. You can see the calculations on a slide. They give a value of approximately  $60/40$  or  $2/3$ . This can not be called a clear correlation of the golden proportion, but it is enough for the human eye and for the harmonious arrangement of the plot of the picture.

In music, you can also calculate the golden proportion. In this sense, it is worth highlighting the following stages of analysis:

- 1) the structuring of musical material, the total volume (number of steps, fate in the work); detecting the presence or absence of symmetrical elements in the composition of the work;
- 2) finding the zones of the golden section; number of zones of the golden section in the text, their interconnection, contrast; formation of the composition scheme;
- 3) definition of the functions of the zone of the golden section in the text - the presence of emotional climax, semantic fracture, the main idea of the work or other

The music of C. Debussy is in the inter-artistic space. Appeal to genres and forms of the visual art gets a new incarnation in music. On the example of the "Estampe" cycle of C. Debussy, an analysis can be made in the context of the integration of painting and music, where the golden section helps to combine the spatial and temporal characteristics of these arts and reflects the compositional features of the form and plot. The "Estampes" cycle was created by Claude Debussy in 1903. The title and genre are borrowed from the terminology of painting and graphics. Estampe (french estampe, from italian stampa) is a kind of graphic arts, which is an engraving or other imprint on a paper in its printed form (matrix). In the cycle " Estampes " C. Debussy embodies emotion-mood in a merger with picturesque impressions. The aim is to motivate the impulse

perception of the listener and to direct his imagination: impressions at the World Exhibition of 1889 from "Gamelana", images of Andalusia, Luxembourg Garden, etc. The cycle consists of three sketches: "Pagodas", "Evening in Grenada" and "Gardens in the rain". They are well founded as one of the most striking manifestations of musical processuality. It is freedom of deployment, fluidity and the amazing plasticity of sound matter, together with the unconditional novelty of a harmonious language, are understood by us as innovative, inalienable features of the artistic style of this master.

In each of the plays, the composer seeks to emphasize that the sensation transferred from the impressions is not a one-time phenomenon; this is something that can be seen constantly, with new features, in different states, but this image does not have a specific installation regardless of the programming of music. All this causes difficulty understanding the form and the work as a whole, the difficulty in creating a coherent composition. In this cycle we can speak about the veil of caesura, the smoothness, the imperceptibility of transitions from the section to the section, the inductance of musical logic, the continuous variational development, the compositional technique of thematic installation, that is, again on the linear deployment of the musical form without a clear identification of the constructive basis. In other words, the composer is mainly interested in a whole, rather than a detailed consideration of individual phenomena.

Understanding the musical design of C. Debussy can be addressed to such primary and universal for music and art in general categories as number, proportion, symmetry. In the shape of C. Debussy, which unfolds and sprouts freely, these categories are manifested primarily in meters. The meter serves as a measure of time, so the time-dimensional aspect is extremely important for the analysis of its structures. In other words, the number of cycles in musical construction, the correlation of these structures in length becomes the basis of formal composition. Let's consider more.

For the unit of calculation the was taken one musical tact. Changing the thematic material resulted in the number of taces for one or another musical element

We can see, that the mirror symmetry takes place in the art product. It is interesting that the first symmetry (it coincides with the first section) has a clearly expressed mirror-symmetric basis, and in the second case the symmetry pattern coincides with the moment of the junction of the second and third sections.

But such a symmetry allows not to split musical material, but rather to unite it and fosters a larger organization of compositions. Apart from these two symmetries, we can see more in volume, which combines music material from the end of the first section to the end of the third. At the heart of such a structure lies the zone of the golden section, which is located in the zone close to the third section of the work, which allows to detect mirror-symmetric patterns, and, accordingly, the symmetry and proportion become the main for the musical composition of determining the design as a whole.

The zone of the golden section (tact 84, 47) falls on the central episode in symmetry, covering the completion of the first section and lasts to the end.

Saturated texture, the same rhythm of the habanera - the basso-ostinato, in this zone of the golden section accumulate the main melodic-rhythmic elements of the entire musical composition.

In a concise form you can see elements from the first section, falling intonation-sigh from the main theme. That is, in the zone of the golden section of the whole work it is impossible to talk about the inclusion of new material, the saturation (both melodic and textured) primarily emphasizes the inner tension of the play, which transmits the picturesque picture of the Spanish evening. The rhythm of the habanera in the bass -- is an introduction to the play and remains unchanged until the finale, with constantly changing melodic material. Very tight musical material and pulsating bass provide tension in the climatic zone of the golden section. Within six cycles, music from subito «pp» goes to crescendo to the climax «f».

By its very nature, the zone of the golden section is the only culmination, where the musical material, laid out within a half an octave, has an extraordinary rapid approach. It should also be noted that this is the moment of the end of the second section and the beginning of the third. That is, it is a zone before reprise. But in this case, it is first and foremost a zone before the new, the last chapter.

Summing up, we can say that composition written in a free form that shows the pictures of the life of the Spanish people. C. Debussy hasn't a clear compositional form. Unity of the whole promotes the genre basis: the play is full of typical rhythm of the hamburgers. In addition, one can see that the mirror symmetry is manifested at the moment of interpenetration of the final element of the first section with the beginning of the second.

Thus, the mirror-symmetric patterns are detected, and, accordingly, symmetry and proportion, become for the musical composition of the work in question, which determines the design as a whole. The golden section is in the zone close to the third part of the work. It was on such a finding indicated by the researchers of this phenomenon in music. This work confirms the significance of the phenomenon of the golden section

An analysis and other works from the cycle "Estumpes" were conducted, namely Pagodas and Gardens in the rain. The play "Pagoda" has a total volume of 98 cycles. Accordingly, the zone of golden cross section  $98 / 1.61 = 60.86$  is a dynamised reprise.

This is the beginning of the third section of the work. It is a dynamic reprise. We can be argued that in the upper and lower voices the expositional material of the first section is repeated, and in the middle one, the half-tone transitions are either upwards or downwards, providing the music a state of restrained excitement, of the inner emotional restraint inherent in all eastern culture. That is, in this work the zone of the golden section is within the limits of the beginning of the reprise and climax.

A similar arrangement of the zone of the golden section can be observed in the last play of the cycle - "Gardens in the rain". Total volume - 156 cycles; zone of golden section -  $156 / 1,61 = 96,89$  - quiet culmination.

The zone of the golden section coincides with the moment of the so-called pre-reprise section. In this case, the zone before the beginning of the third section of the work. According to its pictorial character, it is a moment of quiet climax, of higher tension, where a large climactic elevation begins.

Thus, in the "Estampah" by C. Debussy, the zone of the golden section is at the climax and is located on the verge of the second and third sections.

The principle of the golden section allows us to consider the process of integration of works of fine and musical art into a new - penetrating - level, where the plot of the original source forms musical associations through the strengthening of the content-structural components and forms a trans-dimensional transition. Switch to a new quality of existence. The translation of the pictorial component of works of painting or architecture with the help of artistic means of musical art in this context is not an illustration, but a fundamentally new level of ideological embodiment of the work, where the exteriorization of the external-shaped and emotionally expressive occurs.

A transmerry analysis based on the golden section, as an integrative principle of composition, allows you to simulate a scheme that generates a mechanism for integrating the concept embodied in the original primary source and reflects the assimilation and interaction of the components of the works of fine and musical arts. The golden section, as an integrative principle of composition, overcomes the multidimensional arts (music - time art, painting - spatial art) and contributes to enhancing the interaction of their species as a manifestation of the integrity of being.

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