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## EXPLORING SOUND THROUGH THE SYNTHESIZER IN LUDMILA FRAJT'S *NOCTURNE*<sup>1</sup>

**Abstract:** The constants and characteristics of the poetic expression of the composer Ludmila Frajt can be found in her composition *Nocturne*. Her desire to examine sound, nuances, and effects, led to exploring all the possibilities that electroacoustic devices, specifically the synthesizer, can bring forth. One of the constants that can be observed in the composition is the presence of the bordun basis, which was reproduced using an electroacoustic device and was formed as a cluster. Through its hybridity, it stands out as flexible enough to embody the deepest layers of man, but also to be a suitable ground for depicting the atmosphere of the night. The aim of this paper is to look at the way the synthesizer was used to explore the sound in *Nocturne* by Ludmila Frajt.

**Keywords:** Ludmila Frajt, *Nocturne*, synthesizer, electroacoustic music, *EMS Synthi 100*, sound phenomenon, bordun basis, cluster, woman in music

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<sup>1</sup> I got the inspiration for this paper after attending the course Electroacoustic Music with docent Biljana Leković during my doctoral academic studies at the Faculty of Music in Belgrade.

## Introduction

While the genesis of electroacoustic instruments can be traced throughout the 20<sup>th</sup> century, their production and application reached a culmination in the mid-20<sup>th</sup>, and even more so in the 21<sup>st</sup> century. The large-scale use of various sound carriers has led to hyperproduction, general pluralism and the emergence of various musical genres. In order to formulate the term electroacoustic music as precisely as possible, we will resort to the definition of Vesna Mikić, who says that "the term electroacoustic music aims to include all kinds of music that have something to do with 'electricity', with electronic tools".<sup>2</sup> As the application of electroacoustic instruments increasingly "swelled" within the musical discourse, the compositions in which these instruments found their application gained importance and popularity. These compositions became a trend in the West first, so, as it usually happens, in the second half of the 20<sup>th</sup> century they "came to life" in our region. One of those compositions, which was selected as an analytical sample for this paper, is *Nocturne* by Ludmila Frajt, composed in 1975.

The achievements of Ludmila Frajt as a woman in music, as well as her education and overall oeuvre, raised an awareness of the importance of the musical education of women, especially in the period after the Second World War, leading to a rise in the number of educated female composers. "Frajtova is occupied by the sound experiences that surround her. Interest in expanding the medium of music is evident in her electronic compositions (*Asteroids*, *Nocturne*, *Figures in Motion*)"<sup>3</sup> which points to her great contribution to the history of Serbian music. The composer's interest in the electronic medium was a suitable ground for exploring all the potentials that sound, as a phenomenon, carries with it. For that reason, it was of exceptional importance for the development of electroacoustic music in Serbia, as well as for the introduction of avant-garde works into Serbian compositional practice. With the use of synthesizers in the composition *Nocturne*, the inspiration she drew from the atmosphere of the night could be fully embodied thanks to the electronic medium. Accordingly, the aim of this paper is to look at the way in which the electroacoustic device, the synthesizer, was used to explore the phenomenon of the sound and phenomenon of the night in *Nocturne* by Ludmila Frajt.

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<sup>2</sup> Vesna Mikić, "Електроакустичка музика/Техномузика", in: Мирјана Веселиновић-Хофман (Ed.), *Историја српске музике*, Београд, Завод за уџбенике, 2007, 602.

<sup>3</sup> Jelena Novak, "Žene i muzika u Srbiji. Slušanje drugim ušima", *Vreme*, March 7, 2012. <https://www.vreme.com/cms/view.php?id=1039562>, accessed on February 13, 2024.

## **The phenomenon of the night as an inspiration for the composition *Nocturne* by Ludmila Frajt**

Ludmila Frajt made a great contribution to the history of Serbian music, i.e., electronic music in particular, which is indicated by the fact that she was “the first composer of electronic music in the history of Serbian and Yugoslav music. Also, she was the first woman to complete composition studies at the Academy of Music in Belgrade in 1946, and she was the first composer of film music in our country.”<sup>4</sup> Despite the efforts to find material that would contribute to a more detailed understanding and a more nuanced view of her work, the attempts, unfortunately, proved to be unsuccessful. However, judging by the literature that was available, it could be said that her composing style is distinguished by the exploration of “the night as a phenomenon characterized by darkness, causing man’s atavistic fears of the unknown, the darkness in which man remains alone with his thoughts and forebodings, in the silence from which all hidden sounds are heard that bring anxiety and restlessness”<sup>5</sup> Songs of the night, silence, restlessness and whispers are the names of Ludmila’s compositions, which further emphasizes the inspiration stemming from darkness, gloom, and eclipse. Through the experience of the night, she examines a wide range of sounds, with the help of electroacoustic instruments, among other things, which is also reflected in the composition *Nocturne*. “Ludmila Frajt’s almost obsessive return to the theme of the night, is suggested by the very frequent use of the term nocturne in the titles of her compositions, wanting to underline a perhaps hidden poetic starting point”<sup>6</sup> The composer’s preoccupation with this phenomenon is a product of her desire to evoke ambience, which can be linked to ambient music.

At the start of the third millennium, ambient music – or music to chill-out to – makes perfect sense. As the Western world becomes faster, more complex, more rife with nervous energy, the joy of listening to instrumental music that expresses both our external environment (both man-made and natural) and our inner

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<sup>4</sup> Svetlana Maraš, Ksenija Stevanović, “Elektronski studio uživo – Pionirke zvuka: Ludmila Frajt”, *Radio Beograd 3*. <http://www.rts.rs/page/radio/sr/story/1466/radio-beograd-3/3740924/elektronski-studio-uzivo--pionirke-zvuka-ludmila-frajt.html>, accessed on January 25, 2024.

<sup>5</sup> Слободан Варсаковић, “Обредно и ноктурално у музици Лудмиле Фрајт”, *Музички шалас*, 47, 2018, 35.

<sup>6</sup> Ibid.

spaces (both emotional and mental) is now more popular than at any other time in the history of recorded sound.<sup>7</sup>

Ludmila achieves this by depicting events from nature in a night-time environment, while also reflecting her inner, intimate states, all through the use of a synthesizer<sup>8</sup> in order to examine all the possibilities of sound in such an environment. *Nocturne*, which is her first composition in which the sounds of the EMS Synthi 100 (*EMS Synthi 100*)<sup>9</sup> device are used, shows Ludmila's desire to examine the phenomenon of sound through the theme of the night.

### **Bordun and cluster – a combination of traditional and avant-garde**

The whole world is a circle, life takes place in a circle – from birth to death, from the initial position a person returns to the same position, what was at the beginning has its repetition in the same or varied form. The circle is drawn to precision in *Nocturne*. It begins with a consonance, shaped in the form of a cluster and is produced on a synthesizer. While its dynamic values initially vary from quiet to loud dynamics, very quickly the dynamic value stabilizes. However, the intensity achieved will vary throughout the composition in accordance with the change of events. Its decline is noticeable at the very end of the piece, which draws a circle and points to symmetry in terms of dynamics. The constant repetition of the same harmony, which remains

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<sup>7</sup> Mike Watson, "History of ambient", *A Guide to Essential Ambient & Downtempo Album*. <https://web.archive.org/web/20160313104100/http://ambientmusicguide.com/pages/history.php>, accessed on February 13, 2024.

<sup>8</sup> Instrument makers such as Don Buchla, Robert Moog and EMS (Electronic Music Studios, London) in the 1960s began the commercial sale of specialized devices for the production of electroacoustic music called sound synthesizers, based on the principles voltage management. The user is "offered" to control the device in the same manner as he could in the first generation studio, because the synthesizers were made up of variable modules, integrated into the system, the functioning of which resulted in the desired sound. Milan Milojković, *Digitalna tehnologija u srpskom umetničkom muzičkom stvaralaštvu (1972–2010)*, doctoral dissertation, Beograd, Fakultet muzičke umetnosti, 2017, 57. <http://eteze.arts.bg.ac.rs/bitstream/handle/123456789/334/Disertacija%2C%20Milan%20Milojkovic%2C%20finalna.pdf?sequence=1&isAllowed=y>, accessed on February 13, 2024.

<sup>9</sup> The work was realized in the Electronic Studio of Radio Belgrade. In 2019, in Studio 6 of Radio Belgrade, Reinhold Friedl's Arrangement for Ensemble and Electronics of the composition *Nocturne* by Ludmila Frajt was performed, marking the centenary of the birth of this important composer and pioneer of multimedia and electronic music. Svetlana Maraš, Ksenija Stevanović, op. cit.

unchanged throughout the composition, draws attention to Ludmila's inspiration from folk singing, as the cluster harmony is a kind of continuous bordun over which different layers will unfold. Opting for cluster harmony can be interpreted in two ways, as an avant-garde means of expression, but also as an evocation of traditional music. One of the stylistic features of the composer Ludmila Frajt is the influence of folklore elements in the avant-garde context. This fact is indicated by an insight into the biographical data, from which one can conclude that Ludmila Frajt researched older folk singing and various contemporary composing techniques. Namely, since the second as a harmony is characteristic of our older tradition, the cluster, which is composed of a series of seconds, represents a combination of both the traditional and the avant-garde. The constant duration of the harmony can also be related to the steadiness and stillness inherent to the night atmosphere. However, it is precisely in the dark that different sounds are created, as some animals are nocturnal, while man in such circumstances wanders looking for inspiration or a solution, fighting with his thoughts. By invoking folklore in combination with avant-garde techniques, including electroacoustic experiments, the composer forms her own microcosm colored by a whole arsenal of sad feelings, such as melancholy, sadness, and fear.

### **Bordun and synthesizer – layering in the composition *Nocturne* by Ludmila Frajt**

The main and real subject in the composition is the bordun in the background, which is omnipresent regardless of the multitude of other layers that will appear over it. Each of them represents a separate subject, which alternates in different ways, while some even multiply, changing their original identity and becoming a single subject by merging. Their change refers to various phenomena and events, as well as to a person's psychological state when he finds himself in a nocturnal environment.

The composer achieves the evocation of the night and the various phenomena that become manifest in such an environment by positioning different layers over the bordun in the background. Through their manifestation, different permutations can be observed, achieving textural density that aims to evoke the ambience of the night. Night as a phenomenon is very broad, and as such makes for a suitable and creative ground for researching different sounds that take place in nature and creates room for sound experimentation. With the help of the synthesizer, Ludmila Frajt adds the first layer on the bordun basis, as a kind of a constant and the main subject of this compo-

sition, which contains unifying properties. (**Appendix 1**) It achieves the simulation of the "whistle of the wind" at night in combination with the simulation of "rustling", which achieves a kind of a dialogue and complicates the textured image, contributing to the creation of mystery in the sound. Above the constant *bordun* in the background, the "whistle of the wind" disappears, while a layer of "rustling" remains. Now, above the double *ostinato*, a new layer is added imitating the "accelerated breathing of a man", frightened by the darkness that surrounds him. It is obvious that the composer included in her poetics the psychological aspect of a disturbed man caught in the night, looking for some kind of security but is left to wander. The newly created atmosphere is additionally emphasized by the reappearance of "rustling", hinting at a new layer that will intensify the course of events. The new layer is the introduction of a live instrument "voice" that performs the melody on only one vocal. This treatment of the "voice" brings out the timbre even more, which is the most important musical component with which Ludmila Frajt experiments.

Combining live performance (a traditional medium) and music from a tape (Vladan Radovanović calls this type of music synthetic) is not new either abroad or in our country, and Ludmila Frajt is one of the few who applies it, very successfully at that, treating both media in a way to be in the function of the basic musical idea.<sup>10</sup>

In order to form an even denser texture, in addition to the aforementioned three layers, one more produced on the synthesizer can be located along with the *bordun* and "rustling", which is a simulation of the accompanying voices in relation to the live performance. The multiple switching of layers produces a textural richness, which is even more highlighted by the non-standard treatment of the voice, creating a kind of speech polyphony.

When the layers of "rustling" and live performance disappear, a layer of accompanying voices remains above the *bordun*, which now represents the basis and acquires the status of ambient music, thus opening up space for the manifestation of a new layer that simulates the sound of bells. However, through the duration of the sound of the bell, the layer of accompanying voices disappears and its movement takes place over only one layer, the *bordun* one. The symbolism of the bell introduces ambiguity into the course of events, because its meaning is ambivalent. On the one hand, it signifies peace

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<sup>10</sup> Слободан Варсаковић, *op. cit.*, 31.

and tranquility, while on the other, it can have the function of a warning sign indicating danger or an unforeseen situation. However, the context of the event seems to point to its function being that of a warning, because when this layer disappears, a storm starts brewing indicated by “thunder” in the middle of which the sounds of various creatures living in the dark (e.g., owls, bats, frogs) begin to appear. Their manifestation is indicated by the various sounds produced by the synthesizer, the pitches of which remain undetermined. The bordun layer, combined with the layer in which the sounds of various nocturnal creatures are manifested, hint at another “thunder”.

The polyphony of different sounds is achieved through both the permutations of different layers in this place and the speed at which the layers change. The manipulation of the synthesizer is emphasized even more due to the desire to simulate various sounds with an undetermined pitch, through their polyphonization, contributing to the creation of a kind of culmination in this course of events. Several layers that are applied over the bordun basis through canonical imitation, but also by speeding up the course of events, cause them to merge into one common layer, the outlines of which can be characterized as a kind of circle, that is, as a circulation. Then the multiplied subjects merge and become one subject.

As the previous layer fades, only the bordun layer is revealed as a resting place from the previous course of events. It simultaneously represents the preparation for the repeated “thunder”, the sounds of different creatures that live in the dark, and the multiple “circular” subjects that become one through fusion, thus creating a reminiscence of their previous manifestation. However, the reminiscence of the event continues, where the composer again interpolates the pattern of “rustling” and the pattern of “accompanying voices” produced on the synthesizer, over which a layer of live performance appears – the voice performing the melody. This combination of layers was observed at the beginning of the composition and now, as a kind of reprise, appears again at the end of *Nocturne*. The reprise is confirmed by the sameness of the end of the composition with its beginning, which are in an inverse relationship. The very end of the composition was formed by fading out all the layers so that only the bordun in the background remained. Its dynamic values decrease with the approach of the end of the composition, and disappear through the *fade-out*, into the depth of the night.

The symmetry of the composition, i.e., the circle where the beginning corresponds to the end of the composition, was achieved through similar dynamic values at the beginning (quiet-loud) and at the end of the composi-

tion (loud-quiet), as well as by the independence of the bordun layer, with which the composition began. Given that the dynamic values vary throughout the composition, the only entity with unifying properties and consistency is the bordun basis.

Bordun has different functions in *Nocturne*, such as the dominance of its manifestation at the beginning and at the end of the composition, but at the same time it is in the background when new layers begin to appear. However, it has a crucial function in the symbiosis of the traditional and the avant-garde, as well as in conjuring up the deepest layers of man and the ambience of the night within which, with different commutations of patterns, restless, mysterious sounds are manifested with a focus on the psychological aspect of man. Ludmila Frajt produced restless sounds, rustling, thunder, and the sound of bells through various manipulations on the synthesizer, with which she explored the entire spectrum of sound, all its nuances and colors, inspired by the phenomenon of the night. Life at night, layered and dark, also represents a circle - the beginning always returns to the beginning.

### **The circular form of the *Nocturne* and folklore elements**

The outlines of the circular form that prevail in *Nocturne* can additionally be explained by the connection between the circular form of the work, i.e. the symbol of the circle and folklore elements, i.e. rituals. Even in the period of antiquity "Pythagoreans considered the circle to be a perfect form because the circle contains everything and everything comes out of it"<sup>11</sup> "Throughout history, circles have appeared from tribal rites all the way to modern religions and have been considered extremely spiritual forms."<sup>12</sup> In this regard, "ritual and dance rituals were originally always circular dances or had some kind of circular pattern of movement, thus defining a sacred space"<sup>13</sup> That circular pattern of movement defines the spatial component, while the shape of the circle itself defines the temporal component. As the author Mirka Ljulj states in her work *Circle: From an Ancient Symbol to a Healing Process in Movement and Dance Therapy* that "circular movement is considered perfect, unchang-

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<sup>11</sup> Mirta Ljulj, *Krug: Od drevnog simbola do procesa ozdravljenja u terapiji pokretom i plesom*, professional thesis, Osijek, Akademija za umjetnost i kulturu u Osijeku, 2021, 10. file:///C:/Users/Administrator/Downloads/mirta\_ljulj\_-\_zavrzni\_rad1.pdf, accessed on February 13, 2024.

<sup>12</sup> Ibid., 1.

<sup>13</sup> Ibid., 9.



ing, without beginning and end and without deviation and therefore symbolizes time”<sup>14</sup> it also outlines its space and represents a temporal-spatial symbiosis.

In addition to the cluster, that has the function of a *bordun*, and the interval of a second, which is a feature of folk traditional singing, Ludmila, by layering the voices and creating a kind of polyphony, once again confirms her inspiration from folklore, because folk traditional singing takes place in several voices. Apart from these folkloric elements that Ludmila interpolates in her composition *Nocturne*, there is also an already described declamatory component such as the simulation of “the whistling of the wind”, “rustling”, “accelerated breathing of a man”, “the sound of the bell”, “thunder” and so on which characterize the layers of the *Nocturne* musical flow. However, this declamatory component of the musical flow is most intensified by the introduction of the live instrument “voice”, as well as the dialogue between the mentioned layers. It can be associated with “a circle that is represented in numerous dances and rituals around the world.”<sup>15</sup> “Circle dancing is actually the revival of a very ancient art form that for thousands of years allowed different cultures and peoples to express themselves in movement in different ways”<sup>16</sup> and to communicate in that way. “Dance as a symbolic action is as old as humanity and has been used for sacred purposes and rituals for a long time.”<sup>17</sup> So Joan Chodorow says that “in the beginning, dance was a sacred language through which we communicated with each other, but also with the unknown. In the early stages of human development, the language of communication was movement, gesture and dance.”<sup>18</sup>

Consequently, the composer used the live instrument “voice”, as well as various simulations of different sounds and noises and their mutual dialogues, to form layers that communicated with each other and that, with their small circles and circlings, formed one large circular form. Thus, at this level, with the help of folklore elements, Ludmila additionally emphasized the circle as a form of work and connected the symbol of the circle with the ritual.

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<sup>14</sup> Ibid., 3.

<sup>15</sup> Ibid., 18.

<sup>16</sup> Ibid.

<sup>17</sup> Ibid., 35.

<sup>18</sup> Ibid.

## Conclusion

Constants and characteristics of the poetic expression can be found in the composition *Nocturne* by Ludmila Frajt. Her desire to examine sound, nuances, effects, led to listening to all the possibilities that electroacoustic devices, specifically the synthesizer, can bring forth. One of the constants that can be observed in the composition is the presence of the *bordun* basis, which was reproduced using an electroacoustic device and was formed in the shape of a cluster. It represents a synthesis of the archaic and the contemporary, i.e., the traditional and the avant-garde. Through its hybridity and by looking at the way it unites opposing elements into one whole, it stands out as flexible enough to embody the deepest layer of man, but also to be a suitable ground for depicting the atmosphere of the night. "The scope of Frajt's interests is wide – from traditional rituals, via electronic media, film music, remediation of specific sounds – birds, bells, to some of the most sublime compositions written for children in Serbia."<sup>19</sup> Her versatility, reflected in the sources from which she drew inspiration, can best be seen in her experimentation with electroacoustic devices, that is, in the techniques she used in the composition process ("as musicologist Ivana Medić states Ludmila Frajt has successfully assimilated many techniques of the Western avant-garde, including aleatorics, *Klangmusik* and various multimedia experiments"<sup>20</sup>).

Ludmila Frajt's constant desire to examine the color of sound and all the nuances it contains, as well as the ways of expanding and enriching it, came from nocturnal and ritual inspirations, and the search for truth, beauty, and silence. The composer's research of sound and all the potential pertaining to sound as a phenomenon, inevitably led to the study of the possibilities of electroacoustic devices, which were the most suitable solution for experiments. From the synthesizer, Ludmila Frajt reproduced different layers on which various sounds were recorded, significantly enriching and expanding the field of sound through their commutation and various manipulations, which can also be perceived as another constant in this composition. This is indicated by the fact that she combined live performance (a voice performing a melody) and reproduction of samples from electroacoustic devices, as one of the avant-garde achievements present in her opus.

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<sup>19</sup> Jelena Novak, op. cit.

<sup>20</sup> *Pionirke zvuka. Ludmila Frajt, Nokturno – Aranžman Rajnholda Fridla za ansambl i elektroniku*, Elektronski studio i Treći program Radio Beograda, 2018. <https://unearthinthemusic.eu/events/female-sound-pioneers-nokturno-by-ludmila-frajt/>, accessed on February 13, 2024.

Ludmila Frajt, Serbian composer of the 20th century, and her work, made a lasting impression on all future generations. As the first woman with a national diploma, she had a positive influence on raising awareness of the importance of formal musical education for women in Serbia, especially in the post-war period. Her knowledge of tradition, as well as familiarity with various avant-garde processes and compositional techniques, were incorporated into her own discourse, forming a specific way of expression, which is why her compositions are recognizable all over the world. The overall importance and the contribution Ludmila Frajt (in addition to her entire oeuvre) made with compositions dominated by experimentation with electro-acoustic devices through which she explored the phenomenon of sound, are reflected in the fact that her work has become one of the benchmarks for the emergence of many musical genres popular today.

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## Summary

The achievements of Ludmila Frajt as a woman in music, her education and overall work, raised awareness of the importance of musical education of women, especially in the period after the Second World War, which is why the number of educated female composers increased. The composer's interest in the electronic medium was a suitable ground for exploring all the potentials that sound, as a phenomenon, has, and for that reason it was of exceptional importance for the development of electroacoustic music in Serbia, as well as for the introduction of avant-garde works in Serbian compositional practice. With the use of synthesizers in the composition *Nocturne*, her inspiration from the atmosphere of the night could be fully embodied thanks to the electronic medium. She achieved this by depicting events from nature in a nighttime setting, all through the use of a synthesizer in order to examine all the possibilities of sound in such an environment.

One of the stylistic features of the composer is the influence of folklore elements in the avant-garde context. By invoking folklore in combination with avant-garde techniques, including electroacoustic experiments, the composer forms her own microcosm. *Nocturne*, which is her first composition in which the sounds of the EMS Synth 100 device are used, showing Ludmila's desire to examine the phenomenon of sound through the theme of the night. The composer achieves the evocation of the night and the various phenomena that manifest in such an environment by positioning different layers over the bordun basis.

Bordun has different functions in *Nocturne*, such as the dominance of its expression at the beginning and end of the composition, but at the same time it is in the background when new layers begin to appear above it. It has a crucial function in the symbiosis of the traditional and the avant-garde, as well as in conjuring up the deepest layers of man and the ambience of the night.

Over the *bordun* basis, with the synthesizer, Ludmila reproduced different layers on which various sounds were recorded, with the commutation and different manipulations of which the sound field was significantly enriched and expanded. This is indicated by the fact that she combined live performance (a voice performing a melody) and reproducing samples from electroacoustic devices, as one of the *avant-garde* techniques present in her oeuvre. Her knowledge of tradition, as well as familiarity with various *avant-garde* processes and compositional techniques, was incorporated into her own discourse, forming a specific way of expression, which is why her compositions are recognizable all over the world.

**Appendix 1.** Graphic representation of Ludmila Frajt's *Nocturne*

