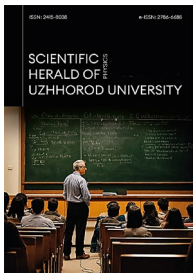
Scientific Herald of Uzhhorod University
Series "Physics"
Journal homepage: https://physics.uz.ua/en
Issue 55, 1421–1427
Received: 30.11.2023. Revised: 21.01.2024. Accepted: 04.03.2024



DOI: 10.54919/physics/55.2024.142af1

Musically-acoustic thesaurus as spatial dimension of cognitive process

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Abstract

Relevance. This article explores the intricate relationship between the musically-acoustic thesaurus – encompassing both musical and extra-musical elements – and cognitive processes, emphasizing the spatial dimension of cognition within auditory experiences.

Purpose. The primary aim is to dissect the structure and function of the musically-acoustic thesaurus in individual and collective cognitive domains, highlighting its role in encoding and navigating the acoustic environment and its impact on musical and emotional experiences.

Methodology. Through a comprehensive analysis of the auditory activity, the study examines how sonic phenomena, both musical and non-musical, are categorized, internalized, and utilized within human cognition. It considers the sonic environment's organization and how it influences the perception and emotional engagement with music and sound.

Results. The findings indicate that the musically-acoustic thesaurus serves as a crucial framework for understanding and interacting with the acoustic world. It delineates how sounds are integrated into a complex network of cognitive processes, facilitating orientation in space-time, enabling emotional experiences, and fostering an aesthetic appreciation of the acoustic environment.

Conclusions. The musically-acoustic thesaurus emerges as a pivotal element in the cognitive processing of sound, underscoring its dual role in practical orientation and emotional-aesthetic experiences. The study reveals that this

Suggested Citation:
Kalashnyk M, Loshkov U, Yakovlev O, Genkin A, Savchenko H. Musically-acoustic thesaurus as spatial dimension of cognitive process. *Sci Herald Uzhhorod Univ Ser Phys.* 2024;(55):1421-1427. DOI: 10.54919/physics/55.2024.142af1

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thesaurus not only aids in navigating the sonic landscape but also enriches the individual's interaction with music and sound, thereby significantly contributing to the broader understanding of cognitive processes in auditory perception.

Keywords: acoustically-sonic environment; extra-musical component; musical memory; human-made signals; musical works.

Introduction

First occurrence of auditory activity takes place when recipient encounters sonic environment, not as mere physiological action, but as an establishing of relation with outer world, and because it is accompanied by semantization of real time, the realm being cognized becomes an object of awareness in musical art through relations of these basic structures [1]. We mean, firstly, illustrative type of intonation, widely used in music through different ages, and, secondly, a conception of being itself, a comprehension of the reality, in other words, worldview, expressed through author's statement. However, this raises a question: what is this thing that is comprehended by musical thesaurus as a structured knowledge? We shall consider this question in specific details, having made a presumption that in music inherently-musical and extra-musical interact, so to say, this thing configured by musical thesaurus as a result of cognizance of reality through music and the music itself and how is this result structured in musical thesaurus [2-5].

We should mention, that initially it is considered in the terms of consciousness, but not as an object with material incarnation. One might think that it collides with ideal form of musical thesaurus, however, the sources and constituents of musical revealed have material form, like sound in its physical and socio-cultural form, but in the given instance we consider the sound in its inculcation into personal thesaurus of collective and individual, where it acquires ideal form [6-9]. Moving on to consideration of extra-musical as a significant component of musical thesaurus, we should note that it consists of two strata, the first one appealing to empirical perception, the second one – to more or less abstract ideas, that are also divided by another criterion: specialized (directed specifically on music) and unspecialized (knowledge, relevant to music, but relating to objects being in another domain, including so-called "background", or "humanities") [10-14].

A shift of the mode of consideration of musical thesaurus effectuates prevailing attention, paid to acoustic texture of music, as it is a conductor of objects of objective realm and representation of it and, simultaneously, an intersection point between physical and intellectually-psychological world. It is necessary to include extra-musical into musical thesaurus as the latter one takes its source in auditory activity and experience of person and community, granted both by nature and socio-cultural practice [15-20].

Cognitive Features of an Acoustic Thesaurus

Not only does a man live in a world of physical objects, but also in certain acoustic environment, an environment constantly changing both on large scale historical or space-time periods and on smaller scale, thus creating one of the most vital factors of existence, routine, generally – image of world. Such terms can be used as acoustic landscape, acoustic interior, acoustic atmosphere of modernity, each of them possessing their own sign system [21-23]. Hum of waves, ample summer or gloomy autumn rain, mysterious murmur of trees, cling of lonely heels in the quiet of the night – these and many others acoustic signals combined constitute a knowledge of reality surrounding a man, consequently, they create special, non-verbal, never written by anyone thesaurus-dictionary, unconsciously fixated in memory of person and community. The same can be applied to acoustic signals of mechanisms – as hum of the plane, clatter of train's wheels, rustle of automobile's tires, distant horn of locomotive etc. In limits of certain spacetime these signals combined create unified acoustic "symphony", allowing auditory orientation on changes of weather, place, room etc. For instance, reverberating acoustic of temple is a world away from "Babylonian" bustle of railway station or from quiet of reading room in a library. Moreover, continuous "diving" into given acoustic environment allows, in terms of E. Nazaikinskiy [24], to reconstruct sonic atmosphere of historical period and existence of humanity.

We should stress, that even human-made signals, being reflected by mind, acquire traits of psychological factors as well as emotional characteristics, because anything heard always engenders a bunch of associations: either metaphorical, when characteristics are transposed from one object to another creating literally impossible structure, or metonymy, that is a perception of the whole by representation of singular detail or characteristic. Being intertwined with everyday existence, acoustic environment is always found on the axis "own-alien", in the end of the day becoming a part of person's inner life, deeply rooted in conscience, "own". It means that acoustic thesaurus has the same nature as musical one by the means of shared material, type of signs, direct influence on emotions and feelings, by being non-verbal, associative and generalized – even in spite of apparent objectivity and being easily verbalized (rain, hum, horn etc.) [25-26].

Acoustic thesaurus also incorporates verbal speech, in its both aspects (phonetic and melodic), causing certain emotional and associative reactions. Units of acoustic layer of thesaurus have certain features, shared with musical sound: spatiality, register, timbre, dynamics, qualities (piercing, soft, silvery, dense, lightweight, warm, cold etc.), continuity (or intermittency), and on some occasions, pitch (horns of trains or cars, announcements on railway stations etc.). We should also mention real sound of music coming from cars passing by, from TV or radio as a background for dinner or outdoor picknick etc., as well as aleatorics of symphony orchestra tuning and preparing for concert or atmosphere of music school. Real musical environment, being reflected in it and cognitive activity enabled by it constitute that specific "acoustic reality", without which, according to M. Bonfeld [27], appearance of music itself is just impossible.

All the stated above leads us to a conclusion, that acoustic environment constitutes profound stratum of musical thesaurus, its subconscious realm and, simultaneously, "raw material" for creation of music as a

specific type of fine art. It is absolutely unsuitable to be reflected by constructs in conscious mind (or subconscious), although it still does influence it in certain ways. Acoustic thesaurus has similar nature to "mundane word", that "does not have fixation, necessary for a scientific term, but <…> in its own ways is still fixated as it has its own incarnation in everyday life", as the latter is described by A. Alshvang [28]. Music finding its roots in sonic (acoustic) environment seems to be one of the most essential factors of its communicability, accessibility to broad masses of auditory.

Codependence of "mundane musical word" and sophisticated academic music is pointed out by B. Asafyev [29], when he revealed the secret of special popularity of homophonic music. According to the statement of pronounced academic, its musical language can be easily assimilated by hearing and thus is close to folk music, in other words, corresponds with previous auditory experience. As the scholar writes, "the very phenomenon of amateurship developed broadly and became popular among masses exactly at the time when homophonic music spread far and wide, securing its eminent positions". When we refer to acoustically-sonic reality as "subconscious" layer of musical art, we must note that modern science understands the very concept of mind especially broadly. According to V.N. Maksimov [30], any kind of knowledge is a product of cognitive action; therefore, be it acquired in any way, as a result of continuous ruminations or spontaneously, it still belongs to the sphere of conscious. By the same token, acoustically-sonic environment is assimilated by the subject as a result of activity of conscious mind. "Subconscious" form is gained by appearing knowledge as a result of its projection on all the preceding experience of hearing, including perception of art, as something superior to it.

This environment can be divided into two layers of comprehension: active and passive. In the latter case, environment is heard as background noise, unable to be differentiated into separate meaningful acoustic events, in the former one – significant elements can be discerned, having defined pragmatic or emotional connotations. For example, the sounds of rain can become a signal for respective defensive tools or launch a lane of associations and create according mood. It is quite obvious that acoustically-sonic reality bears certain significant sense, its meaning is widely ranging, its orientation and mode are largely dependent on the "angle of intersection" of this environment and mind. The same, as noted by V. Kholopova [31], can be applied to background noise and relief: here we can see "shape and background", in other words, main and lateral, transforming one into another. Thus, originally material, acoustically-sonic reality acquires through socio-cultural practice and cognizance of individual not only quality of being incarnated, but also spiritual and ideal sense, and because of this ambiguity is correlated to musical art. In this light, it is essential to underscore already mentioned above division of acoustically-sonic phenomena in having certain pitch and lacking it. The former group is constituted by chiefly human-made signals, including musical instruments of practical use (shepherd's pipe, hunting horns etc.), and musical pieces, coming from mobile phones or vehicles scorching along the listener or used in advertisement etc. Its special layer is music used during different events or suited for dancing entertainment. Being incorporated into acoustically-sonic environment, having direct contacts with non-aesthetic, it is simultaneously included into the concept of music.

Phenomena without stable pitch are formed also by acoustic signs of the nature, although "musical ear", being educated in a certain way, is capable of distinguishing various instrumental formulae in the songs of nightingale (i.e., in the Finale of R. Schumann's First Symphony), specific tessitura of thunderbolt (well-known imitation of thunder through tremolo of timpani with growing force in "Scène aux champs" from "Symphonie fantastique" by H. Berlioz) or in roar of waves (first movement of "Scottish Symphony" by F. Mendelssohn) and even exact pitch in chipper of differently-voiced birds ("Szene am Bach" from Pastoral Symphony by L. van Beethoven). Being transposed into the music, they constitute, according to the classification of V. Kholopova [31], a sphere of objects' signs and object-illustrative intonations.

Analysis of Interaction between the Acoustically-Sonic Environment and Music Art

Acoustically-sonic environment is chaotic, unstructured, unstable, fluent and is in fact a phenomenon in a constant state of establishing. Although our mind is able to discern such constants and principles from it, allowing to comprehend it as a whole, where certain sources for musically-artistic imagination are founded. In fact, in acoustically-sonic environment it is quite easy to reveal certain sonic areas with constant set of features that can help us to define our location (be it big city or countryside), changes of seasons and daily cycles. Attributive units are aggregated by our mind in specific system of signs, differentiating acoustically-sonic environment into different groups.

We should remind about favored by composers of different culturally-historical eras and national traditions theme of "The Seasons" (A. Vivaldi, J. Haydn, P. Tchaikovskiy, A. Glazunov, to name just a few) and time of day ("Morning" from suite "Peer Gynt" by E. Grieg; J. Haydn's symphonies "Morning", "Noon" and "Evening"; "From dawn to noon on the sea" by C. Debussy; nocturnal landscapes and images of sunrise in operas by N. Rimskiy-Korsakov, "Nachtstücke" opus 23 and other works by R. Schumann, "Night Music" by B. Bartok etc.). It is worth noting that in the pronounced works landscape usually appeals to visual impressions, although even in such cases auditory ones can still be recognized in transformed shape. For instance, in "The Morning" by E. Grieg a usage of scales of diatonic non-semitone mode in condensed ambitus evokes playing on shepherd's pipe, that is one of acoustic traits of oncoming day on plain air, and in C. Debussy's "From dawn to noon on the sea" trumpets and French horns con sordino through multiple associations create romantic charm of distant calls of "another worlds", lying beyond the horizon. In other words, attributes of acoustically-sonic environment end up being a key to the musical landscape.

We should mention, that mobility of acoustically-sonic environment, a thesaurus of present day, in mind of collective and individual is caused by its ability to change

with passing time: not only with rotation of daily or yearly cycle, but with every another day; that results in sonic "image" never being the same. That allows to distinguish it's another feature, that is daily updates of sonic landscape. It is connected, firstly, with different combinations of stable and mobile elements, and secondly, with omission of them and appearances of new ones. Thus, it possesses the quality of combinationalism, a game of its own kind, and yet both qualities (variability and combinationalism) act through whole duration of individual's contact with environment during the day cycle. At the same time, they are related to cyclicity, because even while repeating, cyclic prosses never duplicates itself. Considering principles of inner existence of acoustically-sonic environment, it is easy to name such as, firstly, montage succession of sonority (temporal coordinate), secondly, specific counterpoint, different fragments sounding simultaneously (spatial coordinate). Also, one may add another principle, that is mention above interdependency of "shape" and "background". Montage structure causes kaleidoscopic variety of auditory impressions, coincidence – their richness and perception as of the whole. Thus, acoustically-sonic reality and musical art share the same qualities, and these mutual characteristics cause isomorphism between them.

Under no circumstances do we try to present music and non-artistic environment as mere reflections of each other or model of each other, they have immensely more difficult relations, not to mention the fact that auditory impressions, firstly, constitute only a part of cognitive domain of collective and individual, secondly, they are quite often syncretic and are precepted by our mind in inseparable unity of various sensual and emotional reactions. Therefore, auditory mind and thesaurus, appearing as a result of contacts with sonic environment, are governed by the same objective laws, lying on the shared grounds of natural, socio-cultural and dianoetic ones, that rule the music art. However, they have differences, caused by the fact that acoustically-sonic environment has premises for general musical images to appear (according to Y. Tulin), in the same way, as auditory activity is a general requirement for perception of music and manipulating it.

V. Medushevskiy [32], in the light of observation on physiology of human brain proposes a thesis that both its hemispheres act simultaneously in the process of listening to the music. With the help of the left one we it in analytical way, dissecting sonority into pitch, force, longitude, timbre, articulation; through right one – in its syncretism, as a whole, multi-dimensional expressive intonation. Two edges of musical forms, appearing thus, analytical and intonational, respectively, have prevalent characteristics. For the first one, according to V. Medushevskiy [32], it is pitch and longitude that matters the most, but the second one takes into account all the qualities of the sound. Moreover, these characteristics do not have immanent, logical relations as they merge together into unified sense or sound-image. These are exactly the same phenomena regarded in the reception of acoustically-sonic environment: distinguishing signal of any kind from it, the mind dissects it (performs analytical operation), the signal itself is heard simultaneously in all its characteristic, as compressed sign in its kinetic form, excavated from memory. But what is the quality, causing fundamental difference between acoustically-sonic environment and musical art? This category is "artistic".

Musicologist E. Markova [33] suggests the following description of stated category: "artistic is a type of integrity of work of art, that is characterized by unity of formal and substantial components and is provided in different kinds of arts by interlinking of aesthetically organized and live-likely reflection". There is undoubtable link between "artistic" and central concept of art, that is a work, in other words, unprecedented world, crafted in accordance with endeavor of author's own will and creative fantasy, reflecting existing realm in accordance with thesaurus of artistic culture and author's own one and with objective principles and norms. With necessary corrections and concerning musical art "artistic" is formulated by pronounced scholar as "intonationally-imaginative integrity of substantial and formal elements, conditioned by unity of individually-stylistic intonations with intonational fund of epoch and by dialectics of normative and non-normative, expressed and interlinked, defined in their sense and generalized in their expressiveness intonations on the grounds of musical lexis, syntaxis, architectonics and their own relations with each other" [33]. This definition, being so broad and multi-partite, absorbs concepts of intonation, unity of form and substance, thesaurus, peculiar and generally used, specific and generalized and, finally, stricture and hierarchy.

The parameters of artistic listed above being found in music provide the latter with the status of art. As for acoustically-sonic environment, it is not a creation of individually-artistic will, it is independent from aesthetical goal of perception and does not act as integral, intonationally-imaginative structure, although it possesses, as it was shown above, specific type of intonation. Lacking the quality of artistic, it is included in the "body" of music as fact of life and its sonic image, but it is obviously unreasonable to equate it with art. It is important to stress that prevalent function of art, fully revealing its singularity is an aesthetical one, that is cognizance of beautiful for the sake of cognizance itself, in a "disinterested" way (by I. Kant); on the contrary, acoustically-sonic environment has chiefly pragmatic reasons (in mind of individual). According to that, in the former case auditory activity consists of spiritual, emotional and intellectual operations, in the latter – mainly practical, utility ones.

The role of special "bridge" between acoustic and musical thesauruses is played by generalized sonic images, that are regarded as aesthetic phenomena. The phonics of electric guitar, organ, symphony or chamber (string) orchestra, of cembalo or vibraphone themselves have an ability to send signals concerning certain musical context, appealing to different strata of modern music, or distant or recent past. In fact, the sonority of string instruments betokens Baroque or Neo-Baroque of XX century, while saxophone invokes mainly jazz improvisations.

Of course, sonic appearance of different instruments is changeable through history as "romantic" piano is remarkably transformed by its aggressively-striking interpretation of composers of last century or in erotic plastics of blues. And yet, each instrument or voice type has fairly persistent persona attached to it: it is indicative, that inclusion of piano and voice in the climax of Third Symphony by B. Tischenko immediately changes the

vector of reception into deeply lyrical expression. We shall note, that the phonics of the opera or chamber singer's voice itself is immediately understood as belonging to "serious", academic music, being worlds away from folklore, jazz or popular music one. This kind of differentiation is often used for dramaturgical reasons as it is in "Dead Souls" by R. Schedrin, where a choir singing in a folklore manner creates special imagery and semantic dimension of the work.

Musical art has a variety of known instances of incarnating the outer world, both in condensed way, as a generalization through genre or individual detail-signs and in full one, as tactile, gradually appearing "documental" picture. The possibility of these operations is magnificently illustrated by M. Ravel's choreographic poem "La valse". There is author's comment on pronounced work explaining it: "I created this work as a apotheosis of Viennese waltz, which is mixed by my imagination with the impression of fantastic and fatal spinning", and that reveals a prism of Romantic interpretations of waltz: waltz as a symbol of carnival (R. Schumann), Danse macabre in F. Chopin's Second piano sonata, Mephisto-waltz by F. Liszt. Romantic scent, as well as the dance itself, simultaneously encapsulates the images of XIX century and of Vienna, jubilate in distant past, and during the years of creating this choreographic poem (1914-1918) dancing near the charm. The work has special note on scenography: "The spinning clouds create occasional holes, through which waltzing pairs can be seen. The clouds gradually disperse, and huge hall filled by a spinning crowd is seen. The stage gets more and more illuminated. The light flashes. This is Emperor's court, approximately 1885 year" [28; 34; 35].

This example differs from another ample dances and works alluding dance by the composers of Classic and Romantic eras because M. Ravel creates the image of dance, simultaneously being a symbol of given timespan and its portrait, depicting Vienna in cultural thesaurus as a "capital of waltz". Phantasmagoric prism creates overlapping of time, and the picture appearing thus exists in two different dimensions: firstly, from the standpoint of the past and the future, secondly, from the position of two cultural traditions. This comprehension and hearing of work, independently from remarks on scenography, becomes possible only because two levels of thesaurus (acoustically-sonic and musical) intersect in the memory of the listener. The first level gives an opportunity to code of sonic image of realm already known by books, movies, operas of XIX century to act, the second one is code of musical impressions themselves. It is indicative that another prominent composer of XX century, S. Prokofiev, used formulae of dance (including waltz) as a trait, defining location and historical time in opera-epopee "War and Peace". We shall state, that in both cases we deal with double "optics", as "documented" reality of the past reflects artistic impression of the listener belonging to sequential time periods. However, the main significance is reserved to the effects or transposing objective reality into another dimension, illusion of participation, created by the sonic picture.

Conclusions

Musical sounds, constituting a part of acoustically-sonic environment, create innermost, profound, predominately unconscious layer of thesaurus. We shall stress again that separate elements of this environment and their aggregation can be discerned by mind, attract attention as outer stimuli or even (given that conditions are appropriate) be a reason of various emotional experiences. However, in the context of our research it is its objectivity, independence from the subject's will, being beyond the choice of latter that matters. Profound layer of musical thesaurus creates a memory, preserving all the experience of auditory activity and various contacts of individual and collective with acoustically-sonic environment, the last one being special mode of existence of reality. This gives us ground to define it as acoustically-sonic level of musical thesaurus, containing preconditions for musical images. It is characterized by principles, close to musical art and finding their roots in general laws of auditory perception.

Acknowledgements

None.

Conflict of Interest

None.

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Музично-акустичний тезаурус як просторовий вимір когнітивного процесу

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Анотація

Актуальність. Ця стаття досліджує складний взаємозв'язок між музично-акустичним тезаурусом, що охоплює як музичні, так і позамузичні елементи, та когнітивними процесами, наголошуючи на просторовому вимірі пізнання в межах слухового досвіду.

Мета. Основна мета – дослідити структуру та функції музично-акустичного тезауруса в індивідуальній та колективній когнітивних сферах, підкреслити його роль у кодуванні та навігації в акустичному середовищі, а також його вплив на музичні та емоційні переживання.

Методологія. Через комплексний аналіз слухової активності дослідження вивчає, як звукові явища, як музичні, так і немузичні, класифікуються, інтерналізуються та використовуються в людському пізнанні. Розглядається організація звукового середовища і те, як вона впливає на сприйняття та емоційне залучення до музики і звуку.

Результати. Результати дослідження свідчать, що музично-акустичний тезаурус слугує важливою основою для розуміння та взаємодії з акустичним світом. Він окреслює, як звуки інтегруються в складну мережу когнітивних процесів, полегшуючи орієнтацію в просторі-часі, уможливлюючи емоційні переживання та сприяючи естетичному сприйняттю акустичного середовища.

Висновки. Музично-акустичний тезаурус постає ключовим елементом когнітивної обробки звуку, підкреслюючи його подвійну роль у практичній орієнтації та емоційно-естетичному досвіді. Дослідження показує, що цей тезаурус не лише допомагає орієнтуватися у звуковому ландшафті, але й збагачує взаємодію людини з музикою і звуком, тим самим роблячи значний внесок у ширше розуміння когнітивних процесів у слуховому сприйнятті.

Ключові слова: акустично-звукове середовище; екстрамузичний компонент; музична пам'ять; антропогенні сигнали; музичні твори.