

# Musical perception of interval (in the music changes)

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*Hudobné vnímanie intervalu (v premenách hudby)*

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## **Abstract**

The study is focused on breaking signs in the musical artefacts. This issue is demonstrated in music perception of the interval in different periods. Study examines the prevalence of one or several intervals depending on how the perception of music covered a range with its fluctuations over the musical development of the nationalities and their musical taste. Out of the music techniques attention is given to development of vocal polyphony, which again began to consolidate the value of the chord, tonality, harmony. Text deals also with chromatics, atonality, electronic music, unconventional composing technologies aimed to find new ideals of sound, space, place, time, etc. Selected methodological approach provides not only guidance in the musical transformations, but also useful impetus for exploring many other musical attributes. In the second part of the study we have examined the relationship between music listeners and transformation of the creative production forms of musical life and new distribution activities of musical pieces.

*Štúdiá je zameraná na zlomové znaky v hudobných artefaktoch. Problematika je demonštrovaná na hudobnom vnímaní intervalu v rôznych obdobiach. Skúma sa prevaha jedného, ale i viacerých intervalov, podľa toho, ako prebiehalo hudobné vnímanie intervalu s jeho výkyvmi v priebehu hudobného vývoja národov a ich hudobného vkusu. Z hudobných techník je pozornosť venovaná napríklad vývoju vokálnej polyfónie, ktorou sa nanovo začala upevňovať hodnota akordu, tóniny, harmónie. V texte sme neobišli ani chromatiku, atonalitu, elektronickú hudbu, či netradičné skladateľské technológie zamerané na hľadania nových zvukových ideálov, priestoru, miesta, času a podobne. Zvolený metodologický postup poskytuje nielen orientáciu v hudobných premenách, ale i užitočné impulzy pre skúmanie mnohých ďalších hudobných atribútov. V druhej časti štúdie skúmame vzťah poslucháča hudby k premenám umeleckej tvorby, foriem hudobného života a nových aktivít šírenia hudobných diel.*

**Key words:**

Musical perception of interval, musical taste, the transformation of musical thought, the search for new sound ideals

*Hudobné vnímanie intervalu, hudobný vkus, premeny hudobného myslenia, hľadanie nových zvukových ideálov*

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Musical art of our times is not only dynamic in its stylistic and technological transformation, but also marked by their faster "obsolete" becoming when compared to previous periods. We cannot search for durability, stability, steady or "aesthetic truth". New trends applied in current musical artefacts, art technologies often allow to study music production only in terms of changes as far as musical expressions are changing rapidly.

Attention of professionals is focused on ongoing changes affecting our taste in music as well as any attempt to provision structure of musical organism that becomes unstable and suddenly out dated thanks to rapidly ongoing transformation.

In the past a man was not witnessed of rapid and frequent musical - technological transformations. New situations are constantly evaluated not only by scientists, teachers, students, but also by contemporary creators, artists, number of other existing or gradually emerging new professions related to music-making and its spread.

From the historical point of view it is well known that art in the past (*like today*) has responded to technological and social development. Currently, however, this movement is in constant creative attendance, which is often loaded with unproductive accentuating of music art loss rather than the presentation of positive stimuli to creative panorama of contemporary art. As if we are in discovering new trends we forgot that the current musical art is not the art of future nor will it be

art of the past whether as a form or a function (*it also becomes variable with development of society*). The issue will be demonstrated on the musical perception of interval.

The basic musical element - the interval, as the distance between two tones in the music, exists not only in vertical but also horizontal position. Such a necessary existence of interval probably cannot be found in any other art. Particular musical periods are often characterized by the fact that we encounter the predominance of one or more intervals, depending on how perception of intervals and interval fluctuation took place during the musical development of nations and their aesthetic taste. For example, in ancient Greece interval fourth and fifth was considered to be a critical component of musical thinking. In Eastern cultures, where pentatonic prevailed (*and still prevails*) dominate fifth was as a decisive interval of musical process. Some resistance to the augmented fourth is typical for the ancient period. In this context we cannot forget that the Greeks considered third to be tuneless, which until the 13th century was not adopted by Western European music, but after that gradually enabled fifth to become backbone of the European musicality. According to P. Hindemith *"all intervals have specific harmonic and melodic features; their melodic value is inversely proportional to the harmonic value, in the following order: octave, fifth, fourth, major third, a large and major seventh and augmented fourth. In this sequence harmonic value diminishes and melodic value rises."*<sup>1</sup> Although the assessment comes from a major composer of the 20th century, it must be seen as a subjective value. Hindemith considered third to be the most beautiful interval, which is currently in musical life seen as worn-out item. At this point we should mention again fifth, which can be considered from acoustic - numerical

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<sup>1</sup> Hindemith,P.: Unterweisung im Tonsatz, Schott und Söhne. Mohuč 1937 p.56

reason to be "omnipresent" interval.<sup>2</sup> Understanding of variations in different periods is interesting as well that can be briefly expressed via following phrases: indicated by the Pythagoreans, in the Middle Ages newly recovered and to some extent underestimated in Romanticism. The evidence of these variations was placed in the text of N. Castiglioni *"Just note that in 16th and 17th centuries left a whole pages of praise for perfection of chord and interval fifth: Evidence is based in introductory Toccata to Monteverdi's (1567-1643) Orpheus. Tonal system is based on interval fifths because it is based on the harmonic tones, thus on the acoustic phenomenon which is the natural fact. On the other hand fifth was understood as an imitation of nature, gained in Romanticism semantics of clutter, chaos. Later, for Bruckner fifth that was regularly implemented into pieces for its special effects ("empty") got importance of the spiritual tension of divine or supernatural intervention.,"*<sup>3</sup> Thus, the consonant interval with its gradual development was upsetting the tonal unity, which is usually considered as the main base of a chord. Furthermore, we can mention the fact that the first creators of counterpoint had an aversion to augmented fourth, major sixth in their upward movement, as well as to diminished sixth, perfect octave moving downward. With the development of musical thinking the prohibitions and similar standards, gradually lost its validity mainly because they are acceptably perceived by human hearing in the musical language, which in turn enabled the implementation minor seventh in dominant seventh chord.

Above mentioned facts can be challenging even for exploring the history of musical taste through the transformation of the perception of intervals, chords, and the development of tonal systems and their

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<sup>2</sup>Term used by Gillo Dorfles

<sup>3</sup> Castiglioni, N.: Silenzio e durata nel linguaggio musicale contemporaneo, „aut-Aut“, 46, 1958 p. 196

consequences, and electronic music, which is by the way characterized by the unlimited division of tone unit. In this process it is also possible to follow the sung, unanimous melody which passed to diaphones.<sup>4</sup> Polyphony with treble gathered on the severity in further stages of development.<sup>5</sup> With the development of vocal polyphony again the value of chord, tonality, harmony started to be strengthening that with the help of tempered tuning abolished all inequalities between the keys. Interest in exotic music, modal singing in folk music was revived. The discovery of chromatics opened the way to atonality, dodecaphony (*new music composed by laws*). In the following musical process we register attempts to reach "bare" sound (*without harmony*), based on border even sound paradoxical colour of the sound (Pousser, Gage). Space was also gained by unlimited range of sonic in electronic music, which allowed, i.e. the identification of the composer and artist. Among the essential new aspects of music we can encounter elements that support in masterpiece randomness, gestures (*scores by Chiari, Bussotti*), to prove that that music wants to establish closer contact with the audience.

In current text we have suggested that the music production of the 20th century utilized non-traditional composing technologies, quest for new sound ideal to bridge the space, place, time, etc. The very process how the composing of the authentic electro-acoustic music is in progress in cooperation with composer with sound technician in especially equipped studio with directly sonant sound material, its

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<sup>4</sup> In the 9th-12th century, the term was used to designate early organ, i.e. type and technique of medieval vocal polyphony meant improvisation practice of adding a parallel voice in fifths, or a fourths to the original Gregorian melodies; the ancient Greek musical theory marked the term with dissonance.

<sup>5</sup> In the ars antiqua polyphony were vocal tracks with perfect consonance and counter-voices; in 13th and 14th centuries treble was understood as the rules on the conduct of the voices, a sort of science of counterpoint.

selection, modification, organization up to the fixed sound record (*composing procedure here has similarities to the painting*), indicates a range of altered positions in relationship to the music - communication system, but also a range of issues in relation to the musical tradition. For example, there is elimination of the music artist, breaking down of the barriers between new sound phenomena and audio material created at conventional musical instruments in music - compositional registration and instructions for the formation of audio material, etc. Finally all previous habits are violated that make them differ from traditional musical material and its technological elaboration on the composer's site, but also when musical piece is perceived and listener ability to understand it. In this context we cannot omit such procedures that at the times of fast changes of artistic styles, techniques served to defence traditional music mechanisms, but also for the interpretation of new production. This is especially reflected in the musical- educational field where through fixed and even framed musical „grammars“ or in other cases their reformulated patterns, the existence of a new reality music is interpreted.

Genre of electronic music is generally accepted as a logical completion of the long-term historical development of world music and technology. Its development can also be understood (*including commercial music*) within the context of science, technology development that enabled for sound technology to expand and influence composing technology of a composer. Except exploring new worlds of sound, composing technologies in electronic music is also characterized by (*hence the direct modification and organization of audio material*) that in its development process gradually distorts sound - aesthetic criteria of electronic origin. E.g. Herbert Eimert in his compositions is using human speech as a sound source. Milan Adamčiak in article "Príbeh jednej

hubdy" "*The story of one music*" says: "*There have been several attempts to visualize the concert production with the use of multivision, light output and performance, resulting in freer compositions combining reproductive technology and live performance in relation to space, fusion with other musical genres gained the importance (rock, alternative music, art or physical performance, sound sculpture, etc.)*„<sup>6</sup>

Furthermore, one can mention the disruption of traditional rhythms (*I. Stravinsky: The Rite of Spring*), denial of tonality (*A. Schönberg: Five Pieces for Orchestra*), as well as preference of deep-chested sphere at the expense of the thematic and dynamic field. French composers also contributed to the non-traditional enrichment of music production applying sounds (*mechanical*) based in tempered tone system. For example Eric Satie in ballet "Parade" enriched the sound of the orchestra of sirens, engines, Morse device. He aimed to highlight characters (*among others*) via mentioned technical products. Edgar Varése (*known thanks to the term "organized noise"*) in composition „Ionisation“ used 41 percussion instruments for 13 players, piano and 2 toned sirens. Furthermore, we can mention John Cage, creator of the famous "modified piano" (*for reaching a specific tonal effects similar to concrete music*), as well as Arnold Schönberg who via colour change created at one chord apparent melody of sound colours “ in the third part of the piece "Fünf Orchesterstücke op. 16" called „Farben“. In addition to mentioned sound - spectral and rhythmic compositional

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<sup>6</sup> See: Bláha, M. - Mandík, M.: 1. seminář elektronické hudby v ČSSR. In: Slovenská hudba, 22, 1996, No 1-2, p. 10. Italian music futurists contributed to enrichment of sound ideal (F. B. Pratella), who followed the ideas of aesthetics "bruitism" (F. Busoni) when further disrupting traditional sound patterns with multiple audio noises that were produced on especially designed equipment (*their formation, however, did not exceed, instruments were compiled by Luigi Russolo with futurist Ugo Platti*).

procedures, the expansion of the tonal system with micro intervals contributed to the transformation of musical thought (*A. Hába shaped the ideas of F. Busoni*), as well as other composing techniques (*for example serialization*).

In the second half of the 50-ies of the 20th century computer was used for the first time in musical composition and interpretation.<sup>7</sup> Using computer programs and digital - analog conversion it was allowed to make sound generation, its processing, record, replace the function of musical instruments, artist, create a synchronization of musical instruments using the MIDI system (*Musical Instrument Digital Interface*) etc.

Term "sampling" (*from the word "sample"*) entered music in the late 70-ies of the 20th century to denote all analog and digital audio recording techniques with their re-synthesis (*the first "sampler" is considered to be a tool with a recording medium mellotron*). Development in this area in recent decades has been extremely dynamic and diverse not only in production and record of audio material (*e.g. CD Interactive multimedia connection enables to combine multimedia connection of sound and video with interactive options, also called smart card, etc.*), but also in conjunction with non-key musical instruments, as evidenced Laurie Anderson can be taken when calling violin "Violin Bow Tape" (1977), laser harp by Jean - Michel Jarre (1985) etc. In this context we can mention the association - *Impossible Music from New York* (*N. Collins, D. Weinstein, T. Spelios, J. Mori*), which perform cuts on CDs, loops, similar way as it was done in the 50s last century with analog gramophones and tape recorders.

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<sup>7</sup> In 1958 Max Matthews (Massachusetts Institute of Technology, USA).

In the postmodern transformations, but the "unsorted" field in addition to reviewing of traditional conceptions of space, time and tradition meet with a number of different directions, branches, claiming to different program objectives, as well as opinions, which are accompanying phenomenon of the modern period. Some groups seek for them as a part of their existence in society. For example, supporters of the movement New Age had impression of the onset of a new era based on mutual electronic connectivity; pessimists interpret this trend more or less as a degradation of human beings, etc. Stream of music fans was considered to be interesting and was called Acid house music (*acid is considered to be a kind of shortcut to mystical experience*), especially because of characteristics as an archaic (*returns to the roots of music, uses movement to achieve ecstasy, visionary states of consciousness, etc.*) and futuristic (*to reach the goal it uses the latest music technologies, lights, environment, etc.*). Groups presenting so called world music are inspiring as well. Herein term reflects music that is of folk and ethnic basis. It often intertwines with rock, jazz, electronic, classical or contemporary music. It focuses primarily on adult audiences. Strong position is secured thanks to the personalities of rock, jazz and electro acoustic music (*Brian Eno, Paul Simon, Laurie Anderson, Joe Zawinul, Petr Gabriel*). In Slovakia, the genre is pushed through the group Ghýmes<sup>8</sup>.

Complexity of herein issue at this point can be approached at least via listing of some streams, movements with their constant embranchments, which are in the global context highlighted also in mutational presentations; rockers, rappers, hackers, post punkers, techno spiritists, neo hippies, hippies, techno hippies, postavantgardists,

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<sup>8</sup> See: Vereš, J.: Hudba a hudobná výchova. In: Hudobno – pedagogické interpretácie 4. Nitra 1998 /ed. Vereš, J.)

industrialists, metalists, virtual realists, cyber punkers, orientalist, mystics, euro indians, space activists, video artists etc., etc.<sup>9</sup>

Generally their value lays in inability to adapt on one reality and thus to one truth, that enables to extend collective accumulator of visions, alternative cells of own mission. Innumerable number of new, innovative ways of communication or even experiments with the way of thinking, man's consciousness, evokes many questions regarding future direction of music, for example: Is it inability of conformity with official announcements? Is it the shift of culture towards ultimate chaos based on global principle? Is it an alternative of a new archaism? Does it mean that society shifts to anarchy? Is it directed navigation towards mystical collective ecstasy? Is it a new start to passage of new sensibility and sensitivity? Etc.

Answer on mentioned scope of questions in regards to its diversity will be situated more or less into the scope of acknowledgement. Currently we will not be surprised if accidental viewer sometimes fears when visiting postmodern theatre performances, similar happens to accidental listener during the rock performance. However, the other listener can feel impulse to life, happiness and so on. We cannot omit such presentations of production which help subject in acceleration of mystical ecstasy, collective stream of thoughts etc. Stated observations can be added in the sense that new, advanced technology launched consumer's mystics as well as

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<sup>9</sup> In Slovakia we witness also higher activities in comparison to previous periods. Among others we can mention e.g. folk, country, blues, sacra, underground, folk beat (Senzus) etc.

uncovering our ageless desires for transcendence without period evaluation.

## **Listener of music in relation to music production**

In previous text we tried to point out some of the signs of music production. In the following text we will focus our attention to issues connected to music listeners. Before we point some changes and opinions connected to changes of the forms of music life, we remind about fact dated back to the beginning of the 20<sup>th</sup> century, when with the development of sound transition there were created new opportunities to mediate music piece (*even in non-concert environment*) for wider social as well as generating groups. That was a period when non-balanced relation between listeners and music from the presence and past was significant. Presentation of artistic, musical pieces and its development is connected to musical classicism of 18<sup>th</sup> century and with shift of its ground form church into opera theatre, or form castle into huge concert halls (*when not counting development of music at home, music production aimed to be listened in so called "better" coffee houses etc.*), up to that time was realized more or less in some musical centres (*for example in England, Germany, Italy, Netherlands, Austria*). New forms of musical life influenced the social status of musicians, artists. For example, the composer did not have to compose music for a particular purpose (*for various celebrations, to dance, etc.*), but also for the pleasure of listening to music as art that had a significant importance for independent position of artist and for the very development of music. At the same time the listener – in contrast to the previous periods – in the concert hall had the opportunity to concentrate solely on listening, because he was no longer actively participating in the reproduction of pieces (*see following text*). This listener began to differ from the

specialized artist, which increased demands on the process of music perception.

The formation of categories of music listeners basically ran from 17th century. Its aim should have been to ensure the deepest impression from the music. O. Elschek aptly pointed at development of apperception process *"... main players and singers themselves were consumers. It was, of course, specifically "aristocratic" musical culture, aimed for higher social classes, which included also middle class during the 15th and 16th centuries. Musical experience or music apperception was then tied mainly to the special and personal art reproduction. Active growing of music should have brought an active apperception, knowledge by playing, singing ". "... When talking about music for listeners and for the cultivation of secular, even in older times, we are referring to its dominant position and character, which does not mean that the music of older ages is "inaudible" and that it was not meant for passive consumers in its period, this site was of course a secondary issue.,"*<sup>10</sup>

Radio editors in the beginning of his work (*in the 20-ies and 30-ies of the 20th century*) were obviously aware of the contrary nature between the audience and music production by authors of that time, since they did not include artistic music of the 20th century into broadcasted programs (*it apparently was associated with artists repertoire*), but only (*sporadically*) works of classical and romantic standards. In this context we need to mention listeners who had had the opportunity to participate in "live" performances of music in music centres, however taking music of their current authors with disapproval even boycotted in public music institutions. For example

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<sup>10</sup> Elschek, O.: Súčasná hudba vo vzťahu k dnešnému hudobnému životu a hudobná výchova. In: K problematike súčasnej hudby. (Zborník štúdií) SAV Bratislava 1963, p. 52, 53.

disproportionate response to the first presentation of works by students of A. Schönberg in 1913 in Vienna (*A. Webern, A. Berg*), or at the premiere of ballet "The Rite of Spring " by Igor Stravinsky at theatre Champs - Elysées (*Paris*): *"The audience laughed with irony, whistled, imitated animal voices and perhaps could have been tired after some time if the group of aesthetes and several musicians had not offended public in boxes and had not attacked them. Thus excitement led to the battle.."*<sup>11</sup>

The recent periods has proven that the composer was not understood and therefore music pieces were rejected by audience especially if customary standards and criteria between tradition and the present had been disrupted. For example premiere of opera W. A. Mozart "The Abduction from the Seraglio " (*German text*), introduction of the opera R. Wagner "Tannhäuser" in Paris (*missing ballet*) etc. This "disruption" in past was not so extensive (*apparently was related only to a particular audience, participating in the cultural life of the past*)<sup>12</sup> as in the 20<sup>th</sup> century.

Music pieces of composers in this century got into the unusual and difficult situation in relation to the recipients of music. Romantic melody, which in the past played an important role in the musical construction of the pieces (*highlighted by other musical components, which allow the deepening of the information content of the work, and its contours, often serving as the basis for his listeners' apperception*), becomes the beginning of the 20th century in musical organism an equivalent component with other music - expressive implemented means. In modern melodies romantic tunefulness did not dominate, nor

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<sup>11</sup> See quoted text. No. 10, p. 6

<sup>12</sup> Past periods lasted for several centuries, the production was not a subject to such rapid change as in the 20th century, so listeners could perceive easily creation of the previous composers, music was not spread by mass media sources for the wider social groups.

the balance of musical form, emotional ecstasy to the like, but expressiveness, moody capacity, equivalent linearity of all parts, moving parallel in the music entity. However, not in the plane of tracing at the transitional forms between unanimous and polyphonic music ( *between 1100 – 1450* ), where equivalence of the voices rests in their thematic. The vocal polyphony was treated by singers and players from the position of managing his part, hence apperception. Herein music was not produced only for listeners.

The music of the 20 century required focused approach from the listener in terms of auditory and perceptual processing of all the voices, parts, i.e. intrusion into the internal linearity in finding and uncovering the nature of musical works. The characteristics of the current melody it is worthy of mention its expressiveness in a small area, brevity, allusiveness, asymmetric division, avoiding tonal loop, randomness, sonorous or abstract sound ideal, etc.

New possibilities of presentation and broadening of music in space have become forefront with the development of sound transmission. In addition to the traditional, customary spatial dimensions (*such as concert halls, theatres, etc.*) the illusion, technically created special moment of sound spread began to be promoted. Such new procedures encouraged people who perceived sound to a divergent approach, considering its possibilities for application in real and imagining space as well.

Technical transfer of music brought many restrictions to the perception, as well as new opportunities. For example, disruption of visual and auditory perception unity (*including narrowing the spectrum of colour, tones, etc.*), which had its suggestive role in the perception of music in "live" concert setting. Furthermore, one can mention the "separation" of musical work from auditoriums, environment, festivals,

etc. In addition to the mentioned restrictions, technical audio transmission of sound allowed listeners to access to music pieces as well as to various interpretative demonstrations at home.

In the natural space echoes can be traced and even in pre-Christian, pagan worships, where caves served as chambers for sound reinforcement of amazement during the ceremony. The idea of space in music however was significantly applied by composers of the 16th century in the works composed at least for two musical entities that were placed in the area when interpreting - against each other. For example, in Venice a special architectural design of the temple of St. Mark Adrian Willaert (*two galleries*), who is considered to be a founder multi choric songs (*a cori spezzati - for divided choirs*). The successor of the Venetian school was Andrea Gabrieli (*quartet consisting of three tenor parts and one bass, against two mixed choirs of the different composition from collection Canti concerti*). Giovanni Gabrieli may be mentioned next, who chooses a combination of vocal voices with instrumental group, known as the two volumes *Sacrae Symphoniae*.

A way of creating space in reggae by composers can serve as another example. Their formation process is often compared to sculpture, because based on recordings of isolated artists, however, merged into a common audio recording, which is considered to be a kind of "Block Music". When "working it out" i.e. bypassing the sound of musical instruments (*especially according to position of sound, colour, dynamics, etc.*) it creates an interesting space for the so-called echo, often underwritten by the support base of rhythmic structures from other creators, performers.<sup>13</sup> Some distant parallels for the acceptance of

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<sup>13</sup> In popular music echo was used by musicians from Jamaica who played reggae for the first time in the '70s. In America, echoes found application in the 80's in the House Music and Hip - hop music. Using rhythmic structures from other creators, artists are somehow tolerated here, and rather received as a good advertising.

foreign voices from other authors also found in the history of music composing, especially in the 15th and 16 centuries in polyphonic musical texts of Mass Ordinaries (*Kyrie, Gloria, Credo, Sanctus, Agnus*), called - *missa parodia* - parodic Mass. Ján Kouba in his piece "ABC hudebních slohů" wrote: "*Instead of horizontal cuts from other songs, however, in the 16th century began to assume more vertical segments, i.e. complete polyphonic passages.*"<sup>14</sup>

The process of music creation of contemporary composers is being different from the previous, traditional ways of composing, but the criteria for selection and editing audio material (*as we have already pointed out*) are marked by the earlier composer's own experience and own inventory of sound images. This means that in the compositional meaning of the composer's procedure broke out of the customary ways of creating music, but on the other hand, natural background music of contemporary authors are constantly irritating – to a new artificial versions (*for example, artificial version of Brian Enoa so called Discreet Music, Ambient Music - ambient music, etc.*). Also bringing visibility and outlined procedures, transformations may be some impetus for further research and perhaps even reduce disturbance to the listener in the current period, as well as in the expected evolution of music.

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<sup>14</sup> Kouba, J.: ABC hudebních slohů. Supraphon Praha 1974, p. 72 - 76