Tomasz Misiak

author of "Aesthetic contexts of the audiosphere" (Poznań, 2009) and "Cultural spaces of sound" (Poznań, 2013) and many articles in scientific journals and collective publications. Main research interests: sound studies, acoustic ecology, the presence of sound in contemporary culture and music. In his research work combines critical reflection on art and culture. It describes mainly transform the culture of sound and its influence on the new using a method of listening. He is currently preparing publications on the presence of research in the field of sound studies in Poland. Music radio journalist associated with student radio "Afera".

Harry Lehmann and Johannes Kreidler: Around the Digital revolution in the Art of Sound

For of all technologies, it is the technologies of information and communication that most mold and shape the source of all mystical glimmerings: the human self[1]

Harry Lehmann, a German music critic and philosopher, is one of the few contemporary researchers who has recently attempted to describe the digital revolution taking place in music. Referring to selected artistic realizations, including the extremely interesting works of the composer Johannes Kreidler, Lehmann not only tracks the changes observed in artistic practices, but also tries to show the influence of constantly developing digital technologies on the institutional, social or aesthetic dimension of art. The digital revolution in the context of contemporary music and art will be of interest also in this article.

How to understand the digital revolution in the field of music? This question is apparently only referring to a homogeneous context. It is impossible to analyse the changes connected with the development of technology in art without taking into account other areas connected with spirituality or everyday life, with which music is inseparably connected. Therefore, before I attempt a reconstruction of Lehmann's assumptions, I would like to fit the questions addressed in the title into a more general field of considerations related to the impact of technology on culture. I will start with the least obvious proposal in this context, one which yet

» 1 E. Davis, TechGnosis. Myth, *Magic and Mysticism in the Age of Information*, Berkeley 2015, p. xx.

shows some universal ways of thinking about technology, appearing in the contemporary humanities in recent decades.

Erik Davis, who since the 1990s has been tracking changes in spirituality under the influence of digital technologies, has noticed that the method of coding information significantly influences our thinking about matters related to various forms of transcendence. Digital information technologies, with the Internet network and large databases, have contributed to the redirection of questions about the beginning, end or infinity. These questions, posed from the beginning of human thinking in the context of various religious and philosophical systems, break away from dogmas and drift along with the inexplicable potential of digital networks. Assuming that "the road is the network", Davis reminds us that human memory is the element that is transformed by every technology to the greatest extent. In the context of the development of digital information technologies, this is associated with a specific form of separating data / thoughts from the mind. "And yet, with the immense honeycomb of cyberspace – the supreme amputation of memory – we spiral around again to the vision of memory as a s p a c e o f i n f o r m a t i o n, a three-dimensional realm that is 'outside' ourselves while simultaneously tucked 'inside' an exploratory space that resembles the mind".[2]

Emphasizing the importance of memory changes taking place under the influence of technology, Davis sides with the dialectical way of thinking defined by the triad: "separation", "absence" and "difference". Each technology makes a kind of amputation of memory, which separates various data from one another, and then, analysing their mode of existence in new conditions, adapt to the differences resulting from these changes. Such thinking, from the time of Marshal McLuhan's analyses, has been applied in various research contexts, serving the purpose of describing the most important differences between oral culture, print culture and contemporary digital culture. It is very much telling that, as McLuhan observed, "Ours is the first age in which many thousands of the best-trained individual minds have made it a full-time business to get inside the collective public mind. Until the present age, this awareness was invariably linked with the artist, who had the strength and zeal of a visionary capable of decoding the outside world and of transmitting its image to the inner world".[3] However, are we really able to fully realize what is happening today under the influence of the technologies of change and whether artists "deciphering" the outside world have a different task today than in the past? The questions, posed in the context of McLuhan's analyses, only seemingly seem straightforward and aimed at an unequivocal answer.

» 2 *Ibidem*, p. 208.

» 3 M. McLuhan, *The Mechanical Bride: Folklore of Industrial Man*, New York 1951, p. v.

Various forms of coexistence with digital technologies have questioned what McLuhan did not yet fully perceive, namely a dichotomous division into interior and exterior, which necessitated questions about memory, art and the impact of technology on everyday life from a new perspective.

What characterizes this new perspective? If we would like to continue the research model proposed by McLuhan, we would have to reflect on what distinguishes contemporary culture, dominated by digital technologies, and secondly, what differentiates it from previous cultures, determined by the tribal element of speech (oral culture) and linear logic of writing (print culture). From the point of view of the subject matter of this article, however, it would be more important to ask whether this scheme and related questions can be used in analyses of contemporary art, in particular of music.

The initial answer is affirmative. Until very recently, the most comprehensive description of the relationship between oral culture, print culture and contemporary electronic culture in the context of music was made by Chris Cutler in his analyses of popular music. Cutler's idea is that specific cultural forms, designated by the technologies characteristic of them, should be assigned specific types of memory.

And so, "biological memory" would be characteristic of oral culture and of the "folk mode". In the context of music, this is connected with several important features. First of all, "the means by which the folk mode is generated musically and thanks to which it goes on is based on tradition and human, i.e. biological, memory. This folk mode concentrates on the sense of hearing and can only exist in two forms: as sound and as a memory of a sound".[4] This means that music is always created by the whole community, being an important factor in building a collective identity and a sense of belonging. There is no division between the composer and the performer, which is further emphasized by the fact that the individual author does not exist. In such a defined space of artistic practice, there is no mediation in the form of a musical notation, which in turn implies the impossibility of indicating a finite and final version of the work. The music itself cannot become private property.

The features that distinguish music creativity change with the domination of printing. In this context, we deal with "written memory" which "as an invariable memory, external to the user, cannot be subject to organic adaptation or forget about itself".[5] Writing and later also printing and the music score associated with these media sets different functions for the composer and performer, and also leads to the commodification of

» 4 Ch. Cutler, *O muzyce popularnej. Pisma teoretyczno-krytyczne [On popular music. Theoretical and critical texts]*, transl. I. Socha, Krakow 1999, p. 32.

» 5 *Ibidem*, p. 35.

music, making it a private property dependent on specified authorship. In addition, the score as a medium of the eye contributes to a radical change of experience – from tribal collectivism based on the human voice and its hearing to analytical thinking based on vision. "The good times for a music notation most probably meant a negation of the folk mode: internal / biological memory gave way to external memory / written in notes; the primacy of hearing was replaced by that of sight. Understanding of the whole was replaced by a focus on details. The unity of the composer and performer was replaced by the almost complete functional separation of these two roles".[6]

A new form of culture and a new type of memory appear along with electricity, and hence with new, electric, and later also electronic instruments, with devices recording, transforming and reproducing sound, with a recording studio. Recording is the third type of memory in Cutler's theoretical model. The capability of recording sound not only broadened the range of sounds used in music but also contributed to the re-entanglement of music-related experiences into collective listening. The most important features of recording and related forms of creation and ways of listening could be described as a negation of the features characteristic of artistic music of print culture, and thus "all the main, inherent features of recording are a reflection of the corresponding features of the folk mode. As a negation of negation, recording is what we could expect: not a return to the old; but a qualitative transformation of elements and a transition to a higher level".[7]

Cutler's proposal, which uses McLuhan's pattern, can be treated as a prelude to more detailed analyses focused on changes that could be determined in the context of art and music through the prism of technological development[8]. In this context, media researchers pay particular attention to the differences between analogue and digital sound recording capabilities. Yet they do not engage in considerations of quality but try to indicate cultural metaphors that map out new avenues of thinking. Erik Davis notices, for instance, that in this light "Analogue gadgets reproduce signals in continuous, variable waves of real energy, while digital devices recode information into discrete symbolic chunks".[9] "Think of the difference between vinyl LPs and digital music files", continues Davis. LPs are inscribed with unbroken physical grooves that mimic and represent the sound waves that ripple through the air. In contrast, CDs are MP3s chop

» 6 *Ibidem*, p. 36.

» 7 *Ibidem*, p. 41.

» 8 In a somewhat broader context, I considered the suggestion put forth by Cutler in my book *Kulturowe przestrzenie dźwięku [Cultural spaces of sound]*, Poznań 2013.

» 9 E. Davies, *TechGnosis…*, p. xxiii.

up (or 'sample') such waves into individual bits, encoding those digital units into tiny pits that [...] The analogue world sticks to the grooves of soul – warm, undulating, worn with the pops and scratches of material history. The digital world boots up the cool matrix of the spirit: luminous, abstract, more code than corporeality. The analogue soul runs on the analogies between things; the digital spirit divides the world between clay and information".[10]

Regardless of the theoretical contexts used by Davis, his metaphors and comparisons may turn out to be heuristically fruitful, as they contain a certain universal comment. Digital technologies radicalize our thinking about the world and make us rethink the relationship between "clay" and "information", and – by extension – communication processes at all possible levels. In the context of music, this necessitates a philosophical reflection on the technological and communication framework criteria for those forms of creativity that are directly related to digital technologies. McLuhan's theory and Cutler's proposition must be enriched with contemporary experience, which complicates previous schemes and takes this dialectic thinking to a higher level. For if oral culture and related traits could be considered a thesis, the culture of print as an antithesis, and culture based on recording as a synthesis, we should consider how, at a higher level of abstraction, one could grasp another thesis regarding the characteristics of the digital culture.

Such a proposal can be found in Harry Lehmann's reflections. He makes philosophical considerations on contemporary music in the perspective of technological changes. The questions posed by Lehmann are as follows: "How does the idea and concept of New Music change when, as a result of the new digital technology, there is a widespread democratization of the production, distribution and reception of New Music? What normative patterns are subject to technical disengagement? How far should the system of aesthetic categories that the auto-description of New Music carries with it be reconfigured?".[11] At the same time, these questions contain the most important assumptions related to the attempt to delineate the horizon of the digital revolution with regard to music. Lehmann argues that the most important changes that in the context of music have been made under the influence of the development of digital technologies are a consequence of the democratization of music production, distribution and reception. What does that mean? First of all, it involves the deinstitution-

» 10 *Ibidem.*

» 11 H. Lehmann, *Rewolucja cyfrowa w muzyce. Filozofia muzyki [The Digital Revolution in Music. The Philosophy of Music]*, transl. M. Pasiecznik, Fundacja Bęc Zmiana, Warszawa 2016, p. 6.

alization of contemporary music.[12] "Deinstitutionalization occurs when a strongly institutionalized social system is transformed into a poorly institutionalized social system".[13] This weakening is caused by the possibility of using various tools with a similar impact potential not only by large, state-run institutions, but also by individuals who are not formally associated with any institution. The digital revolution in its basic form is associated with the dissemination of such tools that were once available only to institutionally supported elites. Lehmann explains this process in the context of music in the following way: "[...] New Music [...] is a highly institutionalized art. Why would something change in this situation? The short answer is: the digital revolution creates alternatives. The composer is no longer solely responsible for using the services of certain institutions, as was the case in the past. The digital revolution offers to producers all the means of production and distribution that until recently were solely the responsibility of the institution."[14]

Describing the consequences of the digital revolution in music, Lehmann tracks various levels of deinstitutionalization, pointing to the changes that contemporary music academies, publishing houses and sound archives are subject to. He moreover indicates new artistic practices with new instruments and computer programs that radically change the ways of producing music scores and underlines the importance of new forms of distribution offered by new digital media. However, bearing in mind the philosophical origin of Lehmann's analyses and their affiliation with the media research tradition initiated by McLuhan, it is necessary to return to the question about the most general determinant of the new digital culture, which puts it in opposition to previous forms (oral culture, print culture and electronic culture). Lehmann's indication is clear: "Speech (and listening) constitute oral culture, writing (and reading) are the determinants of literary culture. If communication based on a computer ceases to be understood as a culture of writing, then what basic human activity replaces the function of 'writing'? The answer would be: editing."[15]

Editing appears as a basic category and the experience associated with this function are present on every level of musical culture – from cre-

» 12 Lehmann uses the term "New Music", by which he understands "modern artistic music, played almost exclusively on classical instruments and continuing the tradition of Western European classical music". For the purpose of this article, however, I will speak in this context about "contemporary music" to extend this concept onto those forms of creativity that are associated with electronic instruments and depart as to their form from the tradition of classical music. It seems all the more justified since the examples of the work of the composer Johannes Kreidler, used by Lehmann himself, do not fit New Music defined in this way. As to Lehmann's definition of New Music, see: ibidem.

» 13 *Ibidem*, p. 11.

» 14 *Ibidem.*

» 15 *Ibidem*, p. 51.

ativity, through its distribution, to the reception methods. In his analyses of the digital revolution, Lehmann does not stop at philosophical considerations conducted in isolation from specific artistic practices and tries to root the transformations he describes in selected projects. The philosophy of music in this case is aware of its own addiction to contemporary art, from which it draws inspiration and illustrations for its theses. Having to deal with such dynamic processes that define the nature of the digital revolution taking place in statu nascendi and find their reflection in art, one should show how art itself changes and how art changes the institutionalized reality around itself. The deinstitutionalization process does not take place spontaneously, but only under the influence of technological development. It is art and related artistic practices that often determine the course of these changes and become, together with technology, the driving force of the digital revolution. Lehmann chooses, inter alia, the work of a contemporary artist, the composer of the young generation Johannes Kreidler. For the purposes of this article, I would like to point to two projects by Kreidler, which will help to see the features of the digital revolution described by Lehmann.

Kreidler's composition no doubt testify to the will to make direct changes within the framework of institutional contemporary culture and point to certain extreme consequences of the use of edition and sampling as the fundamental techniques of the digital media. Of special importance in the first context, showing and problematizing the process of deinstitutionalization, is the 2008 performance, which is intended to go beyond the practice of musical creativity, posing a challenge to the bureaucratic ways of functioning of the German institution GEMA.[16] As the artist emphasizes, in order to register a new composition, it is necessary to fill in a detailed form, indicating in it the sources of all the fragments used in the recorded work, which were taken from previously published sound recordings. To draw attention to the incompatibility of these findings to new artistic practices emerging under the influence of digital tools, Kreidler composes a 33-second Product Placement, in which he used 70,200 (seventy thousand two hundred) sound samples taken from other recordings. Later, with thousands of filled in forms, he applied to the appropriate institution to register his work.[17] The author emphasizes that his work does not aim at directly negating the mission imposed by an institution taking

» 16 GEMA (Gesellschaft für musikalische Aufführungs - und mechanische Vervielfältigungsrechte) is an institution regulating issues related to copyright. The Polish equivalent of GEMA is the Association of Authors ZAiKS, which, like many such organizations around the world, is a member of the international Confederation of CISAC (The International Confederation of Authors and Composers Societies).

» 17 The course of the event and the musical composition are available at: http://www.kreidler-net.de [access: 23.01.18]

care of copyright, but urges us to rethink the general approach, which, rooted in the print culture, does not match the modern, digitally mediated culture. A similar problem is perceived by Keith Negus and Mark Pickering, who pose the following question: "Is copyright law still beneficial for individuals and collectives, and if so, for which individuals and for which communities?".[18]

In the context related to the editing function as the basic category of the digital revolution in music, it is worth paying attention to Kreidler's another composition: Compression Sound Art of 2009. In this work, the author uses a dozen or so sound fragments taken from various recordings referring to important cultural texts. These are mainly recordings in the form of audiobooks, digital data which the author compressed. Since the sources used by Kreidler play an important role and emphasize the conceptual nature of the composition, all of them should be recalled in the order used by the author: (1) a complete set of Beethoven symphonies reproduced in one second, (2) all of the Beatles' songs reproduced in one-tenth of a second, (3) an audiobook of Marcel Proust's *In Search of Lost Time* reproduced in one second, (4) 130,000 different songs played in four seconds, (5) the soundtrack from the movie *Rambo 3*, reproduced in one-third of a second, (6) soundtracks from the collection of pornographic films reproduced in one third of a second, (7) the song Baby One More Time by Britney Spears played ten times in one second, (8) song Gimme More by Britney Spears played four hundred times in a second, (9) high tones issued with the help of "Adam's Apple" by an illegal immigrant, (10) an mp3 codec read in the wave format. (11) price data for auctions of thousands of banks transposed on melodies for computer games, (12) words of Pope Benedict XVI coming from the loudspeaker on which a condom was installed, (13) an audiobook of the Bible reproduced in one-third of a second, (14) an audiobook of the Koran reproduced in one-third of a second, (15) an audiobook of the Torah reproduced in one-third of a second, (16) a set of works by Fryderyk Nietzsche in audio form reproduced in one-third of a second, (17) four above fragments (13, 14, 15, 16) reproduced simultaneously, (18) Critique of Pure Reason by Immanuel Kant in an audio form reproduced 22,000 times per second (audible only for bats), (19) microsecond sounds of explosions accompanying the victims of the Iraqi War on April 1, 2009, (20) the word Reich pronounced by Adolf Hitler, reproduced 12 times slower than the original, (21) the code of an illegally copied DVD read in the wave format, (22) recording of a device imported in 1972 from Alaska to New Zealand, vibrating 574 cycles per second, then

» 18 K. Negus, M. Pickering, *Przemysł*, transl. Z. Nowak-Soliński, S. Jacobson, [in:] Andrzej Gwóźdź (ed.), *Od przemysłów kultury do kreatywnej gospodarki [From the cultural industries to the creative economy]*, National Centre for Culture, Warszawa 2010, p. 27.

processed in 2003 using an ATARI computer with illegal software, (23) a sound whose origin will never be revealed to anyone, (24) a completely neutral sound with absolutely no meaning. Each recording is accompanied by appropriate photographs or icons directly related to the presented sounds. After this catalogue of items, there is a part which is the effect of various combinations of the previously presented fragments, after which, in the finale, the song, (25) Compression Sound Art by Johannes Kreisler is presented, played 3,000 times per second.

The song, which lasts less than three and a half minutes, is bewildering due to the multiplicity and diversity of the fragments used and, in line with the artist's intention, metaphorically points to the situation of man, a modern recipient of culture drifting in a maze of constantly changing codes and data. Compression Sound Art is moreover a composition addressing the compression problem itself, which is another determinant of modern digital tools that radically change the way data are used. Compressio, a word derived from Latin, is semantically linked to the process of "squeezing" but also means "a concise presentation" or, from yet another semantic perspective, a "surrounding" and an "embracing".[19] In the context of digital technologies, the term compression is most often used within telecommunications, data processing and encryption, and denotes a signal transformed in such a way that the amplification of signals with a lower frequency is greater than that of signals with a larger amplitude. In this way, it is possible to reduce the impact of interference in each transmission. The purpose of compression is, therefore, to avoid interference and eliminate noise that negatively affects a given message. In the case of Kreidler's work, however, we are dealing with a compression process brought to the extreme, and consequently – teleologically speaking – with its reversal. We get a signal that loses its original character and can be retrieved only after the data restoration processes are begun.

Selected artistic realizations by Johannes Kreidler can be used as illustrations of the ongoing digital revolution in music; a revolution that impacts the overall musical culture and makes it necessary to revise traditional relevant observations. Kreidler's work is not the only exemplification of the processes and problems related to them described by the German philosopher, but it also helps identify the most important technological transformations changing the form of cultural participation. Sampling, compression, coding, translation of data from different media environments, doing without traditional sound carriers, transfer to the new level earlier possibilities related to recording, transforming and transmitting sound, which in turn radically influenced the possibilities

» 19 See: E. Sobol (ed.), *Słownik wyrazów obcych PWN [Dictionary of foreign words PWN]*, Warsaw 2002, entry "compression" and derivatives.

originating in print and reproduced musical notation. "The breakthrough that came about thanks to the digital revolution in Western artistic music can only be compared to the invention of musical notation in the eleventh century".[20]

Such an important breakthrough, however, is not associated solely with innovative artistic practices, which with the help of new tools radically expand the sound universe used in music composition. It also involves blurring the boundaries between classical artistic music and music generated by a computer. In this context Lehmann refers to the so-called "digital" or "virtual orchestras", whose development dates back to the beginning of the 21st century, when hard disks with a capacity of several hundred gigabytes began to be available, and the processors of computers used in professional studies had enough computing powers and fast enough data processing capacities that you could access a huge amount of data and process them in real time. As a result, an appropriate computer program, using thousands of samples of instrumental recordings available in virtual archives, can create a score reflecting any style of any composer, and the resulting recording will be difficult to verify in terms of "authenticity" even by professionals. "The Wall Street Journal conducted a test, playing to two music professors four fragments of Beethoven's 7th Symphony, once performed by a normal orchestra and the other time as played in a digital arrangement of Paul Henry Smith. The result: after the first hearing of the recordings, both took the interpretation of real musicians for the work of a computer"[21].

Such new possibilities resemble Jean Baudrillard's theory of simulacra. For the French philosopher, the issue of simulation makes us aware of the ongoing process of blurring the boundaries between truth and falsehood, the real and the unreal, reality and the world of imagination. Along with this process, "truth, reference or objective cause have ceased to exist"[22]. However, on the other hand, one of the most important consequences of the simulative character of contemporary culture is the increased need to continually reproduce the world in order to confirm its existence. This is existence in an unadulterated form. Only that the more effort we put into the mapping, the more we realize that we are already observing "only" our own product.

The processes once described by Baudrillard in the context of contemporary music assume an even more radicalized character. For if the boundaries between the music performed by musicians and the music generated by the computer get blurred, if the boundaries between music

» 20 H. Lehmann, *Rewolucja cyfrowa w muzyce…*, p. 39.

» 21 *Ibidem,* p. 133.

» 22 J. Baudrillard, *Simulacra…*, transl. Sheila Faria Glaser, Ann Arbor 1994, p. 3.

played live and music reproduced from loudspeakers are equally unclear, then perhaps – as Lehmann points out – the only indication of authenticity is some kind of imperfection. The lack of interference is more and more a sign of technical excellence for us. We therefore see authenticity where something "breaks down". This, however, can be programmed, too. "Virtual music is recognized, if at all, thanks to its perfection, that is, faultlessness. If you lack naturalness, you can program the interference function; it would be enough to enrich the collection of samples with those in which there are a lot of performance imperfections".[23] Coming back to Baudrillard, it is worth emphasizing that in music the simulation and dissimulation processes collide with each other. "Do not let anything know; to dissimulate is to pretend not to have what one has. To simulate is to feign to have what one doesn't have. One implies a presence, the other an absence",[24] observes the French philosopher. Perhaps, therefore, our future ways of dealing with the effects of the digital revolution, both in music and everyday life, will largely depend on whether we accept new forms of perfection. ●

» 23 H. Lehmann, *The Digital Revolution…*, p. 18.

» 24 J. Baudrillard, p. 3.