EMBODIED COMPOSITION

Treatment and meaning of physical object in experimental music and sound art
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Abstract

This thesis is a theoretical examination of the musical and artistic works and practices where physical object other than musical instrument is used in the production of musical meaning. This subject is explored within the frame of contemporary and experimental music and sound art, but the systematic overview is made from the perspective of the last two genres. The focus is on explaining how physical objects acquire musical function from theoretical point of view, and what practical interventions are needed to make an object produce a musical meaning. Objects within musical context can have various functions, and some of these functions which I considered essential, have been described and analyzed through the works by distinguished artists.

Inspiration for this text comes from the existence of discrepancy between the abstraction of music and corporeality of objects, which are able to exist together in the form of musical objects that I am describing. I was stimulated to think thoroughly about this topic and to summarize the observations from my own experience of playing with objects and dealing with them in my musical works. My goal was through the in-depth analysis of objects and the way of their usage, to develop a better comprehension of the the reason why for centuries artists have aimed towards the embodiment of music into physical form, and to try to spot the indications of new musical practices which are developing around these musical objects.
I would like to thank all the artists and friends I had a chance to collaborate with, you have discovered a whole new worlds to me and I have learnt a lot from you.

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Me, objects, music

It was years ago when dominance of instrument in general musical discourse, lost its relevance affected by the overflow of other physical objects such as new musical instruments and things from our everyday life which could be used to produce sound or express musical meaning in the ways musical instruments couldn’t. Being active as a musician in such an environment, I was listening to objects, playing with them and used them to make my musical works. Years long experience in improvised music, provided me the possibility to try out many techniques of instrument preparation and to combine objects and electronics in my live performance. I found especially interesting, the process of choosing the objects I will play with - I am suddenly approaching the same everyday things with a different, aesthetic consideration, and making them more precious than they normally are. Using the laptop as instrument, I was always searching for a way to detach solely from its own physicality and to bring in additional things into performance, whether the ones which I would find, make or “break” and than use them musically, or by sampling the sounds of objects and using them to play live. There is something organic, lively and sensuous about these microscopic sounds, which can’t be reproduced with any other electronic instrument or software.

Initiated by my own artistic work, and by the approach of many artists whose work I had a chance to see, I became aware not only of the musical potential of objects, but also of their secret dominance in the field of experimental music and sound art. Hardly you can go to a concert of live electronic music nowadays and identify and name all of the instruments and tools musicians are using to play with. It is a higher probability that you might recognize objects such as those we are seeing and using every day, only employed to perform musical function in the most unexpected ways. This confirms the general tendency of art today, in spite of the plentitude of high technological possibilities, to encourage us more and more to get back in touch with our own reality which is first and foremost, physical. In a time when our everyday life is a multi-sensory experience, enhanced with the use of technology to
a high synaestetic level, we are teared between the material world of things that surround us and that of ideas, information and data that we live in at the same time.

I was also driven to think about this topic because I found the fact that something as abstract and complex as music can be brought into relation with something of absolutely opposite kind such as physical object. This approach holds a strong poetic character which I find extraordinary. I believe that encounter of music with corporeality of objects is a reflection of our own personal struggle with comprehension of musical abstractness. It is a way of giving a body to music, a shell which holds the immaterial content of musical thought, and puts it back into the material world where it actually came from.

This thesis comes as a sum of my musical experience to this day, a critical observation and pavement for the artistic path that I wish to pursue in the future. It is my strong opinion that to be artists today, we are obliged to fully analytical and to understand the context within which we are creating, and sometimes even the interpretation of this context alone can be a work of art. Today, more than ever, due to democratization of artistic medium and accessibility of high technology to everyone, an artist is a thinker, the one who produces meaning and not necessarily things.

Overview of the thesis

I started this text by looking for practical reasons why we as professional musicians or even non-musicians, look for a musical quality in the things from our surrounding, and what is it that stimulates us to think about objects in musical context at all. Supposing that objects are made essentially to be possessed and to be used, and most of them have practical functions, what is the meaning of this possession when translated onto aesthetic, musical and personal plane.

In the section "Things and music", my aim was to stimulate the reader to relate him/ herself to the topic by approaching it from a few generalized points of view. As children, for example, we are unconsciously using objects in many musical ways, and later in life as music consumers, we are involved in a similar situation, still working towards defeating the musical abstractness by aiming to establish physical relationship with it. Examples are given, from the context of music theory, to describe how music naturally demands connection with non-musical field, and how these borrowed non-musical terms and characteristics are incorporated into musical discourse.

"Emergence and autonomy of extra-musical object in Western art music" is a historical overview where I am tracing the appearance of objects other than musical instruments and their treatment in some of the exemplary works by different artists/ composers. I have differentiated this part of the text into four sections, each one being defined by the the most dominant features in treatment of physical object. In reality, the transformation of musical practice and general acceptance of objects into musical language, did not happen following a clear chronological order. The changes were gradual and old and new were always intertwined to a certain point, but my goal was to provide a milestones of this change starting from the beginning of the XX century, until 60's and 70's.

After arriving to the point of acceptance of physical objects in Western art music, I am approaching the topic from a current point of view in the "Musical object" section where I have made distinction between five categories of objects which are being used in experimental music and sound art, aside from the existing acoustic or electronic instruments and devices. For each type of objects, I have given examples from the field, based on my personal experience and theoretical research, with the purpose of extracting the prevailing methods of using them. This should lead us to a more comprehensive understanding of experimental music and sound art works which include physical objects as a part of their artistic practice.

In "Listening from a close", I am offering my observations of the works by two eminent artists from the musical field. One is Pierre Bastien, whose work belongs more to a performativ, experimental musical genre, and another is Tristan Perich whose work is founded on the traditions of contemporary music and sound art. By interviewing them,
I had a chance to get a closer insight into their approach to creating music with custom-made objects, and their attitude towards dealing with objects in some particular works. I was trying to conclude from these conversations, why does the physicality of music has an important role in their work.

Sections “Emergence and autonomy of extra-musical object in Western art music”, “Musical object” and “Listening from a close”, end with a list of objects which have been mentioned in the text in the musical context. In the “Conclusion” part, all the lists are combined into a single one. By extracting the names and kinds of objects which were mentioned, my aim was to give the idea to reader what kinds of objects are mostly being used in musical works and to point out the existing discrepancy between them and what we consider music to be.

What kind of music, what kind of objects?

To define musical genres by putting many works under one label, and to name this label correctly, was always a problematic issue in history of music. Characteristics of a few different genres can be (and most often are), interconnected in one single work, and we can only make a faint distinction between them, judging on the small number of predominant features.

Contemporary music is as we know, related to a particular kind of a concert-going situation where performers on the stage play the piece from a score written by composer. Contemporary music is the evolution of what we know as classical music, and both share the same musical and academic discourse, and take as a focus of its attention, musical form. Since the contemporary music is the name for a present-day as well as the music from the last century which share similar features, I decided to use the term Western art music in the section “Emergence and autonomy of extra-musical object in Western art music”. There, I am mainly giving the examples from XX century contemporary music, but I am also mentioning the works which emerged from the fusion of art and music, and therefore don’t belong to the field of contemporary music. I believe that the term Western art music grasps all these works.

Experimental music is in my opinion a non-historical label for the musical works which are bringing a new interpretation of musicality into contemporary context. It embraces electronic music as well as non-electronic such as free improvisation for example, which can be purely acoustical. Under the definition of experimental music, I will consider other sub-genres, and relevant for my observation of the topic will be among other: live electronic music, free improvisation and so-called 8-bit music and chiptune genres.

Term “sound art” was and still is a debatable whether it should be understood as a subset of art or extension of the practice of experimental music which holds characteristics of both art and music. What appears to be essential distinction of sound art from other musical genres, is the exhibition-context in which works of sound art are presented. They are often put in a gallery-based setting opposite to concert-setting of other performative music genres.

In this text, I am observing how the physical objects other than musical instruments, got infiltrated into the practice of today’s art music. I refer to “objects” as to physical, three-dimensional things which by being extra-musical, don’t have primarily musical meaning and/ or function. They are being brought inside of the musical context from a different one and they are mostly borrowed from the domain of everyday objects. They become musical objects by being re-defined in order to fulfill the musical function. Musical objects which I am observing, can also be built for the strictly musical purpose, but instruments as musical objects, are not part of my focus.

In my observation, I am putting the emphasis to musical rather than sound quality of objects. Firstly, as I will show later in the text, musical doesn’t necessarily mean audible and related to sound. Secondly, I consider music to be on a higher level of complexity, since musical signification is much more diverse than that of sound. Regardless of medium in use, music can be represented through musical form, performance, notation etc. While sound is always related to a perceptual experience, music is of a conceptual nature.
People in Western civilization are surrounded by immense amount of objects - in our living space, at work, in streets and shops. We still buy more and more of them, replacing ones for others, using them and storing or throwing away. We make private shows, exhibiting the decorative ones for their beauty in our apartments. We keep some of them, because they have a personal value, like souvenirs and things from our childhood to which we attach certain memories. Today, there are also more and more objects which are reactive and interactive, having a will of their own and constructed like that by man, to resemble human qualities.

If objects are made with purpose to be used, why do we want them to be something more or else than what they are? Not only that we develop emotions for things, but we also secretly want them to do the same for us. Let’s just think of the cartoons where representations of things as living creatures are so common. In them, objects are very often made in a way to imitate human qualities - they talk, sing and dance, they can think and even have opinions. But, they also have emotions of their own, to take for example dancing pottery and other things in Disney’s “Beauty and the beast” (Figure 1) or Pixar’s “Toy Story” which tells about secret lives of toys, fulfilling the fantasy of every child. These cartoons represent objects with their imaginary qualities which always draw close similarities with the behavior of people. Most importantly, they are borrowing the human voice, and through
speech and sound, the language of things is translated into the lan-
guage understandable to us. It is no wonder why children than when
playing, very often give voice to things, creating the whole scenarios in
which things are the main characters. This way, they are establishing
control over the outside world and they are utilizing this power through
the voice (sound). Steven Connor says about children’s imitation of the
sounds of the world, and of giving voice to things:

“What is imitated in onomatopoeic voicing is the world’s own
capacity to give voice, in an enactment of the possibility that things in
the world might be capable of and characterized by speech, and that
the sounds of the world might be being uttered by it.”[7]

This playing strategy has been automatized nowadays, and
now we have a wide variety of speaking, singing and music playing
 toys. They are equipped with electronic chips and speakers are imbed-
ded into them to bring into play an additional, sound quality which will
replace the human voice. The effect of amusement takes place of the
imagination, and therefore toys can often become passive objects and
part of a collection.

Unlike toys, art objects ask for more thorough interpretation,
since connection between them and observers who appreciate art is
more profound. This is natural due to the fact that art objects are al-
ways mediators between the creator (artist) and the one who perceives
the work, so the connection to object is always indirectly connection
with artist. In the art world, an art object can also become a thing in
possession, most often in the case of collectors and art dealers. In the
hands of art dealers, art objects become inescapably part of the sell
and buy scheme, which makes them objects to be owned just like any
other thing, like a commodity. One of the greatest collectors and deal-
ers of the XX century, Charles Saatchi, says about it:

"I buy art that I like. I buy it to show it off in exhibitions. Then,
if I feel like it, I sell it and buy more art.”[8]

And so through embodiment of physical things, artworks can
become belonging of a single person who becomes superior to them
and to the artist who has made them, by treating the artwork just like

any other object (according to the quote above). This possession as
any other possession, is a passion for a private property, and accord-
ing to Baudrillard who speaks about this in The System of Objects, we
are getting into personal if not intimate relationship with objects in our
possession, and through the system of such private objects, we are
constructing a world as a private totality.¹ For an owner who desires
an artwork without the wish for material benefits, this means to be in
possession of an object with aesthetic purpose and without practi-
cal function. Such owner is being attracted to the object’s invisible
content - to the thing the object represents. Owning its materiality is a
substitution for what he/ she can’t have and what can’t be owned. “For
what you really collect is always yourself”⁵, says Badrillard, describing
how the person projects him/ herself into this/ her collection of unique
and precious objects, which are among other things also, his/her nar-
cissistic vision of him/ herself.

In this area of object’s immaterial possession, lie musical ob-
jects. Whereas painting and sculpture for example, for centuries were
the things of ownership, intangibility of music kept the musical works
away from the hungry hands of commissioners, wether they were kings
or millionaires, no one could ever ultimately possess a single piece of
music. To this contributes the performativity of the art form too, which
enables the work to exist always and only when being performed. Such
an immaterial thing like live performance cannot be owned literally,
but the significant change occurred with the development of recording
technology.

The birth of a phonograph record has initiated a whole new
perspective in perception of musical work and its relation to listener,
providing a piece of hope that at the end we will be able to possess
music like everything else. This conquering of the musical field, led no
more than to infiltration of music into our everyday life, bringing the
music from concert halls into our homes, but still without the pos-
sibility to be in possession of anything but the reproduction of a work.
Walter Benjamin discusses this problem in “The Work of Art in the Age
of Mechanical Reproduction”. According to him, on the expense of get-
“Talk to Me: Design and the Communication between People and Objects”. Exhibition curated by Paola Antonelli, comprised of hundreds of objects, devices, toys and interactive systems, with the idea to rise a question and give many suggestions of possible ways of communication with objects in the context of postdigital design. In her essay written for the exhibition catalog, Antonelli says that in spite of the very well known characteristic of object’s need for form, function and meaning, objects ask for a more dynamic relationship with the rest of the world. From the perspective of postdigital, she continues, our engagement with objects asks not for the newest technology to utilize this communication, but among all the technological possibilities, the one which will provide the most correct interpretation of our relationship with object. By using the axioms given by the psychologist and philosopher Paul Warzlawick, Antonelli defines the initial cause of our continuous attempt to approach objects like we approach human beings, by quoting the first axiom: “One cannot not communicate!” This confirms the fact that even if mute, objects can communicate a musical message to us (Figure 2). Since the discourse of objects doesn’t naturally comply with our own system of communication, we can also artificially spread their discourse, designing them in a way that they can talk back to us in an understandable language. By embodying music into physical form we can make it responsive to our physical

Phonograph has in many ways changed the practice of listening, and also, redefined the relation between work and audience. Due to the fact that the performance as unique interpretation of the work lost its exclusivity, the connection music - listener, became less sacred. In this informal relationship where the user is empowered to influence the actual performance on the record player by pausing, forwarding, playing louder or quieter, he takes over the conductor’s role and becomes the owner of the one single performance of the work, personalized performance, adjusted to his/ her own listening needs, but not of the work itself.

Paralleling the egoistic nature of possession of everyday objects as described by Badurillard, Theodor Adorno in his writing “The Curve of the Needle”, says about the hidden ambition of the reproduction technology in music:

“What the gramophone listener actually wants to hear is himself, and the artist merely offers him a substitute for the sounding image of his own person, which he would like to safeguard as a possession...Most of the time, records are virtual photographs of their owners, flattering photographs – ideologies”

The need to own and to be in control of the objects of art, the ability to approach them and to observe from a close, reflects our strong wish for a two-way communication with the world around us. We want to get into active relationship with the world of things and prompt a reaction from them.

In July 2011, in New York MOMA, exhibition was given, concerning the problem of objects in contemporary society, by the name Things and Music
existence, and establish a physical interdependence.

Extra-musical object

Extra-musical elements in Western art music tradition have been questioned from various perspectives such as those of music theory, musicology and semiotics of music. Definitions of extra-musical or non-musical, both belonging outside of the musical context, have been dependent on the point of the examination and most often are in opposition to what is considered to be “music”. The borders of musical being on the other hand, have often been assumed as known to many of the music professionals as well as the non-professionals, and undoubtedly related to the sense of hearing. Until conceptual art stepped in, and directed by event scores, instructional and graphic scores and silent performances, music inhabited the immaterial and often inaudible space, still leaving us convinced that it is a piece of music we are perceiving and not any other form of art. Even if we only read to some of the Fluxus instructional scores or if we only look at the graphical scores such as Cardew’s Treatise or observe the performance of Cage’s 4’33”, we are approaching these works with the apparatus of a music “listener”, judging the structural, aesthetic or gestural qualities in musical terms and evaluating them in comparison to other musical works. Definition of non-musical than, becomes rather complex and makes us reformulate the question by asking: in comparison to what musical aspect that we know of, is something non-musical?

Since the ancient times, music has been recognized for its essentially mimetic character. It is the representational quality of many of the musical works to bring by the mean of imitation, images from the outside world into musical domain. In classical music, this mimetic character is most often realized by alluding to certain emotional states or to the things and events from the world around us. Program music for example, takes the non-musical narrative and makes it the content of the work by translating it into musical language. It can be a story about a person, an event, or even a thing from everyday life, which the music illustrates with its own methods. Other genres as well, such as sacred music, opera and lied, are always based on the text which governs thematic material or the form of the piece. Accordingly, mimesis as the aesthetic principle, was always a way to direct the focus of our perception to something else than the pure musical (sounding) content.

Explaining the musical laws in non-musical ways, also describes the necessity of musical discourse for extra-musical terms. To define the rules of musical theory, even before the theory based on 12-tone tempered system, Pythagoreans used mathematical proportions in order to define the laws of musical intervals which were produced on a single string and that way, the essentially musical rules were represented with numerical names. Pythagoreans went even further, relating these musical proportions to the ones in the Universe, from which emerged the theory about “Harmony of the Spheres”.

From the listener’s perspective as well, we have faced the similar constraints. In order to describe musical properties of the work, we have always reached for non-musical expressions and these have remained the part of our musical discourse until today. We often say that the music is happy, sad, dark, calming. These words refer to emotions, colors and moods, and we use them in the context of everyday communication. Still, these appear as the most suitable words which make understandable the language that we use to communicate our thoughts about music with others. This problem of description, reveals music’s inherent indescribable character, which can be expressed in no other terms but non-musical ones. Peter Kivy regards this as an important issue in appreciation of music:

“Music is an intentional object of musical perception, and the broader and more detailed the descriptions under which we perceive the intentional object, the more elaborate and more interesting and more rewarding that intentional object will be.”

The aiming for extra-musical, reveals itself not only in relation of two abstract things of a different nature being two distance entities which are brought together by the use of metaphor, but also
when both musical and non-musical thing meet in the compromising point of sound, a sonority which depicts qualities of both of the things. This is the point of onomatopoetic imitation. Sounds of the world are meeting language in the point of music, and this scheme was a foundation for the works by many artists, most notably Letterists, Dadaists, Futurists and Sound poets. Exhaustively writes about this Allen S. Weiss in Varieties of Audio Mimesis, measuring the instances of auditory mimesis in relation to intertwined presence of soundscape and landscape (sound-sense and image-sense) in the production of musical meaning.10

From all the extra-musical occurrences which were mentioned so far, none has expanded the musical discourse more significantly and more thoroughly than the non-musical sound - noise. Once the line between musical sound and noise has been crossed, the external world in many possible forms, started inhabiting the field of Western art music which was for centuries reserved exclusively for the sounds of instruments and human voice. The line itself has various interpretations. In the broadest sense, “the border between music and noise is always culturally defined”11 according to Jean-Jacques Nattiez. It was the culture of classical instruments which first got into the shade of newly developed practices through which the noise was infiltrated into music. With inclusion of all sounds into music, the concept of musical instrument was highly disturbed, and even more with the appearance of phonograph and magnetic tape, instrument as a tool for the production of musical material, asked for a new definition.

Paralleling the characterization of noise as extra-musical sound, every object from the outside world which hasn’t been accepted already as a part of the extent musical practice, was considered extra-musical object too. The door to musical world, opened for everyday objects like for everyday sounds, with the aim to reduce the abstractness of music and bring the evidences of our own lives into musical world. Objects started to be used for preparation of instruments, as a playing tool, and the sound of the objects from our surrounding, became inspiration for many artists. With possibility for amplification of these sounds, a whole new field of works emerged, and the awareness of the listening possibilities grew. John Cage who dedicated most of his work to exploration of the extremely non-musical field and the acceptance of its musicality, said about this:

“I never stopped touching things, making them sound and re-sound, to discover what sounds they could produce. Wherever I went, I always listened to objects.”12

What signifies the starting point of my personal interest in a scope of this writing, is a moment when physical object with the primarily non-musical function, becomes visible in the work itself, and through various procedures that I will try to describe, acquires temporary or permanent musical function. What I consider by visible is not directly related to the sense of seeing but acknowledging its physical presence in any possible way. Also, what I consider by work is an intentional representation of any aspect of musical piece which composer wishes to reveal - wether it’s the sound, score, performance, compositional process, concept, or any of these interconnected. In the text that follows, I would like to observe composer’s relation to such an object in many of the mentioned aspects which are being reflected in one work, and trace its appearance in the frame of XX century and experimental music.
When we speak of corporeal, physical and tangible in relation to music, we refer to something which belongs outside of the musical realm, which is extraneous and opposed to it. For centuries, the main focus of music was pointed towards the sound and all the immaterial constructions which emerge from it - musical form and structure for example, acoustic properties, aesthetic qualities, meaning, etc. On the other hand, aiming for physicality in music appeared most noticeably at the beginning of the XX century, when the problematics of musical medium arose and new means of expression were utilized through bringing in the physical objects into music, other than the existing tools of expression such as orchestral instruments and human voice. These objects were brought into musical context from a different one, and their musical function was temporary, unless they would acquire status of an instrument through establishing a new and consistent performance practice known to both performer and composer.

It is the idea of ready-made which emerged at the beginning of XX century, that illustrates most successfully how an object external to art and an art work can merge into one, embodied into a physical form. It was a fertile ground of Dadaism that created the necessary conditions for the birth of this fusion. Through the development of collage and assemblage, the singularity of medium was shattered, which anticipated the total negation of the importance of medium, represented in found object. Even though such a revolution occurred in the art world at the beginning of the century, music followed only decades later, as it most often happens with the change of musical styles which are in asynchronous relation to other arts. In music, we can find the parallel to a technique of collage for example, further in the 1960’s, in the tape music of John Cage or sound cut-ups of Burroughs and Gysin, long preceded by visual arts and literature.
Encouraged by the avant-garde tendencies of the early XX century art, musical work was as well reaching for new interpretations, and in the work of Erik Satie it took the most original and unconventional shape at the time. Satie was questioning in a radical way functionality of music, and with the works such as Vexations, Furniture music, Parade and Gymnopédie among other, offered us different examples of what can be the “purpose” of music other than to express musical content, or how the ability of music to express anything at all can be diminished so that it doesn’t impose itself to the listener. In most of his works, Satie aimed towards demystification of composer’s musical and aesthetic intentions, and towards their simplification if not even trivialization. Incorporated in the element of absurd, Satie introduced in the sets of five pieces by the name Furniture music a thought that music can exist as a decoration to the existing everyday environment. This brought the idea of a strong relation of music to physical space but also to the idea of contextualisation of music by the means of space in which (everyday) human activities take place. Envisioned this way, Furniture music provided a way for musical sounds to literally step out of the concert hall into the context of a real life situations such as: lunch, marriage or arrival of guests, according to the titles of these pieces. Although not so drastic in its realization, the idea that music should become (literally) part of a human environment, was revolutionary. Influence of the concept on musical form, resulted in a birth of repetitiveness as the main structural process, which paved the way for minimalistic music which was to come decades after. Satie’s functional music, brought music into the context of everyday life, and thus closer to the domain of physical world of objects and space. By comparing a piece of music to a chair or a painting on a gallery wall, Satie points out the exceedingly passive nature of physical things, which he aims to incorporate into his music as well:

“This music, specially composed for Max Jacob’s play claims to make a contribution to life in the same way as a private conversation, a painting in a gallery, or the chair which you may or may not be seated. You will be trying it out.”

The characteristic of music not to move anywhere, this lack of development which was at the time very foreign to classical music, was pushed to the extremes in Vexations, where a single musical unit repeats for 840 time which takes more than 18 hours of playing for a piece to be performed in whole. However, composer’s intention was not to extend the span of listener’s attention, but even to minimize it to a level where the listening process has equivalent in the one of seeing a physical object, to make a closer analogy - in seeing a painting for example. This kind of exaggerated length of a piece, relates to the one of a physical space and not as much to that of time. Extending the piece in time through repetition, makes its presence in physical embodiment of sound, continuous and unchanged and therefore perceivable at any point in its entirety.

Another example of how Satie approached extra-musical objects in his work, can be seen on the example of his music for ballet Parade. Satie wrote the music on the scenario by Jean Cocteau, and the piece was performed in 1917 supported by the strong visual impact of cubist set design and costumes made by Picasso. Ballet’s unusual music contributed to the overall scandalous character that the piece left on its contemporaries, but without being as relevant as above mentioned pieces in conveying an original musical approach. Peculiarity of this music lies in the choice of medium. Music was composed for traditional orchestra with addition of objects such as typewriter machines, sirens, glass bottles, lottery wheels etc. These objects have been notated in the score together with other instruments, in the percussion part (meant to be played by a percussionist). Traditional notation was used, and no closer specifications of objects or the way of their playing was given. Satie used the objects in the way pieces of other mediums (materials) were used in assemblage - external object is brought into musical context to fulfill the musical function imposed by the form, which only brings additional, ornamental features to the work without influencing its structure.

Satie’s ideas and approach to music have echoed for a long time, and most famously in the work by John Cage, who took his ideas
is directly related to a visual medium (a film by Leger and Murphy). Antheil has brought the actual objects from everyday world into the work, and used them as musical instruments, along with percussions and real pianos. Those objects were airplane propellers, electric buzzers and sirens. All of these, work together to exemplify the extra-musical attributes of machinery in a musical way, and to bring the corporeality as a part of a bigger metaphor, represented through a piece as whole.

Not only that Antheil gave the idea of the performing process which is dehumanized, automatized and brought out by machines instead of musicians, he has also envisioned compositional process to a large extent, in physical terms. He compared the abstract, compositional space of a work to a canvas where musical events exist all at the same time. He acquired the freedom to “paint” musically on this canvas, with all kinds of musical sounds denying the hierarchy of musical sources, whether it is acoustic instruments or airplane propellers that the sound is coming from: "Music doesn’t exist all at once like a painting but it unrolls itself. Nevertheless, we must consider it in the terms of painting as something that exists all at once. In other words, time is our musical canvas, not the notes and timbres of the orchestra or the melodies and tunes or the tonal forms handed down to us by the great masters." 15

Unlike in the case of mentioned composers, Edgard Varese has incorporated physicality of extraneous world in his whole body of work, by setting the fundamentals of compositional approach and technique in relation to those invisible processes from the outside world, manifested on microscopic level in natural systems of things and beings, which exemplify a very specific detachment from musical abstraction. Varese’s aiming towards substantial in music has been reflected in many ways. He draws attention to many aspects of sound which have been overlooked by the composers before him. He points out to a new dimension of musical work where the formal attributes that music used to express mainly, have been replaced by the newly recognized, acoustic ones. One of his main interests as a composer was laying in rhythm, which was in his words the “holder of work” and

Further, but acknowledged Satie’s importance as initiator of one significantly new and original way of musical thinking. Satie’s influence has spread fast during his own time as well, especially in the circle of composers gather under the name “Les six”. In the light of my exploration of this topic, I would like to mention a piece which takes as a reference an object external to music which exemplifies strong physical qualities and is composed by the member of this group - it is Honegger’s Pacific 231 written in 1923.

Honegger wrote this piece in a form of Symphonic movement, using nothing but a traditional orchestral sound to depict with musical means (of rhythm, harmony, color, articulation etc.), the movement of a steam locomotive. What I find noteworthy, is the fact that the programmatic character which has been inherent to the works of this genre known also as symphonic poem, has been entirely and for the first time inspired by a powerful physical strength of a machine, expressed in the terms of sound by pulsating and accelerating rhythms and the forcefulness of sound which Honegger achieved by emphasizing the color of the brass section. Unlike with other program music where the object of representation is most often the narrative of some kind, in this case, it is being narrowed simply to a movement of a locomotive. This idea holds two things which inspired a great number of works of art at the beginning of the XX century and these are motion, as representation of general progress in a society followed by the industrial development, and machine as an exemplification of force and utmost power, being subscribed to the new coming technology which replaces the man.

These elements were also inspiration for George Antheil, who approached them in a different manner than Honegger, in a piece Ballet Mechanique from 1924. The concept of “mechanical” in this work, has been expressed through the use of percussive sounds and noise of the extra-musical objects and also through the repetition of rhythmical and melodic patterns, ostinatos and the mechanization of the performing process by the use of player pianos. To denote physicality which is widely present in this piece also due to the fact that the music...
that was started in the sixth century and built in purest Romanesque style. And I used to watch the old stone cutters, marveling at the precision with which they worked. They didn’t use cement, and every stone had to fit and balance with every other. So I was always in touch with things of stone and with decoration. All of this became an integral part of my thinking at a very early stage."

Varese’s music is also being brought into relation with architecture, and Poème électronique is being the most illustrative example of this. It is a fusion of musical and spatial aspects in one single work, that was brought out together by Varese and Corbusier, with sound attached to the space itself, speakers imbedded into the walls of Phillips Pavilion.

So far, on the given examples it was showed how the physical world intertwined with compositional practice. In some cases, it was employed simply as a coloristic effect used to intensify composer’s expressive palette (Parade, Pacific). In other cases, taking the references and drawing parallels with the outside world, composers’ fundamental understanding of what music is and what is its function, has changed (Furniture music, Ionisation). On the example of Antheil and Varese we have seen how the material world can inspire musical processes (automatization, crystallization). What remains common for all of the composers mentioned above, is their aiming towards the reality outside of the musical one which would help them change and expand their own, already established musical (compositional) practice. Further on, we will see how the interjection of the outside world into musical one, provoked emerging of a new musical practice.

INSTRUMENT a contrivance or apparatus for producing musical sounds.

New musical object

Luigi Russolo – Intonarumori

Many composers at the beginning of XX century, have brought physicality of external world into music in order to enforce its
for noise to become part of an art work:

“Noise immediately reminds us of life itself, making us think of the things that produce the noises that we are hearing. Noise to be art, must lose all traces of being a result or an effect connected to the causes that produce it.”21

The noises which inspired Russolo to build these instruments, were coming from the real-life situations. Being inspired by the war, Russolo wanted to approximate listening experience from the battlefield onto that one in a concert hall.22 He regarded noises in combat as extremely purposeful. It is a situation where one’s life is threatened and the ear stops being a tool for aesthetic judgment and becomes an active evaluator of danger. He applied this listening strategy in creation of the instruments, and this explains why noises of Intonarumori hold a high level of narrativity which can be traced also in the names of the noises that Russolo grouped into six “families” (Figure 4), which constitute the basic palette of the futurist orchestra.23

Italian Futurists believed in a less illustrative use of non-musical sounds than those composers who have been mentioned before. Futurists used noise in order to bring the outside world into the concert halls, and to approximate but not to imitate the sounds which fascinated them - sounds of machines, modern technology and war. For them, noise was a symbol of their ideologies, external object which was there to oppose hermetic academia of “well-made music” they have passionately fought against.20 The Futurists, direct and aggressive in their approach as they were, in order to incorporate noise into the body of classical music, have confronted a man, a musician, performer, with an actual machine.

Luigi Russolo has built in 1913 unconventional noise instruments called “Intonarumori”. They were based on a mechanical movement produced inside of the wooden box which was amplified with a metal speaker placed on front of it. Objects of various shapes and sizes were interconnected inside of this box into a controllable mechanism, and they were able to produce a continuous tone such as the one of sirens with changeable parameters, or the more textural sounds of clacking, clanging, knocking etc. They were controllable in a few different ways by the lever on top of the box (Figure 3). Sound was the result of interaction of objects, of working of a mechanism, and the process was hidden inside of the instrument’s body. This way, noise became abstract musical material. Origin of sound was to be related to the physical body of instrument and not to the context of a real-life situation. This, according to Russolo, was intentional and necessary in order
learn them and repeat in the same way with each performance, also meant developing of a performance practice. This is where Intonarumori unlike many other inventions of the past, get very close to other orchestral instruments – theoretical background preceded building of the instruments, the ways of their manipulation (playing technique) is defined and described, and they are integrated in the score. These machines – objects, instruments and sources of noise, were placed in line, evenly with traditional orchestral instruments. Pushing the conceptual borders of art and music, Futurists were the first ones to break the boundaries of music’s physical being.

Object and instrument

In the performance practice of classical music, for centuries there has been a very small and limited amount of physical objects which were used to mediate between performer and instrument in order to produce sound. Such is for example bow (used mostly with string instruments), mallets and sticks (used with percussion), plectrum (with guitar and harp mostly), etc. In order to modify the loudness and tone quality of brass and some wind instruments, sordinas (mutes) are used, and to expand instrument’s range, hornists and trombonists most often use extensions. Exchanging these conventional musical objects for other, extra-musical ones was done in order to get different coloristic effects and to produce unusual sound results.

Inserting objects into the body of instrument or physically changing the instrument’s properties, can lead towards modification of an existing instrument, or to the invention of a new one, while keeping some characteristics of the original. The furthermost point of the extension of instrument’s sounding possibilities where the conjunction of the instrument with extra-musical object stays temporary, is instrument’s preparation. By preparing the instrument, objects are placed among the strings, on top of the strings, or at any other place on the body of instrument. In this way, new sounds that are considered atypical for a particular instrument, can be produced, but they are only...
addition to the original set of sounds which can be obtained again by simply taking away these objects. In one work, composer can however decide to use only prepared tones, or to combine them with fundamental ones.

Although many composers from the beginning of the XX century have experimented with combinations of objects and traditional instruments, it was John Cage who has made the highest accomplishment of bringing prepared instrument (prepared piano) into the sphere of profound artistic expression. He has altered the function of original instrument and created a fusion in which physical objects borrowed from extraneous, everyday context, have the same weight as an instrument such as piano, being a subject of musical thought for centuries. The reason to observe and analyze this artificially created, mutable instrument in the light of Cage’s work, is made because no composer has ever incorporated this kind of instrument (prepared) into his compositional practice in the way Cage did. In his work, much of the formal compositional thinking as well as the aesthetic considerations have been elaborated in the prepared piano pieces, which in his opus by number and importance prevail over the pieces written for conventional instruments.

**PREPARATION** something prepared, manufactured, or compounded. The act or process of preparing.

**John Cage - Prepared piano**

Cage’s experiments with prepared piano started from a practical decision to exchange large number of percussion for the only instrument which was at his disposal when he was asked to write a piece for a dance performance called Bacchanale in 1940. The piece was planned to be performed in a small hall which did not have the capacity to accommodate large number of instruments that Cage has envisioned for this piece. He decided not to compromise with the idea, but rather with medium, and so he modified the sound of a piano in a way to match the original musical conception. By inserting objects of two different materials (metal, cloth) among the strings of a piano, vibrations were suspended and the timbre was changed so that the effect of resemblance with percussive instruments was achieved. Bacchenale lays a foundation for many other pieces Cage is going to write until he advances the preparation technique to a degree to compose as sophisticated work as Sonatas and Interludes for Prepared Piano, one of the very prominent pieces in his entire opus.

From Bacchanale to Sonatas and Interludes, methods of preparations were quite the similar. Notation of these pieces was traditional, except that at the beginning of the score there was a table of preparations, where the instructions for preparation were given (Figures 6, 7, 8). Each table included the following indications: tone - pitch on which the alteration should be made, material - saying what kind of object should be used for preparation, strings - telling where in
relation to the three strings of a single tone the preparation should be placed, and a distance from damper or bridge in inches.

We can follow through the scores chronologically, how Cage aimed toward expanding the possibilities of preparation by gradually increasing the type and number of different objects in use, and how he experimented with placement of objects along the strings (distance). With time, he was giving more and more detailed specifications of the kind of object which should be used for preparation.

If we take a look at an early piece for prepared piano such as Totem ancestors from 1943 (Figure 6), we will notice that the performer was given a choice between two objects for preparation of a note (e.g. in table of preparations under material it says: screw or bolt), while in Two pastorales from 1951 (Figure 8), objects are defined to the smallest detail (e.g. stove bolt flat head, oval head machine screw, canning rubber of a specific length etc.). We can also notice how the variety of objects has gradually increased - from fibrous material, screws and bolts, to coins, rubber and plastic (Figure 6, 7, 8). Effect of these preparations varies from piece to piece, and changes the border between piano and percussive instrument. The sound reveals characteristics of both and the same time. It is a fluctuation between definitions of two instruments which are embodied in a single form of a piano.

By using everyday objects to perform a piece of music, the listener’s ear is exposed to the unfamiliarity of sound as compared to the sound of instruments to which one is accustomed to. This “unfamiliarity” refers to the acoustic properties of an object and the ways of its musical manipulation and transformation. Whilst a listener could be familiar with the object as such (its original function), he/she might not be aware of all of its sounding possibilities since these weren’t established through the musical practice which would lead the listener’s attention towards the expected results.

In Cage’s work, preparations become inherent component of a work of art. Screws and bolts, pragmatic items with practical function used to keep together constructions of material reality, now became part of a complex metaphorical construction, mediators between abstract composer’s thought and the work presented to a listener by the medium of sound. Repeatedly using objects of relatively same kind, size and material and notating the way of their usage in the score with other musical significations, reveals Cage’s high awareness of objects and their musical function, and brings the importance of object to the level of any other musical content in the piece. The presence of these objects is obvious for a listener, but their original function is neutralized and hidden. Their purpose is shifted to a plane of material, and now they are taking part in awakening of emotional and intellectual responses in us while we listen to a piece of music. They are joined with piano to create a unique and new, temporal instrument. Being transferred into a musical context, insignificant physical objects gain musical properties and are able to participate in creation of musical meaning. This principle of giving significance to unimportant, meaningless and at last trivial, also reflects Cage’s artistic thought based on a denial of medium as such, and a belief in impermanency and variability of meaning.
Music and therefore of musical work and the way of listening (perceiving) it.

Musical work being presented in various inaudible ways, as in the case of graphical or textual scores where no performance is needed and there is no audibly realizable of the work, shifted the focus of perception to essentially different medium than the one of sound - to visual, (most often printed on a paper) where graphical signs and symbols are used to imply musical meaning. The situation where the sound exists only as a concept, brings the possibility to change completely the technology by which musical works are being produced. Such an example is Mo-No: Music to read by Dieter Schnebel which comes in the form of book, and is meant to be read in musical way:

"The reading of the book is intended to stimulate music in the listeners head...the text describes sounds which are only to be imagined, to be produced in the readers mind"\(^24\)

In this case, the work itself is an objects (a book), and although it has musical function, it doesn't reveal explicitly any musical qualities, except through the deconstructed symbols of musical notation (Figure 12). Musical activity alone is hidden and score as an artifact is a material proof of the work's existence elsewhere.

What I consider to be the utmost physicality of musical representation, is when the musical meaning of the work is represented through material occupation of physical space (through an object) which denoted a very few or none of the musical characteristics, but which generates musical meaning. In its representation, this kind of object doesn't presupposes sound as an expressive quality, but its
contribution to the meaning of work is musical anyway. This makes certain works radical, since in them contradictory semblances appear unified, most often by the rules of theory (concept).

This is especially visible in the Tape pieces by Yoko Ono, the most inaudible of all the silent pieces, where musical activity has been applied to a non-musical object by fictionally ascribing to this object musical attributes and thus creating a context of the work which is musical and it is contradictory to its representation. In the Stone piece from 1963, artist in a lyrical way highlights the incompatible aspects of physical and musical time of an object which is unaffected by any of the two. The score which says: “Take the sound of the stone aging”\textsuperscript{25}, points out to a musical aspect of the aging process that exists only on a conceptual level without any need or possibility to be realized in perceptible (audible) ways. However, this impossibility of manifestation through sound, in reality, is what is supposed to be captured paradoxically by the use of audio tape. In realization of the piece, musical quality of object is represented through its absence (“silence”). An object (a stone), is a source of musical activity, and musical function is attached to it as a suggestion, an idea, a concept. Through the superimposition of conceptual and material, fictional and extremely practical, inside of a musical context, beautiful poetic qualities of the work are revealed.

Another case of silencing\textsuperscript{26} of musical activity in musical representation, is when the object is of musical kind, and its physical appearance and not its function, is crucial for the representation of the work.

An example of it is another widely known and exploited piece in musical analysis 4’33” by John Cage, composed in 1952. In this piece, written “for any instrument or combination of instruments”, musical meaning existing on a conceptual and sensory edge of existence, is being confronted to a firmness of an object or a group of objects (musical instruments), in front of which performer(s) sit quietly, without playing a single note (Figure 9). Key aspect of this work is a performance, and Cage kept to the traditional infrastructure of performance in classical music - performer is on the stage, sitting with/ in front of the instrument, looking at the score without playing. This brings up the question: since the performer is not engaged into the expected act of playing the instrument (and this is where the weight of the work is), why than when persuading his ascetic approach of eliminating sufficient musical facts from this piece, Cage hold so much to the conventional framework and included the instrument as a part of musical representation? The fact that an instrument is standing on a stage doesn’t directly influence musical meaning - the ”silence” of the work would exist wether the instrument is present or not, but what is being emphasized by keeping the instrument there, is the context of a very conventional musical performance where the audience sits quietly, respecting the norms of a concert behavior, and waits for the performer to start playing. Inside of this context, our listening attention is manipulated by the rule of expectation, towards the sound which was supposed to be played on an instrument, but now occurs only after the actual performance is being silenced. It is the performance setting, the one which is echoing in three movements of the piece! And it rests on the presence of score, instrument, performer and audience. Corporeality of representation expressed through inactivity of performance (performer) and an instrument, are means of exemplifying the opposite - immaterial latitude of sound.

Another example which even more strongly highlights the meaning of the work by using musical instrument as a primary mean of expression with its physical and not necessarily musical characteristics, is Homogenous infiltration for the piano by Joseph Beuys, made in 1966. What is interesting to observe in this work, are the rules by which an object coming from musical tradition (piano) exists inside of a non-musical work. We will see how a musical instrument becomes just an (extra-musical) object which serves the work with its sculptural values of a three dimensional object and its suppressed musical function.

A piano wrapped in felt is exhibited in a gallery space (Figure 10). No score exists and there is no performer or even the stage. Unlike in the previous case of Cage’s 4’33”, there is no contextualisation of
work by the use of musical instrument. Beuys’s artistic intervention is musical (since it is directed towards eliminating the possibility of sound), only the message it delivers is a metaphor for something else than itself, and this puts the work into a wider artistic context than the musical one. The instrument here serves to convey non-musical meaning as its musical quality has been suppressed. Musical object (piano) has been muted by the use of felt, and turned into a non-musical, symbolic object. I would say that Beuys uses this activity as a metaphor for taking away of the essential quality of a thing - and that is its health. This example shows how objects such as classical instruments, can have imbedded musical meaning into their physical form, even if devoid of any musical function. This soundless condition gives possibility to musical objects to become extra-musical, and by only indicating musical meaning, they can metaphorically represent something else but the musical content. Therefore, such a physical object becomes a musical symbol, and stops being an instrument. It is the reversed situation than in the silent pieces by Yoko Ono, where objects aim towards musicality in order to achieve musical autonomy. 

It is by no wonder that the discourse spreads here from musical onto other arts, borrowing the terminology and mechanisms of perception and understanding of work, from other art forms. Once the artistic medium was reduced to a physical object free from accustomed signification and open for various new interpretations and purposes which could be assigned to it, division between arts became less evident. Art form wasn’t defined in relation to a medium anymore, but in relation to artistic intention. This issue brought many artists and art theorists in the late 50’s and early 60’s to the area where artistic forms were blended together and new hybrids were generated, most noticeably under the label of Fluxus, Conceptual and Pop art, all of them being driven by the idea that the line between things such as artwork and everyday object or everyday situation, or between one form of art and another and finally between art and life, is insubstantial and invisible and therefore independent of physical reality. This also lead to blurring of the line between musical and non-musical, since the musicality was not defined through the medium anymore, but through a conceptual framework of a piece.

Questioning these topics, Dick Higgins summarized some of the key problems regarding the representation in art, in his writing Synesthesia and Intersenses: Intermedia from 1965, and at the same time he coined the term “intermedia”, which actually keeps the focus on this fluctuating spot where the arts merge into each other, bypassed by the terms such as mixed-media or multi-media. In this writing27, Higgins examines the mixtures in art through the newly emerged forms of happening, sound poetry, concrete poetry and performance art. He also makes an intriguing observation on readymades, marking them as the finest example of media which fall in the space between art and life, with a possibility of being both “art-media” and “life-media”. In his opinion, music can blend with philosophy as in the work of Cage, or it combines with sculpture, Joe Jones works being mentioned as an example of this. To a physical object, he refers specifically when talking about visual arts and the “combines” of Rauschenberg and Oldenburg, describing the objects that they use to extend the medium of painting as incongruous, this attribute being able to apply to the general strategy of Fluxus artists.

Fluxus artists have raised the questions of medium, work and finally of artistic value, by relating the elements of work by the means of conflict. When George Maciunas writes in one of his event scores Solo for violin that after playing an old classic, the violin should be mistreated by scratching the floor with it, by confronting an actual piece of music to the abuse of the instrument which is now reduced to a bare physical object, he aims to demystify the practice of musical performance by showing the contradictory treatment of musical instrument in two traditions (classical and contemporary) together. The mistreatment of object is intentional and obvious in many works of Fluxus artists, and very often this object is a musical instrument whose primary function has been eliminated by aggressive intervention in order to damage but not completely destroy the musical context which inherently relates to an instrument.
The revolutionary character of many works of art from the 60’s and 70’s, has brought music as an art form, from the field of strictly audible, into the realm of three dimensional, visible and tangible. As the audible field has widened with inclusion of all sounds into music, the growth of the music’s material body followed. Musical instruments and musical form, lost the dominance in musical representation of the work, and this neutralizing of musical practice on a global scale, has brought music into the discourse of other arts, where by borrowing the tools and method from non-musical field, physicality of music became focus of many works, artists and new artistic genres which emerged, sound art being an example of it.

Objects: typewriter machines, sirens, glass bottles, lottery wheels, airplane propellers, electric buzzers, bow, mallets, sticks, sordinas, trombone extensions, screw, bolt, canning rubber, coins, stone, vessel
Experimental music and sound art have embraced into their musical practice more than any other musical genre, the use of objects other than musical instruments for the production of musical content. Many artists use objects to play with them in live performance, others use them to sample the sounds and make compositions out of them, and some build their own objects which can perform various musical functions in the context of exhibition or a concert. Inside of the mentioned genres, nowadays there exist much more musical objects than definitions and names we can give to them. The same way the noise has entered music as non-musical sound and introduced the idea that every sound and the silence too, can become musical, objects have erased the thick line between musical and non-musical object with the same intention to prove that any object can become musical too. When the sovereignty of existing instruments was shattered, this influenced the stability of the musical medium. Opposite to composers of the past who never had to question the use of orchestral instruments in their compositions as there was no better alternatives to them, each artist today defines him/herself through the choice and definition of a medium that he/she uses in the representation or creation of the work. And sometimes, this decision itself becomes the work.

It is the nature of every object in our environment, to have a purpose. Although this purpose is most often assigned to them by their creation and according to the long-term practice of use, any object like any sound, can become transformed from its original use and put inside of another context. Jean Baudrillard in Systems of objects, says about this:

“For all their multiplicity, objects are generally isolated as to their function, and it is the user who is responsible, as his needs dictate for their coexistence in a functional context.”

In the classification of objects that follows, my aim was to group the objects which are being used in experimental music and sound art, according to their dominant characteristic that manifests itself in the production of musical meaning. In some cases, it is the origin of the object which is the most relevant, in others it is the
everyday object and “keeps it from collapsing into the real object”\(^{29}\) is invisible to the eye, and that is the theoretical discourse of art. The same goes for musical object, which becomes of found object by crossing the invisible line of musical and non-musical. Observing the found objects in music through Danto’s theory about “opposites”\(^{30}\), a question rises about each of these objects - if they are essentially non-musical and there is awareness that they are opposite to certain musical qualities in a work, what part of what we consider by “musical”, do they oppose to?

Since there is no persistent musical practice which relates to found objects in general, no known set of exact sounding possibilities or the ways of getting them, we can say that in this, they contradict the existing musical instruments whose primary function is musical. Original purpose of found objects is never musical in the first place. Sound is not inherent quality of any physical object, and if the sound or any allusion to it would have any importance in representation that the object serves, it would be the result of an artistic intervention and therefore the original state of object would be changed. That intervention can be practical or conceptual, and it can make an object a musical object.

I differ two most common approaches in treatment of found object, and these are: the use of it in combination with instrument (as a preparation and/or a playing tool), and the use of found object in interaction with another object. Both of them work towards the sound as a final outcome, and both presuppose interaction with another object (or else how would the sound be possible?). Difference is that in the first case, existing instrument is a main subject of the sounding result and in the second, it is the found object itself.

**Found objects in use with musical instruments**

Although instrument preparations are common in classical (contemporary) music and they have emerged from this genre, the most significant variety of objects can be found in the field of free im-
provisation. It is in a way characteristic of this genre that no predefined rules apply to music in any way (not to formal, aesthetic or acoustic qualities), or to the sound sources which musicians choose to use in improvisation. However, performers most often decide in advance on a certain assortment of playing tools that will be at their disposal while performing. Very often, the focus of free improvisation can be acoustic exploration of the sound field which emerges from a chosen playing setup, in interaction with other musicians or by a single artist.

It has been a common practice now to improvise on existing instruments with many different objects which are used to modify the way instrument performs, or to play the instrument by using them. Sound spectra of such an instrument can become expanded or modified to the extent that it becomes very much abstract from its physical form and incomparable to the original sound set of the instrument.

Piano is one of the instruments used very often in free improvisation in the most unconventional ways. The openness of its inner structure allows it to be easily approached with both hands and played with many different objects, using them to excite the strings without the use of keys. This technique is known by the name of string-piano or inside-piano. We can trace its origin in the work of Henry Cowell, but since then, countless musicians have developed their own version of it.

Musicians are often using different types of sticks or batons to play on the piano strings, like on percussive instruments. It is no rare to put on top of the sticks rubber balls or any kind of felt (the kind of felt used on percussion mallets), in order to achieve a specific sound color. Anything like a plectrum can be used in order to pluck the strings or play glissando over them - guitar picks, coins or similar. Piano strings can be damped with the use of objects such as paper, cloth or plates made of plastic or wood. Some musicians even use the plastic CD covers, placing them on top of the strings to get a short, distorted, percussive tone.

Very unusual example of the inside-piano technique, has been developed by a German artist Andrea Neumann. Her focus is strictly on the “inside” mechanics of the piano, and a version of it has been custom - made just for her, consisting of a frame with strings only and no keys nor pedals (Figure 13). It is also of a smaller scale than the regular piano and without a cover, so this allows easier manipulation and insertion of objects.

Although this technique was known from before, the bowed piano (Figure 14) is an interesting technique developed by Stephen Scott. His bowed piano is famous for gathering ensemble of musicians around the instrument to play it. Horsehair twine is wrapped around piano string and the player is holding each end in one hand and pulling it to one side than another. This produces a continual tone which is otherwise impossible to get on a piano. This can be done with the strings from regular bow, but also can be achieved with a string of another instrument (guitar, cello, etc.). The same effect (of a continuous tone) can be achieved on a guitar, by using a more unusual object and

Fig. 13. Andrea Neu- mann’s piano frame

Fig. 14. The Bowed Piano Ensemble by Stephen Scott
utensils which Stokhausen called “implements”. Unlike preparations, implements are tool for playing, and in a way they are extension of a performing technique and not so much extension of an instrument. In this piece by Stockhausen, two performers are playing on tam-tam with objects (one performer on each side), while the other two are holding the microphones in order to pick up the sounds from various distances in relation to the instrument. Two members of the ensemble are sitting in the audience and adjusting the band-pass filters and potentiometers to control timbre, pitch, dynamic level and spatial characteristics. The process is controlled with the use of score. It is a live exploration of the sound field made of amplified and processed sounds of objects, in which tam-tam acts as a large resonator, enabling other sounds to exist in relation to it. Objects in use are chosen according to the sound characteristics implied by the words which are describing the moments which are the structural elements of the piece. Material, form and size of objects can vary, but it is suggested that these are the household implements. The way of their usage is also to be derived from the 33 words such as crackling, squeaking, scratching, whistling, clanging, rubbing, plucking, etc. Only objects indicated in the score to be used, are cardboard buckets or postal dispatch tubes which should be continuously drawn over tam-tam’s surface, strings of cello or piano, viola or mandolin, which are supposed to be played with a bow or plectrum and wine glasses. Tam-tam was used in this piece, because it showed to be very practical and personally interesting for Stockhausen at the time, but it could have been replaced with anything else as well:

“Someone said, must it be a tam-tam? I said no, I can imagine the score being used to examine an old Volkswagen musically, to go inside the old thing and bang it and scratch it and do all sorts of things to it, and play Microphonie I using the microphone.”

This piece was considered to be a model for live experimental music where different kinds of objects are used in a performance, and this method has been developed further and used widely in the live performances today.
there are the sounds from our everyday life that we always relate to a particular function of an object, such as the sound of adhesive tape being taped off from something or the sound of a bottle opening for example. These sounds tell us more about the original purpose of an object and from that we can conclude what that object is.

Literally playing (in a musical way) with the meaning of objects, did Matthew Herbert when he introduced object sounds into mainstream culture and popular music in the late 90’s. He would take the sounds we are familiar with – of chewing an apple, sounds of a pepper pot or a graffiti spray, or he would even sample as many sounds as possible from McDonalds and make the melodies and beats out of it. Not only the music would be danceable, but it would be followed by a meaning which is otherwise impossible to arise from the sounds of musical instruments or electronic sounds, and that is a depiction of our everyday activities through the sound. This way, Matthew Herbert provided through music an original and highly imaginative critique of contemporary culture and consumer society at the same time encouraging highly musical qualities of the objects’ sounding potential.

**Found object as musical sculpture**

As I mentioned before, sounds of objects that we are familiar with, can provide us with a meaning - they can tell us something about the object we already knew from before. This existing meaning can as well be replaced with a new one one, more subjective and of aesthetic nature. With artistic intervention, an object from the outside world can be ascribed a musical meaning other than the one we naturally relate to that object.

Found object becomes musical sculpture if its function has become to serve musical purpose which is the main subject of the work. As we have seen before, the actual manifestation of sound, allusion to it or complete absence of sound, are the ways of musical representation, and as such they can be applied with artistic intervention to a physical object which hence becomes musical sculpture.
An illustrative example of this is a work by Rolf Julius who had contemplated in most of his work on the relation between visible and audible by combining the objects such as stones and paper, with musical artifacts (speakers) with or without sound (Figure 16). His sculptures do not sonify any of the physical/functional properties of an object, but create fictional construction where the sound (or allusion to sound) and an object, as two separate entities, are brought together under the frame of a single work which depicts essentially musical qualities. Julius gives his musical interpretation of object’s physical qualities and he is mostly concerned with the object’s surface which expresses detailed physicality of an object. He is creating a correlative representation of it with sound which he usually plays through loudspeakers without enclosure, leaving the bare wires and the construction of speaker visible. In his pieces with stones and other found objects, it is obvious how he wants to re-create the hidden nature of objects and create profound symbolic meaning by giving his subjective interpretation of object through sound by making the stones to act as sources of this sound. This is a kind of conceptual listening which we can also recognize in the “Stone piece” by Yoko Ono in the way it was mentioned before.

Not all the found objects have necessarily practical purpose. Metal wires and plates, parts of old mechanisms, pieces of plastic and remainings of objects, belong to what it would be considered a waste - something unneeded and useless. These materials are a great inspiration for many sound artist and experimental musicians. Sound artist Mark Applebaum uses extensively this kind of material to build his innumerable sound sculptures which celebrated him as a sound artist and a composer. He also uses these sculptures to play with them like with instruments. Here is a description by the artist himself which provides a detailed overview of the objects that he used to build his first sound sculpture (Figure 17):

“The mousetrap is an electro-acoustic percussion contraption, a musical Frankenstein built out of assorted junk and found objects—threaded rods, nails, wire strings stretched through pulleys and turnbuckles, plastic combs, bronze braising rod blow-torched and twisted, doorstops, shoe horns, ratchets, squeaky steel caster wheels, springs, lead and PVC pipe, corrugated copper gas tubing, toilet tank flotation bulbs, Astroturf, parts from a Volvo gearbox, a metal Schwinn bicycle logo, and mousetraps. These disparate elements are mounted on a soundboard and, assisted by contact pickups, amplified through speakers.”

Deriving from these examples, I can conclude that the found object becomes either a part of, or as a whole - musical sculpture, if it contributes to a piece with its physicality which represents certain musical qualities, or which can practically serve musical purpose by being the source of sound. This object can also be mute and still be
a musical sculpture, if the meaning it expresses is musical. We have seen how this works on the examples of Cage’s and Beuys’s work in the section “Object per se - autonomy of extra - musical object”.

Cracked object

From the moment composers and performers started the intensified exploration and transformation of the medium, that has also been the moment when their musical practice acquired much more practical connotation. Inserting the objects among the instrument’s strings and influencing the many ways how existing instruments work in order to be used in a performance or installation after, necessitated the understanding of the actual technology of what is being used for playing. This approach to music, triggered the development of a whole new area of musical practice, especially with the appearance of new media and new technologies. It became not so unusual anymore in the practice of experimental music, that the performers know to a closest detail how their instrument works, and to be able to alter it in various ways in order to get to a wellspring of new sound results. Musicians would take their instrument or any other musical object, often take it apart and than reconnect the parts in another way, causing the object to work in unpredicted way. To decompose or degrade object to a certain degree, appeared to be source of new sounding and aesthetic possibilities. This “point of rupture or a place of chance occurrence, where unique events take place that are ripe for exploitation towards new creative possibilities”\(^{18}\), was defined as “the crack” by Caleb Kelly, who has made his exhaustive exploration on the subject of modification of existing audio technologies, in the book Cracked media. He differs different stages of modification of media/object in music: temporary change which allows the media to be brought back to its original state after the modification (impermanent crack), irreversible change which harms the original quality of media after which, in its original use the effect of the crack will remain recognizable (permanent crack) and permanent change by which the media is destroyed without possibility of being used for its original purpose (damage)\(^{41}\). Cracked musical object suggests the process of re-defining an object which was previously built. Its name informs us about the process of modification that the musical object has went through, and not so much of the quality or function of that object. Most of the music techniques from the past which were related to the incorporation of non musical objects into musical practice, were based on the use of simple everyday objects which were easily available, cheap to buy or even free. As it was said before, Cage has made his first prepared piano because they couldn’t afford a concert hall with that many percussion, and he has prepared the piano with objects such as screws and bolts, available in any household. In the same way Milan Knizak (Figure 18), has made his records - being bored with a few vinyls he could afford at the time, he started searching for a way to get more interesting and unexpected results from what he had.\(^6\) This aesthetic quality, cracked objects have preserved until today - even the finest cracked objects are most often affected by this “second-hand” aesthetic, considering the way they are constructed and also the way they work - the sound that they produce. We will hardly ever say for a cracked object that it is sophisticated or elegant because there is always a bit of imperfection and the sense of unrefined, in making the things work the way they shouldn’t.
Cracked musical object can be made by direct (physical) manipulation on the found object, but the technique of creating it can as well be more complex if the musical object consists of electronic parts. Such a technique has been developed by many practitioners of noise music and it is often known as circuit-bending.

Circuit-bending means re-wiring of the existing electronic circuit in order to get new and unpredicted sound results. Just like with any cracked musical object, sound or musical meaning is a result of incorrect use of that object. Therefore, the more functional possibilities an object has, the more are the options for circuit-bending. Many electronic devices can be “bent”, but very common, musical toys are being used (Figure 19). They have many qualities that make them perfect for breaking and transforming into noise instruments - from all the electronic devices, they are often the most affordable ones, there is a large number of their original functions can be changed into the same number or even more of new functions, the electronics are easy to approach due to simple construction of toys, they use small power so playing with electronic circuit board is not as dangerous as with some other electronic devices and also they are mostly of a small size which makes them easy to carry around to live performances and often a couple of them. This kind of cracked musical object is used mostly in 8-bit music and chiptune genres. They are often being used along with other custom-made electronic instruments and/or Gameboy and

Nintendo devices which use cartridges with music software. All these objects along with circuit-bent musical toys are related by the same field they are coming from, and that is the field of games, from where the general aesthetics of these genres comes from.

While symbolic musical object has as a goal ascribing to object a meaning that is not directly related to the object’s function, creating of the cracked object involves mainly changing the object’s functional possibilities.

The approach which accompanies making of cracked musical objects, has emphasized the fact that each object after modification becomes very much personalized. Beside the autobiographical dimension which Caleb Kelly mentions deriving from Paul DeMarinis examinations of early phonograph recordings, where he says that the records themselves become autobiographical with the scratches imbedded into them after years of usage43, I would say that cracked objects also carry the information about the person who created them, revealing his/her own aesthetic preferences and practical mastery in the transformation of that object. It is another kind of autobiographical dimension of cracked musical objects, which becomes personal to the extent that paradoxically, makes the object loose its individuality in the multitude of other objects made in the same way.

Fig. 19. Adding knobs and switches to control the circuit-bent musical toy.
Symbolic object

"Behind every real object, there is a dream object.”
J. Baudrillard

To create symbolic object which exists inside of a musical context, means to re-define physical object on a conceptual level, rather than on practical as it was case with cracked object. Such an object is founded on arbitrary meaning of physical object alone which can be altered in many directions. This allows artist, by the use of metaphor, to arrive to a meaning of work which is often distant from its physical representation. According to Nelson Goodman, such a metaphorical relation always implies conflict - object refers to something it doesn’t express literally.” Metaphor bridges the gap between representation and meaning, pointing away from the physicality of the work towards the idea. In the case of the furthest departure of physical object from meaning, object becomes symbol of an invented, artificial property of that object. This strategy closely approaches the absurd, and we can notice it in many works by Fluxus artists. Such is for example Joe Jones Radio for the deaf (Figure 21). Denying the original (musical) purpose of an object, artist subscribes to it another more conceptual meaning while preserving the musical qualities of the work by using the musical artifact (radio) as the only mean of representation. On a more symbolic level, function the records made of ice by

of a real record with the music of Chopin and Bach among other, and while playing it on a toy record player, music can be heard together with many noises of the ice surface, until the record completely melts down. It makes the listening of a musical piece unique and in a poetic way it stimulates our appreciation for everything that we listen to by pointing out to impermanence of the medium. These records therefore, function musically but provide the work with a strong symbolic meaning.

Symbolic musical object can be used as an art object which is to be exhibited in a gallery or in a similar context, but very often it can be treated as unique or serial product with a monetary value which is in a confusing relation to the object’s aesthetic worth (if one influences another, does that mean that aesthetic value can be expressed through the monetary value and vice versa?). This way, musical object through its symbolic function, makes it possible for music to become a commodity (Figure 20).

Symbolic object can become from (aesthetic) transformation of found object (Example 1), of a musical object (Example 2) or of an object which is autonomous (musical sculpture with symbolic meaning, such in the case of Rolf Julius which was mentioned before).
while walking along its length. This produces harmonics of a specific quality, and Fullman’s interest is in expanding and exploring of the acoustic field of the instrument, in order to compose the music out of it.

In Tanaka’s and Toeplitz’s work, performing element is of a minor significance than in Fullman’s. Moreover, this network based interactive sound installation is meant to be used by the gallery visitors who don’t necessarily have a pre-knowledge about the ways it should be used and who don’t need to have any musical background at all. It is enough to touch the wire, causing it to vibrate. The wire is at one end connected to the ground in the installation space, and on the other end to a network where the sound in software realizes through synthesis, and this means that the user’s input doesn’t directly influences the sound quality. Network to which the wire is attached, acts as a resonating body of the instrument. Vibrations from the wire are translated into digital signal which is now able to be transported to any place in the world where the other wires are placed, and over the network to reproduce a sound made by triggering the string at other remote places of the installation. This project deals with the idea that with a use of string that “spans the world”\(^46\), people are united at different places on planet, in a collaborative musical activity.

While Fullman has used metal wire as an object to develop a whole new performing practice around it with a stronger musical focus, Tanaka and Toeplitz are encouraging simplification of the performance so that it becomes accessible to a wider audience and at the same time emphasizing metaphorical meaning of the work. Both projects start from a found object (a metal wire stretched in a large space) but they developed it into two different directions. Although both Global string and LSI are instruments - musical objects with strong functional value made to be played, main objectives of these works don’t belong to a same domain, and are not utilized by the same methods. Tanaka’s and Toeplitz’s aim is to pursue symbolic meaning of a networked performance, a utopian thought that with the use of modern technology, music can bring people together and bridge the distance between them. Fullman’s discourse belongs to a more confined field of experi-

Example 1

By comparing the two works by different artists, where the same material is used in different musical (artistic) purposes, we will see what kind of intervention is needed to re-define an object from found to symbolic, and what intervention makes found object a sculpture and what makes it an instrument.

In both of the works, a very long metal wire (string) is being used as the main constructive element and the central part of the work. In the piece Global string (Figure 23) by Atau Tanaka and Kasper Toeplitz, there is one wire at one installation place, but installation places can be many (in different cities, countries, etc.) Ellen Fullman’s LSI (Long string instrument) (Figure 24) comprises of many strings, and they are all installed in a single space. Both of the works require a performer who will play on the string/strings, and both of them can include more than one person in the performance.

Fullman in her work which she has been developing since 1980\(^45\), explores the acoustic qualities of LSI with the use of performative methods. While she develops the technical aspects of it, she also performs and composes. She provides performer with the graphical scores containing musical information and explanations for them how and where to move in order to produce sounds on the strings. The one who is playing the LSI, touches the strings with a rosin-coated fingers and

Fig. 23. (left) Atau Tanaka and Kasper Toeplitz Global string, 1999

Fig. 24. (right) Ellen Fullman playing Long string instrument

Musical Object

Fig. 23. (left) Atau Tanaka and Kasper Toeplitz Global string, 1999

Fig. 24. (right) Ellen Fullman playing Long string instrument

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mental music and underlines experiential qualities of the work – its acoustic and formal musical qualities as well as performative aspects.

Although found objects can become symbolic musical objects, not all symbolic objects are made of found ones. The following example demonstrates this.

Example 2

In the project Sheer frost orchestra, sound artist and composer Marina Rosenfeld uses electric guitar as an object with a strong cultural meaning, to perform an aleatoric musical piece through controlled improvisation of a group of 17 female performers. Guitar is played with the bottles of nail polish while laying horizontally on the ground – something performers do often in live improvisation, for this allows easier manipulation with different objects on the strings of the instrument (Figure 25). Performers play following the graphic score that Rosenfeld provides to them in advance. Performers are always and strictly women and non-professional musicians. They are being introduced to the piece, to the playing techniques and rules of reading the score, a little before the performance, most often in a workshop which precedes the concert. As being said by the composer, the emphasis is more on the participatory character of the piece than on the musicianship. On the other hand, the way of playing (musical content) draws obvious influences from the field of experimental music/live improvisation. What puts this work into a wider artistic context is its symbolic meaning beside a musical one. Musical object which is used to carry out musical content of this piece, is a prepared instrument which together with the utensils that are being used for playing, in addition to its practical function, serves as a symbol. It is no accident that electric guitar is used, and not one but 17 of them, since it is wrapped as well as the nail polish, into the aura of popular culture, placing the piece in a wider cultural context. Rosenfeld decomposes the practice of experimental music performance to achieve the metaphoric quality of its visual representation. Nail polish bottles in combination with electric guitar are used for the production of a musical meaning but at the same time for delivering of a symbolic message of the whole work. It follows from this that the musical objects which are used, are symbolic musical objects. With the use of them, in my opinion, Sheer Frost Orchestra on a more global level, delivers the idea of emancipation of women in experimental music.

Sculpture

Term “sound sculpture” has been used in experimental music and sound art, to define both the works which function through embodiment of physical and acoustic space in the scope of one work, as well as the other works where the sculptural qualities have been expressed only through sound. There are also many other definitions which combine the musical vocabulary with that of a sculpture as craft where the work is defined firstly through a sculpture-object based on materials and shapes with sound as a complementary element, or other definitions which focus on synaesthetic quality of sound objects where physical and sound mediums blend in different ways.

From the perspective of my examination of this topic which is primarily concerned with physical objects and their musical use in a wider sense (as not dependent on sound), I consider the minimal condition for musical object to be a sculpture, is to physically occupy a three
dimensional space and to be itself, as a whole, generator of musical meaning. This meaning can be expressed through sound, allusion to sound, expression of musical form in any way, or by the use of musical/sound artifact as a mean of representation. Therefore, main characteristic of musical object as sculpture is its autonomy and completeness. Its purpose is always and only, both musical and aesthetic.

Sculpture as musical object, can be created out of found object (as Mark Applebaum’s sculptures), it can become by modification of an existing object (cracked object as autonomous work) or it can be built. Sculpture can at the same time fall into different categories, and also of the one of symbolic object which was mentioned before. Joe Jones Radio for the deaf, is an example of musical object which functions as a sculpture, made of found object with symbolic meaning, hence being at the same time: found object, symbolic object and a sculpture.

Observing through the perspective of Baudrillard system of objects, musical object as sculpture, belongs to a non-functional system of marginal objects. It is such, its main characteristic is to be possessed and to be put in use. The use is in this case of musical and therefore of aesthetic kind. Specific example of such an object is Buddha Machine (Figure 26) designed by Zhang Jian and Christian Virant, described as “beautifully useless” by the New York Times magazine.

Although manufactured and serial object, Buddha Machine also falls into the category of dysfunctional system of objects, being purposeless and subjectively functional the same way the gadgets are. Consequently, the same applies to Buddha Machine as to the sound sculptures by Jean Tinguely, as described by Baudrillard - the peculiarity of its mechanism is a purpose on its own which allows no practical use, but only aesthetic appreciation for it.

Possibility of possession also brings object in close relation to the subject, and beside the purely aesthetic appreciation, there exists according to Baudrillard, a possibility for a more personal relationship with object manifested through passion, habitual use, need to control etc. I believe that the last one when applied to sculpture as musical object, plays a significant role, explaining how we aim to demystify the abstractness of musical form by stripping it to a bare object, in order to have power over it. Music being the timeliest of all arts, at the furthest degree, having the power over it means being in control of (musical) time.

Toy

Of all the musical objects that I have mentioned so far, toy is the least functional one, being devoid of any practical purpose but also of artistic one. It can have many other purposes though, and they...
always contain the factor of amusement, enjoyment and fun. It uses musical meaning to engage user in a play-like activity or to produce immediate effect of pleasure and joy, not rarely even - laugh.

If having any form of automatism as its principal function, than they correspond to gadgets in Baudrillard’s system, which I have mentioned before. We play with them for a pure pleasure of playing. Why else would we use the Sound Machine (Figure 27) and listen to the sounds of hands clapping, glass breaking or a fire-gun shooting? These cartoonish sound effects, match with the icons above the buttons which play them. They are meaningful to us, and just recognizing how they correspond to a depiction in icons engraved on the box, is amusing (this is applied frequently in children’s musical toys where the sound of an animal corresponds to the image of it). The sounds of the Sound Machine are loud and there are no possibilities to control anything but to simply play them as they are - through a single speaker of a poor quality. Therefore, Sound Machine is useless for anything else but that for a brief moment, make an everyday life situation a scene from a funny movie or a cartoon. And that is the joy and purpose of using it.

When it comes to aesthetics of musical toys, most of the attention is dedicated to their physical form and design and not so much to the quality of sound. Moreover, what is the characteristic of them, if not something they are famous for, is their essentially imperfect, “lo-fi” sound quality. This inspires the use of musical toys in 8-bit and chiptune music genres. Musicians use them in live performance and even more often, they use them circuit-bent - modified to produce a different musical result than the one they are being made for (see the Cracked object section). From this also follows that the most frequent modification of a toy as a musical object is into cracked object.

Emphasis of a toy can also be on a more complex musical function. Without being skillful sound designers or musicians, users can with a use of musical toy, effortlessly make various sound and musical manipulations (Figure 28). This allows people without any musical background or musical skills, to deal in an engaging way, with musical form - something which was for long reserved only for musical experts such as composer, performers, conductors, etc. We can regard this as one of the essential qualities of musical toys - to increase the engaging experience by simplifying musical technique and making it more accessible to everyone - from professional musicians to very young children and people without any musical background. Following example demonstrates this.

We are observing two musical objects (Figure 29). Both of them use the principle of human conductivity to produce sound. Object on the left is an instrument invented in the STEIM laboratory in the 1970’s by the influential musician, famous for his works in the field of music and new technology - Michel Waisvisz. This sophisticated little instrument produces small noises on the speaker imbedded in the wooden box, when the user touches the metal plates with fingers and by using his/ her own body to create the electronic circuit. Different
combinations of plates, give different sound results. Working in the similar way and having a different physical appearance, Ningen Gakki (Figure 29, on the right) uses human conductivity to produce musical meaning (sounds of instruments or even the whole songs) while being used by two, three or four people at the same time. Each person holds one conductive patch and by clapping hands with each other, the circuit is closed and the sound of one of many preloaded instruments is being produced. User can be touching another person’s cheek, and each touch would be producing the note of a song, or if more than two users are included in a play, one person’s hand can be the sound of hi-hat, another one’s of a bass drum etc. This is done undoubtedly for the purpose of amusement and fun, and it allows user to chose among many musical possibilities. Contrary to that, Crackle box is a minimalistic noise instrument and the abstract sounds can be employed in creation of musical meaning only by a knowing musician, and therefore it is a precious object reserved for a small group of people. Opposite to that, functionality of Ningen Gakki and its more engaging way of use, bring this musical object into the sphere of everyday life and consumer culture.

To summarize, musical object is considered a toy when its purpose is not aesthetic nor musical, but its purpose is play. However, its function is primarily musical but the way of use is simplified and undemanding, therefore highly engaging and without requirements for any musical knowledge or skills. This brings musical toy and along with it, musical activities, into the domain of everyday life. Aesthetic requirements of its physical appearance are guided by the rules of appealing and often fashionable design. The sound quality is low, and musical component of a toy can be deliberately inverted - circuit-bent, which makes it a cracked object. Musical toys, like other musical objects, can be possessed, and most often they are being bought. Their aesthetic and literal, market value is lower than that of other musical objects, making them affordable to a large number of people. This way musical toy as opposed to other musical objects, reaches through the consumer system more easily into our everyday lives.
To define musical practice of Pierre Bastien would mean at first to escape the conventional understanding of what a composer is. Bastien makes music which is not to be played by people, but by the machines that he builds himself and that are the main and sometimes the only members of his ensemble. Composing the music, means constructing them first. These machines are small mechanisms, built to play independently or to accompany him as he improvises on one of his numerous instruments. He casts the most original sounds from the sources such as folk or classical instruments or everyday objects, and he automatizes the musical process by assigning the performance to a custom-made mechanisms.

To listen to this music is to listen to a story, to get into a child-like world where each sound is a character speaking in a clear musical language understandable to classically educated musicians as well as to the experimental music enthusiasts, and to hear an enchanting and above all, a very personal story. And to see Pierre Bastien live in a concert, is nothing but an oddity - a man on the stage, holding a screwdriver as a baton to conduct his orchestra by turning the screws in order to literally fix the music - to change a chord, add a note to a melodic line, complicate the rhythm. It is the smallest orchestra, a machinery fitting a table, looking like a bug nest with each rotor and motor acting as insects with a small task in a net of musical duties resulting in harmony of rhythmical and melodic patterns changing on top of each other (Figure 30). And when all the fine-tunings are done
and the sounds are set to flow uninterruptedly, the soul of the machinery speaks through the pocket trumpet of Pierre Bastien. It resembles a song, it resembles a solo, it resembles a musical performance - but it’s “just” a man and his machines, a delicate manufacture of music and acoustic sensations that happens in front of our eyes and ears. An oddity for sure, but a profound and beautiful one.

I chose to look carefully into the work of Pierre Bastien in expectation to find an explanation why experimental musicians resist the standardized sound sources and playing devices and also in order to see in what way the affective musical content can be expressed through physical objects other than standardized musical instruments. I find Bastien’s work to be a rare combination of custom made mechanical instrumentarium which includes everyday objects as well as the instruments from Western, African or any other musical tradition, mixed with live improvisation coming from popular music genres such as jazz and blues among others. Although mechanized, his music resists the reserved expression often imposed by the use of technology, and moreover reveals remarkably humane qualities in a way I find unusual for experimental music in general. His own playing of trumpet or any other instrument along with the machines, although it gives away the influences of jazz and free improvisation, it escapes a clear stylistic definition and captivates the listener with its simplicity and indifference towards virtuosity. What keeps all these different parts together is appreciation for the tone quality and uniqueness of performance. And it is a sound which is very specific, that which tells about the ways it is being produced. Composer's style is being expressed through the medium of sound, but its origin comes from the technology itself:

“I think the machines have a certain style. I think I got a style from my little machines.”

It is inevitable to draw close parallel between the work of Pierre Bastien and that of Jean Tinguely. Some of Tinguely’s kinetic sculptures produce sound as an accidental outcome of the moving parts, but many of them (and especially the later ones), are made with a clear sound/ musical intention such as “Meta - Harmonie II” from 1979 (Figure 31), which incorporates real instruments to be played by metal wires and turning wheels of the giant mechanism. Although Bastien adopts many functional principles from Tinguely’s sculptures, his work is of a significantly smaller scale, and of very much different aesthetic quality. In terms of sound, while Tinguely was passionate about loud squeaking noise of intense quality, Bastien’s machines are rather leaving the impression of something more organic, delicate and pleasant to the ear.

Pierre Bastien’s departure from the use of conventional musical instruments and firstly from his primary instrument which is a double bass, started most notably in improvisations and recordings he has made in the group “Nu Creative Methods” during the 1980’s. Albums such as “Le marchand de calicot” from 1981 reflect strong connection with free improvisation and free jazz. At the same time, unfamiliar sounds of different objects and instrument preparations are audible, and the general sound quality of this record and even more of the album “Superstitions” from 1985, announce the features of Bastien’s original style which will evolve through the years until it receives total distinctiveness coming from his custom-made mechanical orchestra called Mecanium. First instrument (machine) which will become part of this orchestra, Bastien built in 1979, and until today he kept multiplying them and modifying, so nowadays Meccanium is his
are important aspects of his live performance. He also exhibits his machines in a group of few in installations, and in some editions of his CDs, photos are given, to inform a listener how the sounds in the recordings are being produced. This visibility of the production process is of a great significance for Bastien:

“To have no mystery about sound sources is my preoccupation. I am lucky with my three dimensional music.”

Simplification and reduction of expressive as well as the functional elements in Bastien’s music is its dominant characteristic. To deconstruct musical form, instrument, and even the notion of a performer by replacing it with a toy-like machine, is to emphasize what’s left - the variety and vividness of sound and expressiveness of a very few, basic, musical elements such as rhythm, melody, harmony. This narrowing to essential, is in tie with the rudimentary qualities of music made by primitive cultures. Bastien's music reveals many folkloric elements that are recognizable in the prevailing monodic style of his compositions, repetition of simple rhythmical and melodic patterns, but also in the numerous folk instruments that he uses to mechanize or play with. Album “Musiques Machinales” from 1993 reflects the most clearly Bastien's appreciation of African music. Plenty of different percussion instruments, xylophones and harps are used, and references to African culture can be found in the titles as well. One of the most lyrical pieces from this album is “Mangbetu”, named after the instrument of the same name which is used in this piece and comes from the people from the villages of Congo, who are famous for their incredibly rich musical tradition.

In the album Meccanoid from 2001, thumb pianos and xylophones meet looped vinyls, trumpet solos, bass lines and keyboard chords, making this album the most original fusion of styles in Bastien’s opus. In this work, Bastien has also explored the musicality of the machines themselves, letting them play no instruments or objects, but to produce the sounds alone by turning, clicking and crackling while being amplified. With the record “Pop”, made in 2005, Bastien has taken the fundaments of pop music - simple chord progressions,
appealing rhythms and melodies and made them sound through the most unusual and unconventional sounds of winding-up mechanisms and toy-like sounds, making the clear and simple musical message delivered in the most captivating and innovative way.

In the interview that follows54, I wanted to find out more about how does Pierre Bastien approaches making music - what are the relevant facts that he takes into consideration when composing a piece or constructing a performing set made of machines, and how the two entities of composition and mechanical construction, of sound and source, relate in his opinion.

Interview with Pierre Bastien

Q: Where does your composing process most often start from - a musical idea that you start transcribing into mechanical action, or from the mechanism that you start building and than composing the rest of the elements in relation to that, or from the choice of sounds (objects or instruments) that you want to use in a piece?

A: In general, when I want to compose music, I need to build things first. I don't remember how was it at the beginning, but nowadays a new composition would be just the continuation of the previous one. For example, now I am building a new machine, a new system. It's a set of machines I will be playing with for the following two years. Basically, I base my construction on the previous construction. I am trying to improve them based on my experience with previous machines. For example, the current system has a small bass player made of rubber bands, elastics. I pull the elastics one after another (8 strings), and I can make different bass-lines. There is a mechanical finger which is turning and plucking the strings. Now, I am building a new automatic bass player, and this one will have 20 strings instead of 8, and I will have a good range to compose some bass-lines.

Q: Are you ever inspired only by an object that you found interesting and decide to base the whole piece around that object? If so, what kind of object is it, and what attracts you about it - its shape, the function, the sounding possibilities or something else?

A: I have been making music for long, so all the options happen at some point. Some 15 years ago, I built an orchestra made of household (daily-life) objects, and I mechanized them. These were scissors, teapot, pliers, tooth-brushes, leather-scale...There were 8 to 10 objects. I remember choosing scissors because they are sometimes used in African music, as a percussion instrument. The teapot because the lid can open and close like a hi-hat. Tooth-brushes were used as brushes on a drum set. This was more an imitation of instruments. Nowadays, I choose objects because I like their flexibility. When I chose those objects, I've read a famous book by jazz musician Art Taylor - "Notes and tones". He has interviewed his drummer colleagues, asking them if they tune their drums. Most often, they would say no, they just do it at random to make basic differences between high, mid and low tones. I liked the idea, and decided to build this little bass-player in the way that the strings wouldn’t be tuned. I also remember reading about the Taraf, Romanian gypsy orchestra. Musicians say that they basically don’t mind if the bass doesn’t play right notes, as long as it’s used to play the right rhythm on it. They use bass like a bass-drum basically. My bass-player made of rubber bands is made in a similar way.

Generally I use objects to build the machines, like I use Mecano. I also use paper, a lot of paper.

I use plenty of existing musical instruments. I have some-
thing like 200, 300 instruments, from Africa, Asia, America, from everywhere and I love the different tones and the types of fabrication. Also I have conventional instruments like violins, cellos, trumpets, tubas etc., but I mostly use folk instruments.

Q: Are there particular ways in which you can get certain sound results from these objects, that you have learned and that you repeat in different works?

A: Yes, recently I’ve tried to amplify that practice and to develop it a bit. I’m trying to use paper in different ways for example. The last installation I made was “Paper orchestra”. But, I started with paper-organs before, which are harmonium chords played through a blowing systems. A sheet of paper is waving and clicking on top of it. Than I had sheets of paper flapping on drums. Recently I used long sheets of paper 2, 3 meters, which I called paper-snakes, activated through the blowers but more powerful long cylinder blowers which turn and blow air. And the paper is running very fast, in a very high speed and I cut the paper at the end into 10 strips, 10 paper-fingers which would hit the wooden floor like a very fast percussion.

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Q: Once there is a musical idea - a rhythm, melody, harmony or any combination of these, and let’s assume it’s not the most simple one, and you start setting up the robots to perform it - how many compromises with the musical content do you have to make in order to make it work practically? Does this idea become sometimes completely different from the one you started with, being caused by the difficulties in realization? To narrow the question even more, how much the mechanical and musical construction influence each other and in what way?

A: I’m making a lot of compromises along the construction and afterwards also. I remember making the cylinders which were pushing the keys of a keyboard, and I was reducing the chords as much as possible, trying to fight against the length and the number of chords because my cylinders weren’t big enough and turning slow enough to have many chords programmed, so I even had to reduce the number of bars from the original idea. At that time, I was building those cylinders from the cardboard rolls from the kitchen, and putting the pins on them. I was trying to measure as well as possible to put the pins in the right spot, and since the white and black keys on the keyboard are not on the same height, I had some troubles. Sometimes I was putting the pins on the wrong spot, but I was getting some better rhythmical ideas coming from the machine, from the cylinder. Sometimes a simple idea becomes more complicated by some irregularity which occurs accidentally, which makes the music more interesting.

Q: Artists use robotics and mechanics most often to achieve the impression of “unmistaken”, of brilliancy which is unreachable to a human musician. On contrary, your music displays intentionally this roughness and imperfection although it is performed by machines. How do you achieve to preserve this quality and how is it possible for a machine to be this slightly out of tune? Is it related to the Meccano technology, and would you consider using something more advance as for example Lego robots or anything similar? Do you think you could achieve the same effect with it?

A: I think it is better for me not to use the modern technology, because I would loose my soul probably. Even in human playing I like when it’s a bit loose and not completely perfect. My machines do it naturally because I’m not that handy, even if I make measurements, it doesn’t turn out that perfect. For example I use electro motors and rubber rings, the same way the record players are made, and they
play perfectly. My machines for some reason don’t and I’m happy with that. Generally after I make machines, I’m making the improvements to get rid of imperfections. Still some remain, and I am happy with the remainnings. But the imperfections I do not program, it’s the fact I’m not very handy. There is also the fact that I’m using only a screwdriver, soldering iron, pliers, knife and rudimentary tools, so that’s probably why it’s never perfect.

Q: Your music is three-dimensional as you said yourself in some of the interviews. Although with some of the recordings you provide photos of the Meccano instruments, and you project live video of what you’re doing on the stage, what do you think it is being lost in the recording when the visual aspect is eliminated? Could you consider composing only concrete music and never exhibiting your instruments and showing the way you create music? How do you think this physicality of your instruments and the sound as an airy, intangible thing, relate?

A: Any music lover knows through experience how to reconstruct the physical reality of a recorded music. As a music lover myself I enjoy that game when I imagine the instrument I am listening, and even the gestures of the players. My own recordings put the listener in a slightly different position, still an interesting one: he/ she is as if contemplating a shadow from a cave and trying to determine its origin. Obviously the mechanical line sounds different from a human score through its fragility, its ability to repeat a certain hesitation, its very particular sobriety. In this sense, yes, I could consider composing without showing: for example doing a remake of Prokofiev’s “Peter and the Wolf” and replacing “who is playing what?” with “how is it done?”

Q: Roto-rhythm from “The box #3” it is an automata made of Meccano parts and violin. Is it a musical sculpture, an instrument or a piece of music (composition)?

A: I think it is a piece of music, on a CD at least. When I exhibit it, in installation it is always with other “brothers and sisters” and a lot of them, like 20. And when I record, I pick one of the machines and play with it, sometimes 2 or 3.

Q: Building your own small mechanical orchestra that you play along with, contains something incredibly personal in it - like a child creating the imaginary world from a set of toys. This setting and also the way of realization draws for me the similarities with the Circus by Alexander Calder56. He makes these objects which will become “mobiles” later, but at that point they are still “representational”, they are characters, and he creates this narrative around them by moving them around, singing along and talking. This child-like world of his or the Jean Tinguely’s works, do you think there is similarity with what you do?

A: I hope, because I love Alexander Calder, he is my favorite artist. But, at the time I started, I knew only the big sculptures, not the Circus, but I think it’s very close to what I do, the same kind of activity. About Tinguely, I knew everything from him when I started. I started with a lot of hesitation because I was afraid of repeating what he have done. But I was wrong, it is completely different. There are many who continued his tradition, before me someone who did fantastic work was Joe Jones. At the time I started in ’70s in France, he wasn’t that famous, and I didn’t know about him. Among others, there is also Pierre Berthet, Belgium artist who makes music with water drops, long strings and reversed vacuum cleaners. I particularly like artists who are working with simple things, not so much with high technology.

When musicians go to a shop and buy the last Roland or Korg, they just take the music in the middle of the process I think, instead of taking it from the beginning. When you go and buy a robot or a machine or electronic device, you just forget half of the pleasure. It’s good to start with the origin and design your own sound sources and than play
the first violin, bowing the arpeggio on the violin, I noticed I could get the right pressure in one second by bending more or less a piece of metal that was in front of the bow. This shortcut to be able with a very simple mechanism to go over the years and years of studies and exercises, it was really pleasant to do it, instead of studying for years, just bending a piece of metal, “hop” and you get it.

Objects: screwdriver, metal wires, turning wheel, metal plates, strips, screws, bolts, winding-up mechanisms, rubber bands, scissors, teapot, pliers, tooth-brushes, leather-scale, paper, cardboard cylinders, vacuum cleaners

Tristan Perich - 1-bit Symphony

If you get into the CD store looking for Tristan Perich’s CD 1-bit Symphony, it is most likely that the employee won’t be able to tell you where exactly you may find it. Is it in the classical music section, is it in the composers section under the name of “P” or is it in pop music. Is it among music CDs at all or maybe in some special compartment along with games, interactive CDs or something similar? This immediately brings up the question which I will try to answer here – what is exactly 1-bit Symphony? If we know it is a piece of music packed in the transparent CD cover with no actual disk inside, containing only visible electronics (battery, electric wires, one button, one potentiometer) and
An assembly language is thus specific to a certain physical (or virtual) computer architecture. The assembler performs a more or less isomorphic translation (a one-to-one mapping) from mnemonic statements into machine instructions and data. This is in contrast with high-level languages, in which a single statement generally results in many machine instructions.59

Composing process parallels the programming process - data is stored inside of the chip, where also interpretation of value and translation of it occur. Physical properties of a microchip (memory, CPU), as well reflect to musical decisions. The only single quality of a tone is a pitch and duration. There are no differences in dynamics or articulation. Maximum of 9 voices are being used (9 voice polyphony). Sample rate is 4000Hz. Following the programming code (Figure 34), we can also read that the tempo differs from movement to movement, which are ascribed the values of 140, 115, 140, 150, 160 “pulses per beat”.

Transparency plays a major role on every level of the work - starting from a CD case, where the process of executing (performing) the piece is visible with all its structural elements (electronics), over production of the sound inside of the headphones, to the score (programming code) which comes printed out in a booklet. Programming code which is printed out, acts as a score, showing the detailed structure of the musical material, and ordering of electronic parts in this

Tristan Perich composed this piece in 2009-2010, some years after the release of his work “1-bit Music” of a similar kind. What is the most obvious characteristic of these two pieces is the fact that the sound comes in 1-bit resolution, and music has been programed on a chip, size of a finger nail which contains all the musical content of the piece inside of the transparent CD case.

Information which is stored inside of the chip in the form of “0” and “1”, becomes electrical signal which reaches the headphones where it becomes audible, basically sending only the on/ off signal to speaker membrane. Microchip and therefore the music itself, are being directly connected to a speaker, making the conversion of abstract software information (music), the physical reality of a listening process.

In creation of this work, Perich has been consistent in his approach, using simplification as a method, not only to deliver work to a listener in this particular shape, but also to construct the invisible matter of the piece - music. Composed material and also the logic by which it will be carried out, are programmed on a microchip using the Assembly language. This language is characteristic by its use for the more direct hardware manipulation than other languages, bringing a programming process as close as possible to electronics:

*a headphones output (Figure 33). Well, let’s start from there that it is something made for listening.
particular way denotes the stages of a performance process, in exactly
the same order that they occur.

Physical layout of the piece, makes the clear structure of the
performing process, visible. We can see on the given scheme (Figure
35) that the battery (A) which enables the performing process is being
followed by an on/ off button (B) where the performance begins. It is
followed by the musical source (C) from where the piece runs (always
and only) forward and to infinity, this information being able to change
in speed (tempo) with a skip button (D). This button also enables fast
forwarding and skipping of a track. The final adjustment of signal’s
intensity can be made with the use of volume potentiometer (E), before
the whole process is sonified at the last stage of a piece, on the head-
phones or speakers. If one wants to stop the process before the bat-
tery runs out, he/ she can and most probably will, go back to the switch
button (B). This allows two possible endings of a piece.

Performance of the 1-bit Symphony occurs in realtime,
directly on the speakers’ membranes. Like any other live performance,
each sample of 1-bit Symphony that you can find in a store and buy is
very much unique, and this is due to several reasons:

1) Headphones as instruments which are used to perform the
piece, differ by kinds and brands and they are not predefined by the
composer, but their choice depends on the listener. Each listener hav-
ing his/ her own pair, will have different and personalized experience of
the piece, depending on the material qualities of the headphones.
2) Electronics of the piece are assembled manually by sol-
dering the wires between the electronic parts, and any of the small
variations in soldering is able to influence (more on a conceptual than
audible level though), the quality of a piece.60

Button which enables a listener to fast forward the track or
to even skip a movement, enables the custom-made listening experi-
ence which is provided nowadays by the devices such as iPhones, CD
and Mp3 players, allowing a listener to be in control of the listening
process. Unlike in the concert setting, this possibility answers the
listener’s demands without hurting the rest of the audience:
“...it’s a performance for 1 person. so, you can fast forward it
without ruining it for 500 other people in the concert hall...”61

The fact that the composer himself compiles the electronic
part, makes each copy autographic. Unlike audio CDs for example, this
work is not be fabricated, reproduced or mass-produced which makes
it a precious object in ownership of a single person, something which is
more inherent to a painting or sculpture.

According the way a listener handles the 1-bit Symphony as
physical object, we might get closer to a definition of what it repre-
sents in relation to musical/ sound objects that we already know of.

What is “1-bit Symphony”?7

it is a musical artifact
it is both musical composition and a physical object
it is a thing that you can buy
it is a unique object which can be owned
it is made for personal use
it is made for playing and listening to it
it is a live performance of a musical composition
it is a live performance which you are able to control - its loudness and speed

Having it’s own power supply, on/ off button, fast forward
button and a volume control, 1-bit Symphony draws resemblance with
playing devices such as CD/ Mp3/ Cassette/ Vinyl players. The size of it
Perich refers to the Symphony genre, delineating its qualities by using the form and proportions of a 5 movement symphony form and by naming the musical section “Movement 1, 2, 3, 4, 5”. The same way John Cage refers to Sonata genre in Sonatas and Interludes for Prepared Piano, this is done in order to get into dialogue with works of classical music and to confront in this way the monumental quality of symphonic compositions with new and more modest and practical interpretation of medium.

1-bit Symphony also gets close to the idea of a recording medium. However, it is not a reproduction of a pre-recorded material - it is the musical realization of information stored on a chip. Buying this work, you are buying the performance which you can hold in your hands and control according to your own will. According to Caleb Kelly, like it is the case with other recording mediums in music, 1-bit Symphony stands between the creator and consumer and “the act of consumption changes the actual production and performance of music, as music is now created for the consumption of the record object”.

In its particular design, 1-bit Symphony unites the form of a device and of a musical composition. In a way, it is a device specifically made to represent its content which is of aesthetic (musical) nature. The choices that Perich has made while compiling the electronic parts into the compact, physical form of a CD cover, are of aesthetic nature as well. This constructivist approach is characteristic of works by many minimalist composers from the past, who have aimed to express musical structure in perceivable ways, in those times by using the mere medium of sound. Perich goes further by making the musical structure visible and its representation even tangible, emphasizing high poietic characteristic of his style. Work which is essentially musical, is embodied into a specially designed physical object. Tristan Perich has given his own and very original version of how contemporary music can be consumed, by combining the modern-day listening experience with implementation of musical content by the use of modern technology. Perich’s skills as a composer of this piece lay in the domain of musical, programming and technical skills. 1-bit Symphony comes (the size of a regular CD cover) and also its mobility (working on batteries, with headphones, light weight), makes it comparable to portable music devices, which are meant to be used outdoor as well as indoor.

1-bit Symphony can be hold in hand while listening (Figure 36). It can also fit into a purse or a bag (Figure 37). After listening to it, it can be put it back on a shelf among other CDs (Figure 38).

Perich makes a unique embodiment of his musical piece, playing with the form of CD cover and the idea of portable music player to create something we can not name by any musical artifacts that we know of. It is an autonomous musical and physical object, and it makes it a sculpture in terms of the division of musical objects I have made before. There is also a great similarity with the Buddha Machine (which was mentioned in the “Sculpture” section). Crucial difference between the two works is the musical form which in Perich’s work comes within the field of contemporary music, while the samples on Buddha Machines are drones, coming from the ambient/electronic music genre. Another important difference between Buddha Machine and Perich’s work is that electronics of the 1-bit Symphony are custom-made, while Buddha Machines are manufactured, and while Perich’s work like any other contemporary music composition holds a strong stamp of its creator, Buddha Machine remains more transparent in that regard. Both of the works can be bought at music, CD and record stores worldwide.
to a store (and than to a listener), directly from the hands of a composer, and the point where composer and listener meet is physical, making this connection personal if not even intimate, and bridging the eternal gap which is immanent to the relationship of a composer and audience in classical music. By adding the physical aspect to his musical work, Perich has succeeded very elegantly to bring a contemporary music piece into the context of modern (consumer) culture and everyday life.

*Objects: CD cover, Battery, button, potentiometer, wires, electronic parts*
Recapitulation

Covering the long span from the moment the physical object was brought into XX century music, to this day when the use of musical objects is widespread, my aim was to identify the objects which were in a musical discourse overshadowed by the instruments or the idea of instrument as a primary mean of the sound production or more generally, of production of musical material. To recognize these objects, the context or the domain where they came from, meant to recognize the variety of objects in musical use in history of music as well as today, and to become aware of the wealth of information that each of these objects holds. By analyzing the early examples from the field of contemporary music, I have shown that the objects which emerged inside of the discourse of classical music, reconfigured the composing, performing and listening practice. Appearance of objects in early XX century music also accompanied the tendency of expansion of musical vocabulary with the use of noise. The same way the noise was a door through which the sounds of the outside world entered music, objects other than instruments were a way for the world of things from our everyday life, to inhabit musical works. These objects and the sounds of them, were something new, unconventional and primarily non-musical or extra-musical. As the awareness of their musical potential was growing, the relation of musicians towards the medium that they composed for, was changed from the core and this influenced the changes of musical form too. Example of this are works by Satie, Varese, Antheil and many other composers. Musicians have started to open their ears and eyes to the things that surround them, and the composing (creating) process became reversed - instead of composers materializing musical thoughts through sound, they were able to start the creation process in this physical world and to bring influences of it into musical work. Music of Luigi Russolo wouldn’t be able to exist if he hadn’t built the instruments first - a practical process which preceded the composing one. A whole musical practice of John Cage is founded on possibility of giving the sounds of the world the ability to
sound through his pieces. Further on, many musicians from the field of live experimental or electronic music, start from the similar point - by choosing the electronic or any other equipment which will be used in live performance. The composers from the past have controlled music with the use of score, and experimental musicians today control it with the use of objects that they play with. Making and breaking things in order to play with them or to make musical sculptures out of them, is as much musical process as writing the score was once for a composer. Both Perich’s and Bastien’s work serve as an example of this. In general, we can conclude that the work of musicians in the field of experimental music and sound art who deal with musicality of physical objects, is multidisciplinary in the core, and it is in a very tight connection with the technical aspect of a production process. Wether artists decide to build themselves the work or the set of tools that they use in playing, they need to be familiar to a certain extent, with the technology of medium that they are using.

Beside these implication to musical practice, appearance of various musical objects reflected a strong tendency to embed musical content into physical form in order to be able to deal with musical form in a more practical and even tangible ways. Structuring and ordering of things in Western art music, is old as the music itself - even the Ancient Greeks applied the rules of mathematics to explain music theoretically, and the whole music theory after them worked in the same way - by organization of musical language on every level - from intervals, scales, modulations to rhythms, form etc. Musical language has always been clearly structured and this structure reflects today as well in the music which is created in the frame of experimental music or sound art. Setup of experimental musicians is a way of ordering the musical content - ordering the instruments, objects and cables, distribution of playing devices and loudspeakers in physical space is where the form of musical work is being shaped as well, not necessarily in the sound alone. To make musical sculptures by building them from a scratch or by combining the existing (found) objects, is to shape physical form and to give in that way a shape to musical thought.

Approaching the music this way, it is possible to emphasize the meaning of the work and other more symbolic aspects of it as in the case of symbolic musical objects which can make a rudimentary thing, a representation of a more valuable content. On the other hand, the purposefulness of some musical objects, can also lead to trivialization of music, as in the case of musical toys. With the use of them in everyday context (and not the artistic), the supremacy of emotion in music has been replaced with the play-like activity and musical content becomes the thing of amusement and fun. Physical objects also contain a wide range of very specific sound possibilities which can be triggered in interaction with another musical or non-musical object. These sounds hold a particular quality, very much unique, which the existing musical instruments and electronics can imitate to a certain level, but can not achieve fully. Their acoustic qualities or sometimes the meaning which arises from them (as in the example of recognizable sounds in the work of Matthew Herbert), are inspiration for many musicians who use objects to play live with them or to record them, most often amplified and very often sampled and than manipulated with the use of electronics.

One of the obvious characteristics of the many objects that I observed and analyzed in this writing, is their small to medium size. Most of them can fit one’s hand and are portable. Such is the case with objects used for preparation of instruments and with many circuit-bent objects. They come from the domain of non-musical and often everyday things, and this makes them easily available, or in other cases cheap to buy and to change according to need in order to serve musical purpose (as in the case of cracked object). Musical objects have the possibility to be owned, and this quality brings them sometimes into the commercial domain where they can even have the monetary value. Objects can express musical function in various ways. We have seen the examples of silent objects, which don’t need to produce any sounds but still can give away musical allusions. Objects which act as a source of sound, hide a variety of sounding possibilities that we can explore in physical terms. There is no common practice of how an
revolutionary change in the listening experience that became much more personalized than it was in the concert setting. Today, this concept of everyday life, refers not to a single place where we can bring the music as an object, as a thing, but it refers to many places where we can bring it with us in our constant motion, and this is why the concept of everyday life today is more mobile than ever. We want the information of various kinds to accompany us wherever we go, and the growing trend of tablet computers proves this. The concept of iPod shaped in many ways how we consume music in general. Indeed, there were portable CD and cassette players many years ago, but the way to get to (musical) information was still a bit slow. Today, a lot of music is only a click away in iTunes, and many artists create their works specifically for this way of consumption and with the possibilities provided by this technology. They achieve no less artistic results than other artists, an example of this being Biophilia, the first interactive multimedia edition of musical work by Icelandic artist Bjork, comprising of music, sound installations, live performances and iPhone applications. You can buy this work, install it on your iPhone and carry it around wherever you go. The same goes for 1-bit Symphony by Tristan Perich or Buddha Machine by Zhang Jian and Christian Virant. If we compare the excitement about the idea of possession of a musical work today to the one the phonograph record caused at the beginning of XX century, we will notice that we are much closer to that idea now, when the definition of what the work is, changed to a high degree, and now it is equivalent to the actual thing that we own. Object can become a work, and this object can be a musical object - a musical work. As such, we don’t own a reproduction of it, but always the original unlike in the case of phonograph records, audio cassettes and CDs or similar media. It is not my aim here to forecast the direction in which the thingification of music will bring us as both consumers and creators, but it is my opinion that music as artistic discipline on the expense of assimilating with our lives and following us in our continuous motion, looses its stationary qualities. This means primarily the performative qualities or exhibition ones which unconditionally demand our time and dictate the way everyday object can be made into musical one, but there are certainly some methods which appear to be dominant in the practice of experimental music and sound art, and based on them, I have named the five categories into which many of musical objects can fit. I suggested these categories but however I acknowledge that there exist many other possible ways of categorization. Depending on the importance of the characteristics that musical object is displaying, whether in relation to functionality, origin or the way of use, there can be many other names under which would be possible to group them. Some musical objects can be defined as mnemonic for example, if their purpose is to store musical information and than release it in some particular way. Other kind of objects which especially draw my attention, are decorative objects. Many of the existing musical objects can be named like this if their musical purpose is purely ornamental and this is their prevailing quality. Such are portable radios for example, mp3 players or even iPods, if the content they’re playing is being played for the pure pleasure of playing something (or anything). They accompany the sounds of our environment in the same way Satie’s Furniture music was meant to be played not-intrusively while people are having lunch, only they are imbedded into physical form the same way as other visually decorative objects. Difference in relevancy of certain aspects of objects, leads to grouping them into different kinds.

The current state of things

The revolution which came along with the recognition of noise as musical sound and of objects (other than instruments) as musical things, has happened quite a while ago. As I said before, it was all for the purpose of getting people through music, closer to the world around them and for the purpose of getting a closer understanding of this world through musical observation. Since then, essential thing which changed is the understanding of what everyday life is, and what do we achieve by bringing music closer to it. Once, to bring music from the concert hall into people’s homes (with invention of phonograph), was a revolutionary change in the listening experience that became much more personalized than it was in the concert setting. Today, this concept of everyday life, refers not to a single place where we can bring the music as an object, as a thing, but it refers to many places where we can bring it with us in our constant motion, and this is why the concept of everyday life today is more mobile than ever. We want the information of various kinds to accompany us wherever we go, and the growing trend of tablet computers proves this. The concept of iPod shaped in many ways how we consume music in general. Indeed, there were portable CD and cassette players many years ago, but the way to get to (musical) information was still a bit slow. Today, a lot of music is only a click away in iTunes, and many artists create their works specifically for this way of consumption and with the possibilities provided by this technology. They achieve no less artistic results than other artists, an example of this being Biophilia, the first interactive multimedia edition of musical work by Icelandic artist Bjork, comprising of music, sound installations, live performances and iPhone applications. You can buy this work, install it on your iPhone and carry it around wherever you go. The same goes for 1-bit Symphony by Tristan Perich or Buddha Machine by Zhang Jian and Christian Virant. If we compare the excitement about the idea of possession of a musical work today to the one the phonograph record caused at the beginning of XX century, we will notice that we are much closer to that idea now, when the definition of what the work is, changed to a high degree, and now it is equivalent to the actual thing that we own. Object can become a work, and this object can be a musical object - a musical work. As such, we don’t own a reproduction of it, but always the original unlike in the case of phonograph records, audio cassettes and CDs or similar media. It is not my aim here to forecast the direction in which the thingification of music will bring us as both consumers and creators, but it is my opinion that music as artistic discipline on the expense of assimilating with our lives and following us in our continuous motion, looses its stationary qualities. This means primarily the performative qualities or exhibition ones which unconditionally demand our time and dictate the way
of experiencing them (at a single place - concert hall or a gallery) in the conditions which are imposed to us. With the variety of ways to experience and consume music, it is a matter of preference if we will expose ourselves to acoustic sensations of a performance or installation, or if we will choose a more active musical experience through interaction and physical involvement with music. On the opposite end from the performability of musical work, lies the physicality of music and the aspects of it which I explored in this text. To move forward, towards the borders of musical work, is to be in the spot where the contradictions meet - music with physical object. I believe that this relation imposes many unresolved patterns of musical behavior and holds a huge potential for invention of new ones.

Objects: typewriter machines, sirens, glass bottles, lottery wheels, airplane propellers, electric buzzers, bow, mallets, sticks, sordinas, trombone extensions, screw, bolt, canning rubber, coins, stone, vessel, wood, sticks, batons, rubber balls, felt, guitar picks, coins, paper, cloth, plates of plastic, plates of wood, CD cover, hand-fan, small metal box cover, metal chain, cardboard buckets, postal dispatch tubes, wine glasses, peeper pot, graffiti spray, stones, speakers, nails, wires, turnbuckles, plastic comb, rods, doorstops, shoehorns, ratchets, springs, PVC pipe, bulbs, Volvo gearbox, metal bicycle logo, ice records, nail polish bottles, screwdriver, metal wires, turning wheel, metal plates, strips, winding-up mechanisms, rubber bands, scissors, teapot, pliers, tooth-brushes, leather-scale, cardboard cylinders, vacuum cleaners, battery, button, potentiometer, electronic parts
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Discography


