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# Sound Art as Sonification, and the Artistic Treatment of Features in our Surroundings

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**The article tries to explain different aspects of sound art in public space in the context of an understanding of a modified language of twentieth-century visual art and music. It gives a description of different approaches to colouring situations and contexts with sound. Various examples of sonification and artistic treatments in our surrounding are shown. It shows an artistic practice which is linked to social-cultural aspects and their critical role in art. Therefore sound installations are placed into a genealogy of installation practice in public space.**

## 1. INTRODUCTION

North Adams, Massachusetts, 18 August 1997: MASS MoCA rang its bells and opened its doors to the public with an open house celebrating the newly completed restoration of its historic clock tower, which had come alive for the first time in twelve years. A clock that had set the rhythm of daily life for workers in a nineteenth-century mill came to life with an interactive sound installation by German artist Christina Kubisch. Kubisch's installation was a subtle piece that was more heard than seen. In signalling the time of day, the clock tower's bells changed their tone and pattern in relation to the quality of daylight. A band of reflective solar panels surrounded the tower, functioning as a sunlight sensor, triggered and combined pre-recorded sounds into mini-compositions. The digitally sampled sounds were captured a few months earlier during a live jam session on the two original 1883 bells. The sound of each bell was unique, but during a live jam session Kubisch played them with different instruments such as drumsticks, and with her hands, so that she recorded different sounds. These sounds were constantly reprogrammed by a computer. The bell sounds pealed from speakers in the tower at noon, at 5 p.m., or on special occasions. The clock tower itself was restored as part of Kubisch's project, and those who drove by the complex at night saw that she had treated the faces of the tower's glass clock with white phosphorescent pigment, illuminated from within by ultraviolet light, so that they glowed softly in the dark. 'I wanted the project to give the people of North Adams something special, something particular to the place where they live,' Kubisch said.

'I knew that Sprague Electric Company, the site's previous owner, was forced to close because the technology had changed, and now, by exploiting new technologies, an important sound feature of their city is alive again – but in a new way.'

Working with sound engineer Manfred Fox, Kubisch recorded 50 different sounds from the original bells. These sounds could be heard every quarter of an hour from speakers positioned in four directions. In the past these bells accompanied the factory workers, giving them the rhythm of their piecework depending on the time of day they worked. The sound installation reminds those who hear it of the difficult working conditions in the factory. Its starting point was the historical acoustical ambience, which no longer exists. Kubisch tried to recreate this historical situation with her sound installation. Working with Fox she developed a sophisticated computer program based on the changing daylight that beamed the recorded bell sounds into the air. Five minutes before the bells would ring, light sensors sent signals to the computer, which calculated the data and chose the sounds via Fox's software. Varying light conditions would generate different sound diffusions and various sound colours. The volume and sequence of the sounds varied across a spectrum, with cloudy days conveying bass tones and bright sun generating higher pitches and strong chimes. The listener was able to distinguish the quality of light acoustically, experiencing the light atmosphere by hearing the sounds. At sunrise people could hear the bells. At night, after dusk, the sounds disappeared. But when the sounds faded away the phosphorescent clock faces began to glow and the audible artwork became visual.

Christina Kubisch's Clocktower Project is a good example of an aesthetic practice that is symptomatic of sound installations and the sonification of their surroundings. This audio-visual installation was concretely related to its spatial environment. The artist paid attention to the place's historical situation and evoked it with sensual employment of acoustical signs. When she reactivated the bells she also reawakened the symbolic function of the tower in a new and different way, giving them both another identity.

Kubisch's sound work gave the tower a new meaning and importance for the people of North Adams, and she reflected the traditional social-cultural role of the acoustical situation. Through this acoustical artistic treatment Kubisch also tried to make people aware of the site's atmosphere and its historical dimension. She wanted to recreate a real situation through using an artificial world to remind us of the social and economic history of the place. Kubisch's sound installation offered a transitory and situational experience of time and space. In this sense the artist referred to the site as 'treasure of memory'. The audio-visual signs aim to link the past with the present. Through the visual and acoustical treatment of the installation and the recipient's own make-up, the installation connects to history, which is related to the context and the aesthetic environment.

## 2. SITE-SPECIFICITY AND SOCIAL-CULTURAL TREATMENT

The most important aspect of this sound installation was its site-specificity, which is exemplary for sound installations in public spaces in general.

### 2.1. Site-specificity

Sound installations are usually site-specific artworks. A site-specific artwork is inextricably linked to its locale: the parts relate to the larger space. As Mark Rosenthal points out:

Indeed, the site-specific artist will have spent considerable time exploring the location of the work, hence, an analysis of the composition of a site-specific installation must include its locale, because it derives its very form and perhaps physical substance, too, as well as its meaning, from the context. Moving it is impossible, since the work cannot be understood or seen except in relation to the place. The viewer witnesses a dialogue, as it were, between the artist and the space. (Rosenthal 2003: 38)

Particularly with regard to artworks in public space, the context is very important for the artwork itself. In public space the artwork is not isolated, it isn't exhibited in a white cube, a museum or any other institution. It can't walk from one exhibition to the next. It is significantly connected to the site on which it is standing. But this locale also isn't static, neutral or without history. These places are, rather, dynamic, mobile and significant, with many social, historical, geographical, psychological or other contexts. Therefore the determining factor of an artwork is related to the sites and their characteristics. Not only is the artwork defined by its spatial, visual, acoustic, symbolic and other circumstances, the artwork also defines the site. The space or locale surrounding the artwork is exhibited, too. It is not only the medium of

creation and reception, but it also is clarified by the artistic concept and related to this concept as well.

### 2.2. Public space

Public space was, at the genesis of sound art, very important to it. The question is: why was it so important? Sound art initially had no place in the institutional art system because this new genre could not be classified. 'We were always hard to classify. The music field said, "that's not music enough", and the art field said, "there is too much music"' (Kubisch 2000: 88) sound artist Christina Kubisch remembered, and she described a general aesthetic practice shared by the first sound artists. Sound installations are neither fine art nor music; they exist between genres. In fact, sound artists such as Christina Kubisch wanted to escape the institutional umbrella. 'From the beginning, I have been interested in spaces that were not museum spaces. The museums and galleries were not really suitable for my works ... I worked almost exclusively in spaces belonging to the so-called off scene or in outdoor spaces' (Kubisch 2000: 87). This was a time in which the pioneering sound artists were criticising institutions. Artists such as Max Neuhaus, Hans Peter Kuhn, Rolf Julius, Bill Fontana, Bernhard Leitner or Robin Minard were looking for alternative exhibition spaces for their art works, outside the institutional frame. With the establishment of a new multi-dimensional and multi-media genre, there was a search for special exhibition places. Sound installations had no place; hence, artists looked for interesting non-normative places such as public spaces, stations, airports, passages and parks; or they looked for abandoned places such as old storage buildings, cellars, lofts, ruins, bunkers, devastated areas or abandoned industrial buildings.

## 3. CRITICAL IMPLICATIONS

The first sound installation, 'Drive in Music', was created in 1967 by Max Neuhaus. Not accidentally it was installed in a public space. The idea came 'with the realization that most people spend a great deal of time in their automobiles. Most of them listened to sound in their cars over the radio', Neuhaus said (Neuhaus 1994: 18). 'I didn't know much about the inner workings of electronic equipment then, but I did remember that singers sometimes used "wireless" microphones that actually broadcast a short distance to a radio receiver. It seemed like the ideal solution.' In Buffalo, a city with an unusually large music-loving public, on a street called Lincoln Parkway near the city's main thoroughfare, he set up seven radio transmitters, all broadcasting at the same point on the dial, but each with a different sonority, a different mixture of sine waves. The synthesis circuit was

sensitive to weather conditions. It gradually changed the levels in the mixture of those sine waves, creating different sonorities depending on the weather. Since the transmitters broadcast only a short distance, Neuhaus could shape the area covered by each sound by using an antenna wire and placing it in the shape he wanted the sound to occupy. It solved the accessibility problem – a listener had to tune into the piece – and allowed a complex set of possibilities. The trees provided a good location for mounting the transmitters and antennas. The piece began at the main entrance of the Albright-Knox Art Gallery and ran south for half a mile (Neuhaus 1994: 18). Drivers on this street who had tuned into the receiving frequency could hear the first sound installation. The acoustical result depended on driving speed and direction.

After having worked for 14 years as a musician, Neuhaus began to create sound works, which were neither musical pieces nor events, and coined the term ‘sound installation’ to describe them. Neuhaus was tired of being a musician: ‘I felt it had a number of flaws, the major one being the onus of entertainment, a serious burden for any art form. The visual arts seem to be free from it, while music, dance and theatre are forced into it, at some level, by the form of the representation itself’ (Neuhaus 1994: 18). Starting from the premise that our sense of place depends on what we hear as well as on what we see, Neuhaus utilised a given social and aural context as a foundation for building a new perception of place with sound. Neuhaus went on to pioneering artistic activities outside conventional cultural contexts and began to create sound works anonymously in public places. His first sound installation was created in keeping with the maxim ‘music for all’. He developed his activities in music with these networks and broadcast works – virtual architectures which provide forums open to anyone for the development of new musics. In the first musical piece, ‘Public Supply’ (1966), he linked a radio station to a telephone network and created a two-way public aural space, 20 miles in diameter – encompassing New York City – where any inhabitant could join a live dialogue with sound by making a phone call. The piece ‘Drive in Music’ was the advancement of his installation ‘Public Supply’.

Notably, the first sound installation was created in a public space in order ‘to make music for all’. It was around that time that Dan Flavin also began to use the term ‘installation’ for his works. At the same time, many artists were leaving the institutional framework of museums and galleries as a protest against their false neutrality and conventional art practices. In short, sound installations were instrumental to an emergent critical examination of the apparatus of art production and distribution and its subsequent rejection.

Starting in 1968, with their Land Art projects, artists such as Walther de Maria and Michael Heizer wanted to escape the constriction of artistic activities. In 1968, after a visit to Las Vegas, Michael Heizer went to the Mojave Desert, where he drew little abstract figurines like ‘Compression Lines’ or ‘Loop Drawings’ or a ‘Field’ into the sand. The same year, Walther de Maria also created his work ‘The Mile Long Drawing in the Desert’ as part of his ‘Walls in the Desert’ project.<sup>1</sup> These art works were ephemeral, only artificial traces, which were recaptured by nature in a few days, weeks or months. In the following years, more amazing art works were developed by Heizer and de Maria, such as the sculpture ‘Double Negative’ (1969–70). This big sculpture by Heizer consists of two trenches cut into the eastern edge of the Mormon Mesa, northwest of Overton, Nevada. The trenches line up across a large gorge formed by the natural shape of the mesa edge. Encompassing this open area across the gorge, the trenches measure a total of 457 metres in length, 15.2 metres in depth and 9.1 metres in width; 218,000 tons of rock, mostly rhyolite and sandstone, had to be removed in the construction of the trenches. The sheer size of ‘Double Negative’ invites contemplation of the scale of art, as well as of the spectator’s relationship to the earth and art itself. The same year, Walther de Maria constructed his ‘Las Vegas Piece’, which consisted of orthogonal trenches cut into the Tula Desert. These two grandiose installations, ‘Double Negative’ and ‘Las Vegas Piece’, are two of the most famous preserved earthworks. They inspired art critic Rosalind E. Krauss to coin the term ‘sculpture in expanded field’ – referring to art works in which the topography is part of the sculptural system. In addition, the creation of the surroundings implicates a transformation of the cultural field, which also contains the demolishing of the boundaries of art.

In the 1970s, many artists began to evince a heightened consciousness of the ways in which institutional conditions have ‘raped the context from the art’ (Kemp 1991: 90). They saw that administrative power was always concretely linked to exhibition and gallery spaces. As soon as the boundaries of art space were demolished, art works could be disencumbered. The artist could also do other types of work that would infuse the arts with new life and pose new questions. Many artists intended to undo the idea that viewing art was a quasi-spiritual activity which occurred in a space isolated from life. Artworks in public space in the 1960s and 1970s can be seen as a consequence of the artistic development of the time, as artists sought to escape from the traditional art system and to replace established language with

<sup>1</sup>The project, originally conceived in 1962, was to consist of two parallel, mile-long walls. It was not realised.

expanded new material and an art language that included life.

Gordon Matta-Clark and Daniel Buren, in particular, made installations which broke down the boundaries between institutions and public space. By sawing wall, floor and ceiling segments of a gallery space in Antwerp, Matta-Clark collapsed not only physical but also psychic boundaries. In his 1977 work 'Office Baroque', he also presented a view of the city. Matta-Clark wanted to liberate the autonomous and isolated artwork, and to dissolve the boundaries between art space and urban space. 'The questioning work has an obligation ... to reveal the false direction of these depersonalised architectures and to make them emerge from their false neutrality', Buren said (Buren 1975: 206). The museum and art became empty ideals: artists wanted to relate artworks to life, and the role of the installation was to question and to attack the traditional art system. With his work 'Within and Beyond the Frame' (1973), Buren successfully linked the street to the gallery by placing his signature striped sheets through a window that opened onto West Broadway. This signature could be seen not only in the gallery space but also outdoors. Both Gordon Matta-Clark and Daniel Buren established a formal relationship between the indoor and the outdoor environment. While defining artwork in the context of the gallery space, Buren's striped sheets were not seen as artwork in urban spaces by people who were not part of the art scene; to the conscious recipient, however, the striped sheets were a reference to the artist and his context. Buren and Matta-Clark criticised established art institutions and questioned the spatial organisation of museum or gallery spaces. And it was Matta-Clark, with 'Office Baroque', who liberated the artwork from the isolation of the exhibition space. 'Can art get down from its pedestal and rise to street level?' Buren asked. He wanted to compromise the identity of the art space by allowing street life to enter it (Rosenthal 2003: 61).

#### 4. NEW KINDS OF PERCEPTION

In the 1970s, the attempt to infuse art with life was linked to new aesthetic practices aimed at reactivating all of the senses. In real life we cannot separate our senses; as we are looking, we are also simultaneously hearing, smelling and feeling. Moreover, artists regarded this new aesthetic inter-media practice as a unique chance for reinventing art forms. I therefore want to argue that the quest for non-institutional space was linked to another intense synaesthetic experience evoked by installations and their specially framed spaces (Barthelmes 2000: 2–6). The central meaning of sound installations in public spaces is also found in the correlation between acoustical and visual signs and their connection to the environment.

This has many consequences for the reception of the artwork. In sound installations there are two paramount matters: space and time. What Mark Rosenthal says of installation art in general can be considered even more so for sound installations:

The viewer is asked to investigate the work of art much as he or she might explore some phenomenon on life, making one's way through actual space and time in order to gain knowledge. Just as life consists of one perception followed by another, each a fleeting, non-linear moment, an installation courts the same dense, ephemeral experience. Whereas painting and sculpture freeze time and perhaps suggest something eternal, installation abhors such an effect. The viewer is in the present, experiencing temporal flow and spatial awareness. The time and space of the viewer coincide with the art, with no separation or dichotomy between the perceiver and the object. (Rosenthal 2003: 27)

Sound installations are, unlike concerts, temporally unlimited. They are open sound works, open to acoustical ephemeral reception. The piece has neither a beginning nor an end. The musical material does not follow a process or development but exists in time and space. The 'open artwork' is durable and ephemeral at the same time. The composer does not determine the beginning and end of the piece; it is the listener who defines it. These durable concerts do not take place at the same time and in the same place as its original production but rather take place in another time and space, in another context. Electronic development has freed sound artists from the temporal constraints of live performances. Sounds can be transported. This is one of the main ideas of sound installation: to give the audience the freedom to enter and experience the artwork at their own leisure, to come and go, to move and to listen individually. Consequently, sound installations break down the typical concert hall situation. The common reception of musical pieces became a contemplative observation because visitors could choose their own timeframe. But, of course, this reception differs from the reception of sculptures or pictures. The static character of sculptures is dissolved; the artwork is audible, therefore immaterial and ephemeral, which contradicts the concept of artistic material as eternal sign. The use of sound as artistic material opens fine art up to a temporal dimension, changing the once-distant relationship between work and recipient and making it transitory. Duration and temporal structure of the acoustical experience affect the visual experience.

#### 5. INVENTING A NEW AESTHETIC PRACTICE

It is interesting to see that sound installations appeared, along with a new aesthetic practice, at the same time when the institutional art frame was criticised by many artists such as concept or land artists.

As early as the late 1970s, many artists began to think about sound installations. Most of them were already on the performance scene and were tired of live performances. Artists such as Max Neuhaus, Rolf Julius, Terry Fox or Christina Kubisch were in the performer scene but mainly because they questioned the traditional art and music system. It was at that time that many artists studied not only composition or fine art but also other artistic practices. They were keen on creating a new aesthetic practice which was not linked to only one genre. Thus, many composers, for instance, studied electrical engineering, as Christina Kubisch did at the Technical Institute of Milan. The goal was to achieve greater flexibility in composition and to find new forms of sound diffusion. These new methods also enabled them to perform their music independent of musicians. It really was an experimental time. Kubisch, for instance, developed for her first sound installation, 'Il respiro del mare' (Sicily 1980), her own magnetic induction system. She accidentally discovered the possibility of hearing sounds with telephone amplifiers if there was an electro-magnetic field nearby. Then she modified the amplifiers and used them for sound installations, availing herself of the characteristics of magnetic fields. For 'Il respiro del mare', Kubisch formed a labyrinth by fixing red and blue cables to opposite walls in a relief. In another room, she played a magnetic tape with pre-produced sound material which transmitted the sound information to an amplifier and then to the wires (Bock 2001: 50). An electro-magnetic field emerged around the wire reliefs, and visitors could receive the sounds in the reliefs by holding small, cube-shaped amplifiers. People in the vicinity of the blue cable relief intercepted sounds of ocean waves, while those near the red cable received sounds of breathing. While moving between the two wire reliefs, the listeners could mix the sounds to create their own compositions. Due to the enormous success of this experiment, Kubisch began to use this system for many other installations. The electric cables can be installed indoors or outdoors. They can follow natural forms or architectural details, or can be wrapped around trees or form an independent structure. They can be fixed on walls or ceilings, or be suspended in the air.

Working with an engineer, Kubisch improved this sound apparatus until it became very complex. She designed wireless headphones with adjustable dynamic-range control and great sensitivity for these electro-magnetic fields, then wanted to have her own magnetic-induction apparatus. With this new system it was easier to walk from one part of the installation to the next, and it really became an interesting composing system: the artist installed sounds, and visitors could mix their own compositions by walking around the magnetic fields. The main idea was to create

sound environments in which the visitor could find his or her own time and moving space. The listener could walk freely, receiving the sounds via the built-in electro-magnetics, which function like pick-ups. Through movement or non-movement, the visitor could choose between various sound sources and their combinations. Recipients could, if they wanted, constantly mix new musical sequences with an infinite number of possibilities. For example, the volume of the sound increased as the listener moved closer to the cables. Quick movements through the space caused the sounds to fade into one another, while slow movements sound sequences could be heard very precisely. This was Christina Kubisch's great discovery.

## 6. DISTURBANCES AS AESTHETIC EXPERIENCES

In the 1990s, simultaneously with the technical improvement of the equipment, Kubisch discovered more and more disturbances in the headphones. There was an incredible increase in electro-magnetic waves in cities, caused by new technologies, digital developments, mobile phones, and so on, which disturbed the reception of the installed sound environments. But these disturbances provided interesting musical material too, and Kubisch paid attention to this. The disturbances were musical vibes such as rhythm, pulses or other electrical noises. This was the beginning of a new type of work: the 'Electrical Walks'. The artist installed the first Electrical Walk in Cologne in 2004 as a sort of test. On a map of Cologne, she marked all the interesting musical locations to help people find their way to them. The response to this new type of work was very strong, and Kubisch started to develop it further. Again she designed special headphones (which she first used in 2005) to be more sensitive to electro-magnetic waves. The sound made by electric currents is not suppressed by the headsets; it is, in fact, magnified.

When Kubisch 'installs' a new Electrical Walk, she goes into a city with her headphones, discovering the place through concentrated listening. Then she notes interesting musical locations on a city map. After several experiences, she remarked: 'Every city is very personal. They have their individual sounds, their own cultural soundscapes.' Kubisch has already set up more than ten Electrical Walks in various cities, including London, New York and Riga. Riga was an 'interesting experience' because 'the sounds in Riga were very East European', she said. Using headsets and carrying a map of the city on which a route and particularly interesting acoustical points are marked, visitors can set out to explore acoustically its electromagnetic fields. The range of sounds, their colours and their volume vary from place to place. Lighting systems, transformers, ATM machines, security systems, aeriels, mobile phones, computers and many more electronic devices

provide a soundscape of incredible intensity. Through these walks Kubisch makes possible an entirely new, unknown perception of a world that had seemed so very familiar. With the Electrical Walks she succeeds in making the listeners aware of a sound world that is there but is normally inaudible. This sound world is also continually changing as technology becomes increasingly pervasive in our environment.

Kubisch's sonification approach is linked to socio-cultural aspects. In many of her installations she asks the participant to return to historical and social information related to location by setting sounds in the surrounding which had been lost. Through her acoustical treatment, Kubisch tries to make people aware of the site's atmosphere and its historical dimension.<sup>2</sup> Her 'Electrical Walks' are different from the aesthetic practice of reinventing the historical acoustical tradition. With these works she reflects the contemporary (rather than historical) situation of different cities. With her 'Electrical Walks' she does not install sounds, but draws attention to an already existing but largely inaudible reality; participants are thus free to create their own electro-acoustical pieces. Kubisch's sonification is a sort of electronic network. The recipient could walk through the city and can see and explore it by listening intensively. In this manner, Kubisch seeks to heighten the visitor's acoustical perception of urban electro-magnetic pollution – an approach very much reminiscent of John Cage's famous definition of music: any kind of sound could be music, we just have to listen to it.

## 7. AGAINST ACOUSTICAL POLLUTION

While Christina Kubisch is inventing a new aesthetic practice by making audible inaudible acoustical signs and forming a sonic electro-magnetic map of a city, other artists such as Robin Minard are working from an ecological perspective to remove sonic pollution.

Against the background of the increase in visual and acoustical attractions in cities – as well as in acoustic radiation in public spaces such as pavements, restaurants and shops – a lot of sound artists want to create conscious acoustical perception. This is an important starting point for sonification and artistic treatments of features in our surroundings.

'Noise is the object of the largest number of complaints in the area of the environment', Canadian sound artist Robin Minard observed (Minard 1993: 13). Our sensual perception of the environment is important to artists, who use it in their sound works. But, particularly with regard to the continuing increase of visual and acoustical stimuli in our surroundings and the ubiquity of mass media, this perception is

under threat. The density of this information leads to a reduction in our sensual differentiation; an increase in acoustical pollution results in a decline in our attention to the daily acoustical phenomena in our surroundings. In this context especially, the term 'Soundscape', coined by R. Murray Schafer, is used. Schafer was trying not only to describe the ensembles of sound events in our surroundings, but also to call attention to the acoustical situation. He also tried to relate it to the ecological situation (Breitsameter 1996: 213).

The Futurist manifesto *L'arte dei rumori* (1913/1916) by the Italian Luigi Russolo included the idea of treating all noise as music (Russolo 1919: 88). The Futurists were fascinated by technique and by the movements of streetcars, steam-powered machines and engines, as well as by the machine in general. They appreciated the industrial revolution as a source of a new kind of artistic action, whereas we now look more critically at these great inventions. Now, the ubiquity of visual and acoustical pollution is the source of inspiration for many sound artists, who create works in which the recipients can immerse themselves in another acoustical reality. Robin Minard, for instance, wants to create art which takes the environment into consideration, which enters into a relationship and a dialogue with the space it occupies. One primary area of interest in his work is how to deal with acoustical space in an urban world increasingly polluted with noise, how to redefine the concept of functional music in that context. Minard points out that the ear is rarely a factor in the planning and design of architecture and urban infrastructure. He describes two strategies of 'composing space' that enter into a dialogue with the architectural and acoustical environment: conditioning and articulation. He considers conditioning to be analogous to laying a mantle of colour over a space in our visual reality. Articulation refers to adding the dimension of time to architecture through the use of sound; the movement of sound articulates and decorates a space. With his sound installations Minard tries to eliminate people's physical and psychic stress. Music, which could be any kind of noise, should function to relax people and to open a new form of perception. Minard wants to create sound environments in which the listener can relax and find a silent retreat; his sound environments are places of concentration and recreation. In his 1992 work 'Stationen' he installed different integrated microphones and various integrated speakers for the stairwell and bell tower of Berlin's Parochial Church. A computer-controlled MIDI system regenerated street sounds and transmitted them into the church's bell tower. The room was 'coloured' by vertically organised sound; the street noise was filtered and lightly reproduced in the room. Minard used the resonant frequencies and acoustic focal points of street noise to colour and

<sup>2</sup>See the description of the Clocktower Project' at MOCA – Introduction.

articulate the space, covering the room with a new sound which blended with the natural acoustical environment. The listener could not really distinguish the real sound from that deployed from the other source. The artist uses his sound installation to clean the environment of acoustical pollution. As a result some critics declare his work to be situated somewhere between sound design and sound art. Robin Minard wants to intervene in audible public space and to create an environment without acoustical pollution.

## 8. AWARENESS AS ARTISTIC PRACTICE OF SOUND INSTALLATIONS

Other artists, such as Bernhard Leitner, are interested in creating awareness of the acoustical environment of a place. When they install sound installations, they like to focus on the original sound space, giving it a new specificity.

In 1992 Leitner, one of the pioneers of sound art, constructed a so-called 'Tonfeld' in front of the IBM Building in Vienna. This tone field existed in a large raster of 13 sound places in a 40 × 60 metre area. In its shape it resembled the architecture of the ground floor of the IBM Building. Every sound site was 100 × 100 × 60 cm and under the ground. In the middle of this sound site large granite columns rose to the sky. On the front of the columns were four blue cast-iron plates covering the resonance corpus. The columns represented the visual elements of the installation; they divided and supported the sound field optically. On the other hand, the cast-iron plates accentuated the horizontal position of the sound field and gave a great sonority to the sounds. Leitner chose echo-like sounds, reminiscent of dripping water. An amorphous-organic sound figure was formed from flute and cello sonorities. Leitner connected the pillars acoustically, and as a result of this the sound space surrounding the sound field changed continuously. The visitor could become immersed in it and could experience the movement and rhythm of the sound figure and the sounds. Leitner created an acoustical space which captured city noises and at the same time adapted itself to the environment. He used sound to create for people a place of concentration on the intersection of public and private space – a space that changes continuously, always generating a new acoustic atmosphere. Because of the acoustical intervention in public space the artist staged the visitors' perception and exhibited the site itself. He made the visitor aware of its acoustical situation and transformed the perception of this public space at the same time.

## 9. RELOCATION – TRANSFORMATION

Another aspect of sonification is represented in the works of Bill Fontana, where listening plays the

central role. Listening that exhibits the space itself represents another approach, as does Fontana's intrusive migrations of acoustic environments. With his big sound sculptures, Bill Fontana is one of the sound artists who impact visual perception by intervening in the environment by using the acoustical aesthetic practice of relocation. Fontana installs his sound installations in public spaces; he interlaces different acoustical spaces. Like Kubisch, Fontana is an artist who wants to make people aware of their quotidian acoustical surroundings, alienating sounds in the daily soundscape through intervention and relocation. Since the 1980s Fontana has made sound sculptures from ordinary sounds. He works with the phenomenon of relocation, which means that the produced sound is transmitted far away from the site of its original production. In his famous work 'Metropolis Köln', Fontana offered the residents of Cologne the possibility of listening continually and concentratedly to their city, when he attached 18 speakers to a big sound sculpture in centrally located Roncalliplatz, in front of Cologne Cathedral. The speakers transmitted the sounds that were captured by 18 microphones placed at various locations around Cologne. This sound sculpture changed continually and the sounds varied based on the time and the surroundings. People who crossed the square were surprised to hear sounds that they were not accustomed to hearing in this environment. Fontana provoked an unfamiliar perception of a site that had seemed so familiar to the city's residents. The sounds varied permanently based on the position of the listener and the time of day. Various urban sounds and even natural noises clashed and formed a new spatial volume created by virtual sound spaces. On the site where the sounds originated, the real but spatially separated sounds mixed and formed a new sound space, so that the visual was overlaid by the acoustical in the aesthetic experiential world. The different levels of acoustical reception were mixed in the recipient's consciousness and were not experienced as harmonious with the real sounds; the listener could hear other things that they could or could not see. With this work Fontana made people aware of their daily environment and made it possible for them to discover their own site with new eyes and ears; he gave people a new sensual experience of time and space.

## 10. CONCLUSION

I have given various examples of how artists succeeded in marking and colouring their surroundings solely by the use of sound. The artists sonify a space and create works which are closely related to it. One of their most important characteristics is the works' social-cultural aspect, which is always linked to their site-specificity. This article has tried to demonstrate the

variety of artistic treatments of public space, and tried to explain different aspects of sound art in public space in the context of an understanding of a modified language of twentieth-century visual art and music. It shows an artistic practice that is linked to a critical role in art. I therefore place sound installations into a genealogy of installation practice in public space.

One interesting aspect of sonification is the work by Christina Kubisch. She often plays with the historical acoustical dimension of a place and tries to return its lost acoustical signs. She often works on the boundary between audible and inaudible acoustical signs. Her new works, 'The Electrical Walks', follow the idea of a geography or cartography of omnipresent electro-magnetic networks in the cities, as by carrying headsets the visitor is invited to discover the electro-magnetic map of a city, and Kubisch leads us in the electro-magnetic atmospheres of everyday daily life. Urban spaces are reexamined, and social-cultural aspects are evoked by sounds and noises.

Another sonification approach is the work of Robin Minard, who works from an ecological perspective to remove sonic pollution. The starting point of his works was the incredible increase of sonic pollution in our surroundings. With his methods of conditioning and articulation Minard tries to clean the acoustical pollution from the environment and give it a new atmosphere.

While Minard wants to create a new place by colouring the acoustical situation, Bernhard Leitner creates spaces with sound. His sound fields often refer to the acoustical environment but form a new sound site. Leitner tries to use sound to make us aware of spaces and to form new ones.

The works by Bill Fontana can also be seen in this context, but his concern is with the relocation of sounds. He creates an exhibit out of a place by

sending its sound via livestream to another place; the visitor can listen to it and imagine the place. It is an intense perception of our acoustical surrounding and the visitor is able to look at the place in a new way. The artistic treatment of a place by Fontana makes it possible to form a visual imagery in the mind of the listener. This is one of the main aspects that unites all the artistic approaches I have tried to describe in this article: sound art deals with sonification and the artistic treatment of features in our surroundings.

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