Sound and sign

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In discussing different sound environments – sound in the field of art as well as sound in the context of our daily sonic environment – this article makes reference to semiotic theories.

Sound without source. Electroacoustic media shape our perceptive realities. There are multiple tools available to record and reproduce sound, but is it possible to handle the fleeting nature of sound, the escape of sound? Certainly there are tools to manipulate sound, to create new soundscapes in this way. We can generate virtual soundscapes – projecting soundscapes via speakers, via headphones in a new context – but what are we listening to?

Every sound evokes images. The concept of 'musique acousmatique', according to François Bayle, amplifies Pierre Schaeffer's notion of the 'objet sonore'. 'Musique acousmatique' refers to sound projection, and thus to our imagination while concentrating on listening. In listening to acousmatic music, we can find three tonal levels, and this tripartite concept of listening refers to the tripartite semiotic concept introduced by Charles Sanders Peirce.

Finally, sound affects us emotionally. In contradiction to the term 'objet sonore', the term 'sound event' coined by R. Murray Schafer stresses the necessity to analyse sound in its context. It is the sonic environment which determines the meaning of the 'sound event'. Thus, from my point of view, the concept of soundscape can be compared with Ferdinand de Saussure's semiotic theory about the arbitrary meaning of signs. Signs are determined by their systems.

Semiotic concepts offer an interesting approach to sound perception. Let's listen to soundscapes before sound escapes.

1. INTRODUCTION

> Because sounds must be semanticized in order to be meaningful, our main aural concerns as a culture have been language and music. Sounds in themselves have not been regarded as having communicative effectiveness. (Fontana 1994: 90)

In my discussion of different sound environments – sound in the field of art as well as sound in the context of our daily sonic environment – I will refer to semiotic theories which, in my opinion, offer an interesting approach to understanding socio-cultural phenomena – like sound – as structures of meaning. Thus, I will relate concepts of sound(scape) to these theories.

2. SOUND WITHOUT SOURCE

As we all know, the evolution of electric, electronic and digital media has changed the acoustics of our sonic environment. Every day and everywhere electroacoustic media shape our perceptive realities.

For almost a century now, audio technology has enabled us to record sound and to reproduce this recorded sound. But how realistic is it to try and avoid the fleeting nature of sound, the escape of sound? We have tools to manipulate sound, to create new soundscapes. We generate virtual soundscapes – projecting soundscapes via speakers, via headphones into a new context. What do we listen to?

The epoch-making invention of the magnetophone has made it possible to record and to repeat sounds. Sound can be reproduced, can be duplicated. In this sense, Peter Weibel describes the magnetophone as a 'redoubling-machine' ('Verdoppelungsmaschine'; see Weibel 1999: 110).

The possibilities of repetition extend the understanding of sound as a phenomenon. Sound can be observed and analysed in new ways. The storage possibilities of the magnetophone have enabled us to materialise sound.

It was in the 1960s when Pierre Schaeffer, in his well-known book *Traité des Objets Musicaux* (1966), described a general phenomenology of the sonic world. His reflections bring forth a basic change in the way we consider and experience sound. His concept of the 'objet sonore' (sound object) is an important step towards a new way of listening which he calls 'reduced listening'.

The 'objet sonore' should not be confused with the sonic source. It is not necessary to know the sonic source, the former context of the selected sound. The sound object is an acoustic object of study. In a subsequent compositional process it can be shaped and transformed, it can obtain a new aesthetic meaning as an 'objet musicale' (musical object). On the one hand the separation from the original sonic source means a loss of visual sustenance, on the other hand it is this new independence which enables us to perceive new meanings.

Storage/cut/montage: with the notion of 'objet sonore' Schaeffer established a new way of composing in 1948 – 'musique concrète' (concrete music). The new modes of operation include associative montage of various times

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and spaces, the merging of different sound experiences which in reality could not co-exist: composing as an aesthetic and poetic transformation of reality.

Today's digital media such as samplers and hard disc recording systems extend the facilities of sound processing. Sounds are separated from their original temporal and spatial context and transformed into a new context, into new soundscapes. Digital sound processing facilitates (beside numerous possibilities of shaping) signal processing in real time. Virtual soundscapes, real-time compositions – soundscapes are generated in real time.

The possibilities of storage and reproduction bring forth various methods of composing. Every composer and every sound artist develops his/her artistic concept, his/her position, and so there are many different kinds of composing with recorded sound material.

Some of my colleagues stress the importance of the sonic source of their recorded sound material. Especially in the field of soundscape art, environmental sound is used with reference to its sonic source. 'In the soundscape composition . . . it is precisely the environmental context that is preserved, enhanced and exploited by the composer' (Westerkamp 1999).

Other composers regard their recorded sound material as 'objets sonores', as autonomous sound objects. They are interested in dynamic movements of sounds and in sonic morphology without any reference to the original sonic source of their selected sound objects.

The Canadian composer and soundscape researcher R. Murray Schafer stresses the negative aspect of electroacoustical transmission. He criticises the split between an original sound and its electroacoustical reproduction. His term 'schizophonia' (see Schafer 1977: 90) describes the separation of the recorded and reproduced sound from its original sonic source.

Schafer's term 'schizophonia' describes the change of our acoustic environment by electroacoustic media. 'Acoustic and electroacoustic soundscapes are intermingled randomly . . . and the listener's "sense of place" may become confused and uprooted' (Westerkamp 1999).

In my opinion, Schafer's critique should be regarded as relevant to soundscape research only and not for sound art. The possibilities of fixation and reproduction of sounds enable artists to organise sounds in various ways. How we select and compose sounds is a question of artistic freedom.

The possibilities of recording enable us to store selected soundscapes for future generations. At first glance the fleeting nature of sound seems to be no problem anymore. We can preserve sound, we can store sound. But can we really handle the fleeting nature of sound, the escape of sound(scapes)? How can we imagine an abundance of duplicated soundscapes?

Another question is how to save the original identity of soundscapes on recordings. This seems to be impossible since listening to sound means to rediscover, to re-experience, to recognise familar sounds. So how will we listen to recorded soundscape doubles in the future?

I claim that there is an aspect in Jacques Derrida's method of deconstruction offering an interesting viewpoint on sound(scape) recordings. Derrida says that writing can be regarded as a legible material trace, it reveals and hides truth at the same time (see Kimmerle 1997: 92). With regard to our sound(scape) recordings I would argue: these recordings offer information depending on our attitude and capability of listening. Recordings are sonic traces that at the same time reveal and hide sonic information.

3. SOUND EVOKES IMAGES

What kind of sonic information can recorded sounds reveal or hide? In his concept of 'musique acousmatique' (acousmatic music) the French composer François Bayle (1993) refers to sound projection, thus to our imagination while we concentrate on listening.

The term 'acousmatic' can be traced back to the Greek philosopher Pythagoras. In order to help them concentrate he advised his new students to listen to his speech from behind a curtain (see Bayle 2000: 102). They should not be distracted by gesture and facial expression, they should focus on the content of the speech.

The acousmatic mode on the one hand means focusing on listening without seeing. On the other hand it changes the way of speaking. Speaking from behind a curtain forces us to adapt speech. It even enables us to create a special method of mediation.

François Bayle has established the term 'acousmatic' in the field of electroacoustic music. His concept of 'musique acousmatique' extends Pierre Schaeffer's notion of the 'objet sonore'. In acousmatic music, sound is regarded as an autonomous sound object. Removed from their former context, autonomous sound objects comprise form and texture as autonomous qualities.

In order to characterise 'musique concrète' (and in consequence 'musique acousmatique'), theoreticians often use the term 'musique invisible' (invisible music) (see Singer 2000). However, this should not lead to misunderstandings. Of course, music, compared to visual art, is usually regarded as an invisible art. And in most concert settings the acoustic perception is supported by visual information – by the movements of the musicians while playing, the gesture of conducting, etc. But the term 'musique invisible' wants to emphasise this special phenomenon of sounds being projected via speakers.

In the acousmatic situation we do not have a causal element that supports our interpretation. There is no movement of the violin bow which makes us expect the sound. In the acousmatic situation we are touched by

sounds unexpectedly. Bayle describes the way of listening to 'musique acousmatique' as follows:

> On the first level (immediate) of the 'centration'[1] of listening sequences with identifiable references are connected be they realistic (voice, environment, soundscape, etc.) or abstract (morphology of frictions, vibrations, rebounds, etc.).
>
> The second level of the 'centration' includes experiences (singular) or transformations with detectable means: filter, synthesis of tone colour, transposition, etc. as well as remarks which consciously appeal to the 'écriture' [writing], to the style: signs of interruption, obvious changes of the level, the character, the motif, etc.
>
> The third level (that of the sense) comprises the forms of process and development which follow internal laws, threads, texture and formal organisation, oriented developments of the moments of musical discourse. (Bayle 1993: 55, trans. G. P.)

Bayle's tripartite model of listening is comparable to Charles Sanders Peirce's tripartite semiotic concept – especially to the three sub-signs of the sign: to the quali-sign, the sin-sign and the legi-sign, that is, to the three categories of firstness, secondness and thirdness.

In Charles Sanders Peirce's tripartite semiotic concept, the sign-pole consists of three sub-signs: the quali-sign, the sin-sign and the legi-sign. The object-pole is specified as icon, indice and symbol whereas the reception mode comprises the immediate interpretant, the dynamical or energetical interpretant and the logical interpretant (see Peirce 1978, Nagl 1992).

Peirce claims that every sign implies three categories. Firstness might be understood as a possibility, secondness implies perception and action, the experience of an 'outward clash' (see Nagl 1992: 97), whereas thirdness is regarded as a common system, for instance as a system of musical symbols.

Bayle's concept of 'musique acousmatique' focuses on dynamic movements of sounds as well as on sonic morphology. 'Image, acoustical mirage. Familiar sounds frame our lives. Their sound images, being detached from their concrete context, powerfully reveal their dynamic principles . . . They induce me into composing a music of motions and images' (Bayle 1993: 76, trans. G. P.).

While listening to projected sound we imagine sound images. Our senses become a virtual auditory room, a place where acoustically evoked images arise. The term 'écran sonore' (acoustic screen) by Pierre Schaeffer (see Singer 2000: 158) describes this virtual auditory room. While listening to sound projection, for instance to radio, the listener him/herself is the acoustic screen on which sound images are being projected. We listen to sound images created by a composer or a radio producer and form our own personal sound images.

[1]The term 'centration' is specifically used by François Bayle and can hardly be translated, and therefore I use it in quotation marks.

Sound perception evokes mental images. Bayle's term 'i-son' or 'image du son' (sound image) (see Singer 2000: 159) is an extension of Schaeffer's 'objet sonore'. Sound phenomena are perceived archetypes of listening.

The acousmatic perception is related to perception in the oral tradition. Sound needs to be remembered. There is no score, no paper. It is impossible to make a graphic sketch of an acousmatic piece because of its complexity. I take the view that this is similar to our difficulties in the field of soundscape research, where every graphic sketch of soundscapes is bound to be a reduction (see Winkler 1995).

Bayle distinguishes between two ways of acoustic perception: 'perception allocentrique' and the 'perception egocentrique'. In the 'allocentrique perception' we do not focus, there is no centre because every sound is regarded as a centre. Whereas the 'egocentrique perception' depends on our way of focusing. We decide, we focus, we put together everything that happens in the room.

I assume that listening to soundscapes – to composed soundscapes as discussed above as well as to rural or urban sound environments – touches our personal repertoire of listening. Messages are decoded in relation to our own sound experiences. Because sounds are linked to memorised experiences, internal images arise.

4. SOUND AFFECTS US

Unlike the above notion 'objet sonore', the term 'sound event' used by R. Murray Schafer (1977) stresses the necessity to analyse sound in its context. It is the sonic environment which determines the meaning of the 'sound event'. 'I propose to call them "sound events" to avoid confusion with "sound objects", which are laboratory specimens' (Schafer 1977: 131).

R. Murray Schafer considers acoustic environments as soundscapes. In order to observe and analyse sonic environments he includes the description of the physical characteristics of sounds, the way of perception, the meanings of a 'sound event' and its aesthetical qualities in his advanced research method.

Whereas Pierre Schaeffer and in consequence François Bayle conceive of sound as an autonomous object, Murray Schafer with his soundscape concept focuses on the context, on the environment. Soundscapes ought not to be reduced to merely quantitative acoustic valuation. Soundscape research analyses the interaction of sounds in their contexts.

Schafer argues that function and meaning of sound depend on its context, that there is no objective meaning of a sound. 'Most sounds of the environment are produced by known objects and one of the most useful ways of cataloguing them is according to their referential aspects. But the system used to organise such a vast number of designations will be arbitrary, for no sound has an objective meaning, and the observer will have

specific cultural attitudes towards the subject' (Schafer 1977: 137). Thus, from my point of view, the concept of soundscape can be compared with Ferdinand de Saussure's semiotic theory concerning the arbitrary meaning of signs (see Proy 1997). Saussure argues that signs are determined by their systems.

Unlike Peirce's tripartite semiotic concept, Saussure's semiotic theory is based on the dichotomy of signs – of the 'signifiant' and the 'signifié'. Saussure's 'symbol' is a sign in which signifiant and signifié are related to each other (see Saussure 1967–74, Jakobson 1992). He argues that symbols are arbitrary signs. He ascertains specific distinctions in the nature of signs and their social functions and stresses that signs are determined by their systems.

I compare Saussure's semiotic concept to Schafer's theory of soundscape because of Saussure's argumentation that signs are determined by their systems. In order to stress the necessity of analysing sound in its context, Schafer mentions the sound of a snake and that of boiling water. Both sounds have almost the same register of frequencies. While listening to the recorded sound of a snake and to the recorded sound of boiling water from tape, it is very hard for us to differentiate between the snake and the boiling water. However, in its original context we (hopefully) understand the different meanings of both sounds quite well.

An identical sound may affect us in different ways. As an example, Schafer mentions J. S. Bach's flute music. If we appreciate flute music we will probably love Bach's flute sonata. But if we neither like the music of Bach nor flute music, we will not experience pleasure by listening to Bach's flute sonata. Although the physical character of the flute sonata remains the same, we see that its aesthetic effect can be quite different. 'We become aware of the fallacy that a given sound will invariably produce a given effect' (Schafer 1977: 149).

Sounds affect us, they contribute meaningfully to our comprehension of time and space. Jean-François Augoyard argues that sound effect is not just the result of a physical cause. 'Sound effect is connected to an interpretation. The most simple sonic perception necessarily supposes the work of semantic selection. Cultural and social characteristics will add other interpretations' (Augoyard 1999: 123).

The concept of 'environmental context' is not only relevant in the field of soundscape research but also in the field of soundscape art. 'An attention to context means that composers often choose to work with the sounds of particular places, listening intently to the sources, relationships, reverberations, and movements of sounds within those places, in order to understand them sonically, then to express that understanding' (McCartney 2000).

Artists in the field of soundscape art use environmental sound as a type of language. They concentrate on the relationships between sounds and their contexts – between sounds and their former environmental context as well as between sounds and their new aesthetic context within the work of art. 'The essence of soundscape composition is the artistic, sonic transmission of meanings about place, time, environment and listening perception' (Westerkamp 1999). A soundscape composition is a poetic transformation of sounds and their environmental contexts.

What kind of sonic information can recorded sounds reveal or hide in soundscape compositions? Soundscape compositions hide meanings of sounds and their contexts within an aesthetic discourse. Whether listeners can reveal sounds as signs within a structure of references depends on their cultural attitudes towards listening and on their individual sound memories.

5. CONCLUSIONS

Derrida argues that writing should not be regarded as a sign representing an object, but as a trace that refers to something which is not statically present but continues to relate within a structure of references (see Kimmerle 1997: 39).

With regard to environmental and composed soundscapes, I conclude that soundscapes should not be listened to as static systems. They should be regarded as vivid processes with continuous references. Listening to soundscapes invites us to be aware of vivid relationships between sounds and their contexts.

Let's listen to and memorise soundscapes, before sound escapes . . . however, new soundscapes will arise.

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