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Rechanneling the vibratory field

Thoughts on Stockhausen, kode9 and Lyotard

Paper presented at the Sound ACTs Conference, Aarhus Denmark, September 2010

Thinking about the connection between media theory and auditive culture, I'm not only interested in the question, what media theory can actually tell us about the diverse field of today's auditive cultural practices – that is how have our concepts as well as our uses of sound as an aesthetic material and as a cultural medium of signs changed since the introduction of media technologies, most notably phonography? –, but also in the inverse perspective: What can auditive experience contribute to model theories of media in the first place?

As it is today commonly recognized, the mainstream of current approaches in media studies is deeply interspersed with ocular-centric concepts of human perception. Still, it is all too often the transcendental subject-observer installed by central perspective that occupies – and in this case literally – the vanishing point of theoretical discussion. The modern self – as Steven Connor has put it – »constitutes itself in terms of the epistemological regime of the eye which has become increasingly dominant in the West since the Renaissance.«[1] And it was one of the founding figures of media studies – Marshall McLuhan – who stated that next to concepts of visual space, derived from renaissance perspective, it was also the media technologies of the printing press which further fueled an understanding of the self as an atomistic subject. Seeing – which here also means: knowing – a world of definitive, separated objects, lined up one next to the other, all tied together by linearities of cause and effect. Finally, it was also McLuhan who proposed that the electronic media environments of today are better

[1] S. Connor 1997: The Modern Auditory I. In: R. Porter (Ed.): Rewriting the Self. Histories from the Renaissance to the Present. London: Routledge. p.: 203.

modeled as a kind of ›acoustic space‹, a space that is not to be observed from a distance but that inevitably surrounds us, that literally impresses on us from all directions simultaneously, a space that resonates: »›Resonance‹ can be seen as a form of causality, of course, but its causality is very different than that associated with visual space, because resonance allows things to respond to each other in a nonlinear fashion.«[2]

It is also this concept of resonance as a nonlinear causality that is central to the following discussion of the relationships between media technologies, aesthetic practices and theoretical discourses. Instead of reducing the entirety of cultural history to a predetermined symptom of the evolution of media technology, or vice versa explaining the technological development as a transparent expression of free human will, one could assume that changes occurring in the media system always hit certain critical frequencies already existent, but perhaps masked, in the field of practice and discourse, thereby amplifying certain bandwidths, which on their turn feed back into the resonating whole. Sometimes this may escalate in a screeching noise hurting the ear drums of traditional aesthetics and established discourse, sometimes – on the other hand – this established discourses may be loud enough, so that the irritating new frequencies may pass unheard.

In the following, I want to display two of these discoursive events which resonate intensively with the ongoing disruptions in the sphere of sonic media. Both of them offer interesting, alternative perspectives on sound, crucially alternating from the ways it is modeled for example in traditional musical discourse. The first example will be one of the pioneers of Electronic Music, Karlheinz Stockhausen, and his idea of a time continuum of musical composition, which transcends fix categories like pitch, timbre or rhythm. As a second example I will then touch on Steve Goodman's recent book Sonic Warfare. Goodman, who also DJ's and produces music under the alias kode9, plus runs the much acclaimed record label ›hyperdub‹, develops an idea similar to Stockhausen's, when he thinks about the Sonic as only a smaller part of a larger vibratory continuum. In both cases it is not my goal, to give a complete overview of the two accounts. It is rather about filtering out certain frequency bands leaving all the rest behind, mixing them together to make them resonate in new and interesting ways.

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[2] E. Davis 1997: Acoustic Cyberspace. Online: http://www.techgnosis.com/acoustic.html (14.09.2010).

Composition in a time-continuum

One of the central and guiding aesthetic assumptions of Elektronische Musik since the 1950's has been to think of musical composition as taking place in a time-continuum. Instead of taking the concepts of timbre, pitch, rhythm and form as qualitatively discrete musical categories – as classic compositional theory treated them for ages – the composers in the electronic studios understood them rather as varying, sometimes overlapping bandwidths on the sensual continuum of sound.

As one of the pioneers, Karlheinz Stockhausen, explains:

> »I supposed that differences in acoustic perception could all be put down to differences in timely structures of vibrations.« [3]

And as he sets out elsewhere,[4] this implies that the previously apparently distinct categories of musical perception and production – timbre, melody and harmony, lengths of notes and form – become discernible as marking only different sections on a wider continuum of sound – or more exact: of vibrations – and that one can finally (under certain circumstances) skip from one category into the other.

Stockhausen divides this continuos spectrum of vibrations into the following four parts:[5] Periodical vibrations between ca. 16 Hz and 6000 Hz are perceived as tones with constant pitch levels, which set the ground for melodic and harmonic principles. Whereas for vibrations slower than 16 Hz perception moves continuously from detecting a pitch level to perceiving the single vibrations as a rhythmical structure, above about 6000 Hz vibrations are heard either as harmonic or disharmonic overtones, depending on their relation to the basic pitch, and this way making up the timbre or color of a sound. Durations longer than about 8 sec. (1/8 Hz) are no longer heard as rhythmic relations then, but as shape-ing the proportions of musical form.

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[3] K. Stockhausen 1961 [1963]: Die Einheit der musikalischen Zeit. In: Texte zur elektronischen und instrumentalen Musik Bd. I. Köln: DuMont. p.: S. 212. (»Ich ging davon aus, daß die Unterschiede akustischer Wahrnehmung doch alle auf Unterschiede zeitlicher Struktur von Schwingungen zurückführbar seien.«)

[4] See K. Stockhausen 1972 [1978]: Vier Kriterien der elektronischen Musik. In: Texte zur Musik 1970-1977 Bd. IV. p.: 362.

[5] See K. Stockhausen: Einheit der musikalischen Zeit. p.: 215.

An even more systematic and far reaching distinction of the different dimensions of musical time, can be found in Curtis Roads' Microsound[6] where the author distinguishes between 9 time scales of music, which reach from the mathematically ideal Infinite, over to the Supra time scale, which goes beyond the duration of a single composition, down to the Subsample time scale, which is too brief to be recorded in digitized code, finally to the ideal Infinitesimal. The boundaries of these time scales are – as Roads points out – sometimes clearly marked and sometimes zones of rather continuos shifts of perception, but in either case, they are only present in human perception, not in a quality of the vibration as such:

> »As sound passes from one time scale to another it crosses perceptual boundaries. It seems to change quality. This is because human perception processes each time scale differently.«[7]

The practical and artistic consequences of this shift of perspective, which seems more or less abstract at first, is perhaps best exemplified by taking a (rather simplified) look at one of the basic compositional techniques of Stockhausen. In his electronic works – namely in Kontakte – he was no longer satisfied composing with instrumental sounds, defined and limited by the structures and traditions of instrument design, so he went over to composing individual vibrations out of sequences of technically generated impulses, recorded onto a tape machine. For example, when he created a sequence of impulses by the speed of 90 beats per minute (which equals a vibration of 1,5 Hz), this was at first perceived as a rhythmical structure. But the same sequence, copied onto an endless tape loop and sped up by the factor of 128 (which equals a transposition by 7 octaves) results in a continuos tone with a recognizable pitch level of 192 Hz (somewhere between Fis and G). This basic principle allowed the composer to shape and form the actual sounds at the stage of rhythmical organization of impulses and then afterwards transpose this rhythmical structure to get a continuos tone, which pitch level is then defined by the longer periodical structures of impulses, whereas smaller variations within these periods make up the timbre. The resulting self composed tones and sounds could then finally in a literal cut and paste operation be arranged at the macro time scale of musical form.

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[6] C. Roads 2001: Microsound. Cambridge: MIT Press.

[7] C. Roads: Microsound. p.: 4.

Now, what is crucial about Stockhausen's concept of sound as a time continuum here, is the fact that this continuum is inseparably interwoven with the media technologies of analog (and later digital) phonography. After all, it is the ability to record sound as a vibrational event – either by transforming the time structure of the vibrations into a material structure, carved into the grooves of the phonograph record, by translating the vibrations of air pressure into such of voltage modulated onto magnetic tape, or finally by chopping up the vibration into discrete samples, represented in binary code – which precedes the thought of a sound event as something that can be accelerated or decelerated as such, and therefore transposed within the time continuum. As Friedrich Kittler has argued, it is one of the central qualities of media, to enable such time axis manipulation.[8] And Stockhausen himself admits that it is electronic media in the first place, which renders the composition within the time continuum possible,[9] when he writes:

> »So under circumstances we had a continuum at our disposal, which is to achieve only through the new apparatus, within which we can continually pass from one part to the next [...].«[10]

It is not my point here to declare Stockhausen's work as merely a byproduct of the evolution of media technology – which would lead back to a crude technological determinism. I would rather argue that changes and alterations of technical means in artistic practices always shatter the established aesthetic discourses and as such give rise to new forms of knowledge and discourses as well as new forms of aesthetic practices. So instead of installing ›the media‹ as the last somewhat solid ground, which helps to explain both, subjective conscience as well as historic process, I understand it as being always embedded in heterogenous networks of specific discourses and practices, tied to specific complexes of knowledge, which all together bring about certain, always ambiguous effects. In short: I do not want to look at ›the media‹ as an apriori, but – using a term which

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[8] See F. Kittler 1990: Real Time Analysis, Time Axis Manipulation. In: Tholen, G. C.; Scholl, M. O. (Ed.): Zeit-Zeichen. Aufschübe und Interferenzen zwischen Endzeit und Echtzeit. Weinheim: VCH.

[9] See also K. Stockhausen: Vier Kriterien. p.: 396.

[10] K. Stockhausen: Vier Kriterien. p.: 363. Italics M.P. (»So hätten wir also unter Umständen ein Kontinuum zur Verfügung, und das ist erst mit den neuen Apparaturen zu erreichen, in dem wir kontinuierlich von einem Bereich in den anderen übergehen können [...]«)

has its origins in the french philosophy and film theory of the 60's and 70's – as a dispositif of today's experience and agency.

From Sound to a Vibratory Continuum

This will be further discussed, but first we should take a look at another one of such discursive disruptions: About half a century after Stockhausen first developed his idea of composition in a time continuum, British theorist Steve Goodman thought about sound, about different »(biotechnical, social, cultural, artistic, conceptual)«[11] (10) technologies of sound and their use as weapons in an affective war, raging on the sensual battlefields of today's multimedia environments. In his book Sonic Warfare. Sound, Affect and the Ecology of Fear, published earlier this year, Goodman examines the diverse shapes of »acoustic violence of vibration«[12], the ›militarization of the audiosphere‹. From the battlefields of the world wars, it's sonic military equipment – like the vocoder for instance – and the Italian futurists' praise of The Art of (mostly War-)Noise, he reproduces these micro-politics of sound up to contemporary uses of acoustic devices for crowd control in Europe's inner cities or the sonic booms deafening the gaza strip, finally to the vibrational counter strategies of pirate radio stations taking over the airwaves of the ›vertical slums‹ (Fuller) of today's public housing projects or the nucleus of an afro-futurist aesthetic – described by Kodwo Eshun ten years ago: the futurhythmachine.

All his highly interesting and important comments on these ongoing battles, the ceaseless firing of sonic ›affectiles‹[13] set aside, Goodman aims to develop nothing less than a ›nonrepresentational ontology of vibrational force‹, a trembling philosophy heavily shaken by the reverberations of the subbass frequencies and pierced by the sharp high-pitched tones of today's sonic hyperrealities. Such a philosophy then, would no longer model ›the world‹ as a deeply ocular-centric cartesian time-space inhabited by definitive objects and observed and known by – seeing – subjects, but

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[11] S. Goodman 2010: Sonic Warfare. Sound, Affect and the Ecology of Fear. Cambridge: MIT Press. p.: 10.

[12] S. Goodman: Sonic Warfare. p.: XIV.

[13] See S. Goodman: Sonic Warfare. p. 83.

would rather describe it as a »vibratory continuum of matter«[14], where all such seemingly solid instances like subjects or objects finally appear only as unstable and momentary products, cut out by the narrow boundaries of human perception. »If we subtract human perception, everything moves. Anything static is so only at the level of perceptibility.«[15]

Instead of talking about fix subjects and objects, Goodman – with regards to Spinoza as well as Deleuze and Guattari – grounds his analysis in a concept of an all encompassing kinetic field of restlessly vibrating particles out of which individuated bodies only emerge depending on their specific relations of ›speeds and slownesses‹. According to Gilles Deleuze, a body thereby »can be anything … a body of sounds … it can be a linguistic corpus, a social body, a collectivity.« Each body is itself made up from other bodies, partial organs which all together form, not merely a closed determinate system, but rather an always provisional and fragile entity, tied together primarily »by their rhythmic consistency and affective potential.«[16]

For Goodman it is not only about opening up fix musicological categories like pitch or rhythm into a time-continuum of sound, but sound itself becomes only one sensory modality, one way to affect and be affected by an always rumpling, vibrating environment. The world becomes a ›vibratory (dis-) continuum‹. By zooming in on the fundamental level of vibration which precedes all seemingly stable instances – like ›things‹ or ›persons‹, ›humans‹ or ›technologies‹ – Goodman addresses three major problems, which he sees in most academic discourse about sonic phenomena:[17] First of all, the sonic is freed from »linguistic imperialism«, which alway tries to decode a ›meaning‹ inscripted into the sounds, thereby leaving behind the asemantic, material, the crucially affective dimension of sound. Secondly, the physicist assumption is countered, that all sonic phenomena can be accurately measured in and explained from the physics of acoustics. Instead a relationist perspective is adopted, which focuses on sound as ›incorporeal affects‹, as an encounter of bodies affecting other bodies. And finally, the shift in perspective away from the central, hearing human subject to a

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[14] S. Goodman: Sonic Warfare. p. 9.

[15] S. Goodman: Sonic Warfare. p. 83.

[16] S. Goodman: Sonic Warfare. p. 102.

[17] For the following see S. Goodman: Sonic Warfare. p. 82.

broader view of a complex network of interrelated entities, leaves behind »the phenomenological anthropocentrism of almost all musical and sonic analysis«, thereby clearing the sight to take all the »nonhuman participants« into analysis which play their part as well.

It is right at this point, that the hardware parks, the vast set-ups of sonic media technology enter the stage of a ›vibrational ontology‹. Similar to arguments recently made by Actor-Network-Theory, short-circuited explanations can then be rejected, which treat media technology either as always available, passive means of subjective human agency, or on the other hand as subjects themselves, driving socio-historical process, reducing ›the human‹ to a mere servo-mechanism. Instead of that, humans and nonhumans, organic as well as technological bodies are wired together in a complex network, a resonating whole, as specific actors – or in this case perhaps: oscillators –, each equally important for an adequate theoretical analysis. So, rather than conceptualizing media devices as more or less transparent channels of communication, as memory banks holding some kind of content independent of the media itself, they become visible – or rather: audible – as self-contained actors themselves, resonating and thereby changing and rechanneling the entire vibratory field.

With Goodman, we can then reconceptualize media technologies as integral parts of »sound systems (consisting of bodies, technologies, and acoustic vibrations, all in rhythmic sympathy)«[18].

Vibration and the Media-Dispositif

Here – and this last point will bring these considerations to a close –, some similarities become visible, between a concept of media technologies as parts of larger sound systems and the theoretical term of a ›media-dispositif‹. To treat media as parts of a specific dispositif always means to neglect any essential effects inherent in the media as such, and to rather deduce any effects from a sprawling of practice and discourse which surrounds any media device. After a famous quote by Michel Foucault a dispositif is a ›crucially heterogeneous ensemble‹, built up from discourse, institutions, architectural facilities and so on, always processing and

[18] S. Goodman: Sonic Warfare. p. 5.

reinstalling a specific complex of knowledge and power.[19] On the other hand there has been a strain in film theory since the 70's that talks of a cinema-dispositif, pointing at the unique assemblage of a hidden projector, the dark hall and the fixed spectator.[20] But for these remarks here, a third member of the long line of France's great thinkers is of even more interest: Jean-François Lyotard.

For Lyotard a dispositif means any kind of apparatus that regulates the circulation of energy within aesthetic practice. Writing mostly about painting, he declares that: »The dipositif is a diagram, who channels and regulates the energy, its supply and removal as chromatic inscription.«[21] Hence, the dispositif implies both the material as well as the ideal conditions under which aesthetic processes proceed; the aesthetic strategies as well as the technological environment.

It is primarily at this notion of Lyotard's dispositif as an energetic control circuit, that it could potentially be linked up to a concept of a ›vibratory continuum‹. We could then leave the unresolvable dichotomy between music – as a meaningful cultural medium of ›organized noise‹ – and the seemingly accidental technical means of its production, distribution and reception behind, and instead focus on a vibratory field of possible sound that is steadily opened up and restructured by a dispositif made from a heterogeneous array of aesthetic discourses and practices, technical means and corresponding complexes of knowledge. To put it in a ›deleuzo-spinozist‹ dictum: Media dispositifs change the ways in which a human body affects and can be affected by sonic vibrations.

According to Lyotard each dispositif is characterized by a set of specific limitations, which regulate flows of energy within aesthetic practice and which especially charge certain objects or certain sensory modalities.[22] Put another way, one could say that the affective potential distributed on the vibratory continuum that is this ›world‹ is continuously remapped not by

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[19] See M. Foucault 1978: Dispositive der Macht. Berlin: Merve.

[20] See J. L. Baudry 1994 [1975]: Das Dispositiv. Metapsychologische Betrachtungen des Realitätseindrucks. In: Psyche - Zeitschrift für Psychoanalyse und ihre Anwendungen, Jg. 48, H. 11.

[21] J. F. Lyotard 1980: Essays zu einer affirmativen Ästhetik. Berlin: Merve. p. 56.

[22] J. F. Lyotard: Essays zu einer affirmativen Ästhetik. p. 78.

media technology alone but by the entire surrounding proliferation of cultural discourse, practice and knowledge.

A prime example for this would be the development of digital sound synthesis or digital sound sampling since the middle of the last century. The possibility to translate back and forth between sonic frequencies and binary code brings with it totally new ways in which we engage with sound in our everyday life – filesharing or personalized web radio, just to mention two –, unforeseen for example during the days of the tape machine. And of course especially aesthetic sonic practice has faced some fundamental shifts and changes from Max Matthew's first experiments with Music I, to the early DAW's, to software environments like MAX and Pure Data. Now, with all that has been said about media technology acting as a part of a larger media dispositif, the interesting point would be not only to ask for ›the Digital‹ in its essence and to put it in a relation, to build up a hierarchy between the Digital and the Analog, which then either values higher the discrete explicitness of the one or the irreducible richness of the other, but to ask how digital media has changed our dealing with sound, how it has (or has not) changed the ways we talk about sonic phenomena, and finally how it has changed the sounds we hear.

For example, Steve Goodman describes the »texturhythmic innovations« of digital time-stretching algorithms as »new ways in which sound impresses on the skin, touches, affects, and infects.«[23] These innovations – so much can be said – don't fit into the discourses and concepts of mainstream musicology for example. So, to fully grasp on their affective potential, we have to understand them outside of this classical musicological dispositif, we have to get rid of everything theory tells us about melody or harmonic progression and instead take them as a new fold on the vibratory continuum that has to form its own links to its own discourses, practices and concepts.

In the end, it would be our own position as subjects within this world, that had to be reconceptualized in the face of a theory of a media-dispositif. A dispositif is not to be understood as a kind of fixed frame which limits and restricts the acts of a free, independent subject, but rather as the ground on which every subjective acting proceeds, on which subjectivity is produced at first.

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[23] S. Goodman: Sonic Warfare. p. 122.

Here, we can finally loop back to the beginning, because it is precisely this fragility, this provisionality of our experience as subjects, that a media theory focused on the transcendental subject-observer could perhaps best learn from auditive culture. Karlheinz Stockhausen beautifully concludes these remarks on sound as something that affects and is affected rather than something that means something else, and sounds somewhat like Deleuze, when he states:

> »If somebody experiences something acoustic, he gets changed, since he is modulated by the vibrations, all his atoms get modulated; only partially can he recover the state, in which they vibrated before.«[24]

[24] K. Stockhausen: Vier Kriterien. p. 395. (»Wenn ein Mensch etwas Akustisches erlebt, wird er verändert, weil er durch die Schwingungen moduliert wird, seine ganzen Atome werden moduliert; er kann nur zum Teil den Zustand wiederfinden, in dem sie vorher geschwungen haben.«)