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Peter Ablinger: Music and its Others

Throughout this essay I will use the concept of “otherness” in relation to music to describe what has historically been considered as outside of the domain of music, namely: noise, silence, and non-musical sound (Cox, 2004, 5). In analyzing the work of composer Peter Ablinger, I will expand these areas to include certain issues related to language and representation and to performance.

Throughout his career Peter Ablinger has been working in an area that has pushed at the boundaries of music and has somehow seemed to exist at the periphery of music. His work has continually provoked us to question music's ontological status, to radically consider music as that which, rather than being in opposition to, may actually contain its others, materially and conceptually. This body of work has included: an exhaustive body of work exploring noise as a phenomenological, non-signifying entity; work that seems to evade clear boundaries between music performance, theater, installation art, and performance art; and most recently, what Ablinger refers to as *Phonorealism*, work that engages certain critical questions pertaining to basic understandings about the relationship between music, language and representation.

Ablinger was born in Austria in 1959 and initially studied graphic arts and was interested in free jazz. He later studied composition with with Gösta Neuwirth in Graz and then Roman Haubenstock-Ramati in Vienna. Since 1982 he has been living and working in Berlin where he has held many concerts and festivals among other activities.

Noise: Up to and Including *Static*

Peter Ablinger's work since the mid-1990s has included extensive artistic research and composition concerned with noise for its own sake: "not as: a signifier for chaos, for energy, entropy, disorder, or uproar; not for standing up against, being disobedient, destructive; not for everything or for eternity, or for what-have-you" (Scheib, 1997, 1). Ablinger's work with noise follows a long history of various positions on the use of noise in western music (see Kahn, 2001, also Nattiez, 1990). I will trace this history of the absorption of this musical other initially to the early avant-garde group of Italian Futurists at the turn of the 20th Century.

Concurrent with the onset of industrialization in Italy, with its proliferation of factories and machines, and World War I, was the work of painter and Italian Futurist, Luigi Russolo. Russolo called for a use of noise in his *Art of Noises* manifesto of 1913 that, in part, related to certain observations of features inherent to the soundscape of the time. "Ancient life was all silence. In the 19th Century, with the invention of machines, Noise was born. Today, Noise is triumphant and reigns sovereign over sensibilities of men [...]." However close for Russolo the connection was between the sounds of life and noise, he did not limit noise to mere imitation. "Although the characteristic of noise is that of reminding us brutally of life, the Art of Noises should not limit itself to an *imitative reproduction*." Rather, noise was to be an element within a composition, which was to be "regulated harmonically and rhythmically", and to be given pitches. This was accomplished via Russolo's *intonarumori* (or "noise-instruments"): drone-machines, crash-machines, din-machines, whistle machines, shrilling machines, and snort-machines.

[...] it is necessary that these noise timbres become abstract materials for works of art to be formed from them. As it comes to us from life, in fact, noise immediately reminds us of life itself, making us think of the things

that produce the noises that we are hearing [...] (Russolo, 2004, 86).

This attitude was reflected in the *organized sound* of Edgard Varèse, particularly in his, the earliest percussion-only work, *Ionization*. In discussing a performance of the piece, Varèse said, "people call them instruments for making noise. I call them instruments for making sounds." With Varèse, as with Russolo, the emphasis was on *integrating* noise: it was "still the *composer* who *decided* what he wishe[d] to retain in his work." (Nattiez, 1990, 52). Moreover, Russolo also never gave up the "emotionally provocative" dimension of noise. "Today, the machine has created such variety and contention of noises that pure sound in its slightness and monotony no longer provokes emotion." (Russolo, 2004, 11).

Russolo's conception of the use of noise was not too distant from those of the later *musique concrète* composers, for whom, beginning in the 1950s, Russolo was a precursor and a clear influence. Nearly all of the theory of early *musique concrète* comes from the writings and compositions of one of its most influential pioneers, Pierre Schaeffer. First, as facilitated by the new ability to conceal sounds from their sources via the technological advancement of the tape recorder, Schaeffer contemplates a corresponding mode of listening, *écoute réduite* ("reduced listening" or "concentrated hearing"), in which a sound's causality is removed or ignored [2]. Schaeffer invokes the trope of Pythagoras' curtain in which the disciples listened to his lectures behind a curtain so as to not to be distracted by his appearance or gesticulations. Pointing out that *acousmatic* refers to "a noise one hears without seeing what causes it," Schaeffer says that it "marks the perceptive reality of sound as such, as distinguished from the modes of its production and transmission." (Schaeffer, 2004, 77). In asking us to remove the referential qualities of a sound's origin and instead concentrate on its acoustic morphology, or perceived acoustical structural qualities, Schaeffer intends for an experience of sound similar to what appears in Peter Ablinger's noise. Yet, as Schaeffer illustrates in his *Études de*

bruit ("Noise Studies"), noise, encapsulated by *l'objet sonore*, the basic perceptual unit Schaeffer defines for working with recorded sound, is material for composition. Noise is not noise for noise's sake; it is rather to be placed within a structured musical context. This is related to the perceptual level at which Schaeffer chooses to concentrate: the sound object. Jean-Jacques Nattiez notes that rather than investigating the work, Schaeffer concentrates solely on the material itself.

Inspired by linguistics, he distinguishes three levels in musical works, comparable to the phoneme, word (or morpheme), and sentence; these are (a) the components that go into the sound-object, (b) the sound-object as a unit, and (c) integration of the sound-object into a structure, giving it meaning. (Nattiez, 1990, 94).

Schaeffer's unwillingness to move beyond *a* and *b* is perhaps directly related to his "lesson" of *sillon fermé*, the skipping needle in which a record was left to repeat endlessly in single groove as he became fixated upon this type of particularly brief structural level compositional material (Nattiez, 1990, 94). "I arrived at an itinerary leading to sound...through experiencing a skipping needle (without that skipping needle, my method would doubtless never have seen the light of day)" (Schaeffer, 1966, 390). Since Schaeffer's *l'objet sonore* there has been much work in areas of perception that include more thorough frameworks, though none that I know of deal especially with noise per se [3].

Ablinger's static noise is infused on every perceptual level with noise; however it may be precisely the simple separation of perceptual hierarchies that this music questions. One work, which acts as a bridge between his instrumental works and electro-acoustic works and between his series of one-note pieces and his series of static noise pieces, explicitly questions the distinction between the perception of a single pitch and the experience of noise as static texture. In the ensemble piece, *Ohne Titel für 14 Instrumentalisten*, a dense texture is

constructed from a continuously re-articulated pitch orchestrated across the ensemble. With the "tissue-like", quickly articulated, irregular sounds played by the fourteen performers a dense texture of seemingly unchanging noise appears (Scheib, 1997, 6). Following *Ohne Titel*, came *Weiss/Weisslich*, an ongoing series of pieces dealing with simple ways of obtaining or simply perceiving static noise. These have included the quotidian, poetic, and unexpected:

Weiss/Weisslich 6: for twelve tape-decks divided six on one side, six on the other side of a row; through which a sound is recorded and played and recorded and played and so on until colored static noise itself is the result.

Weiss/Weisslich 7: a technical device called a noise-receiver is used to receive noise.

Weiss/Weisslich 8: a shell is used for a receiving noise.

Weiss/Weisslich 12: recorded on DAT are the hardly audible, humming ground noises of empty, quiet churches.[...]

Weiss/Weisslich 15: on five CDs are five differently colored static noises to be played at low volume in five adjacent rooms. Part one: the experience of these five rooms; part two: the experience of the transition from one room to another.

Weiss/Weisslich 18, the noise of: birch, mountain-ash, ash, alder, willow, whitethorn, oak; evergreen oak, hazel, wine, ivy, sloe, elder; fir, broom, heather, aspen, yew.

Weiss/Weisslich 22: the condensed symphonies of Haydn, Mozart, Beethoven, Schubert, Bruckner, Mahler (Scheib, 1997, 8).

A more recent piece that follows in the trajectory of Ablinger's exploration of noise is *two strings and noise* (Ablinger, 2004). The piece is for Violin, 'Cello and a single "pop" that is marked *sffff* (quintuple sforzando) in the score and is to be heard over loudspeakers. This singular *noise*, to be "as loud as responsibly possible" [4] is heard quite unexpectedly after fifteen seconds of a brittle,

sustained G4 unison that moves to a major second when the Violin descends a whole step. The pop occurs at the exact midpoint of the piece and the exact midpoint of this 'suspension'; the major second lasts for two measures of 4/4 (8 seconds) before 'resolving' and moving to a more consonant interval. Following the measure after the pop, the suspension finally moves to another unison, this time on F4, before the strings stop playing.

two strings and noise differs from the work with static noise in that it deals with a single noise, not static noise; to Ablinger, these are exactly the opposite (Scheib, 1997, 1); static noise pervades the entire experience of a piece whereas the sensation of the noise in *two strings and noise* appears to be somehow instantaneous. Perhaps more importantly, this noise is explicit noise; there is no doubt as to its 'foreign' nature—its otherness—in its framing within what must be heard as musical tones. Both music and noise are experienced with the bare minimum requirements; *two strings*—a texture that just barely hinges on contrapuntal music, perhaps drawing as much attention to the instruments themselves than the notes; *and noise*—a pop that is as loud as it is short, as "unmusical" as it is disturbing [5] or explicit. This explicitness resides in its brevity, volume, and completeness (I am also referring to the acoustical totality of a speaker pop or the acoustic properties of an *impulse*, in which all frequencies occur in an instant). There is yet another poetic totality in which this noise exists. There is a sense that it is a noise in nearly every respect; it is: *unwanted sound*, *unmusical sound*; it is *too loud*; it may also be emitted as a *disturbance of the signaling system*, the loudspeakers themselves [6].

Phonorealism: Language and Representation as an Other

For many, music has held a curious relationship to language. This might stem from the sense that music is often considered apart from language; it is

considered indescribable or "ineffable" or between "Le Je-ne-sais-quoi et le Presque-rien" (the I-don't-know-what and the almost nothing) as philosopher Vladimir Jankelevitch writes (Pisaro, 2004, 13). Yet language seems to enter into the equation every time the question of what music means is asked. The question as to whether music refers to anything beyond itself of the 'extra-musical' outside world was famously argued between theorist Eduard Hanslick and Richard Wagner and continues to be explored by new musicologists such as Susan McClary and Lawrence Kramer (Robinson, 1997, 3). Adorno discussed signification in his essay *Music, Language, and Composition* in a manner that departs somewhat from earlier assertions that refer to music's "aconceptual and nonrepresentational aspect" or as with companion Frankfurt thinker Hanns Eisler, in an attempt to help elevate the music of high modernism from the rest of the "culture industry", descriptions of music as the "abstract art par excellence [...], farthest removed from the world of practical things". (Eisler, Adorno, 2004). And though *Music, Language, and Composition* begins by asserting that "music does not form a system of signs", the point Adorno attempts to make is that music, in some way, must rely on signification. In fact, Adorno posits music somewhere in-between "non-signification" and language. "Music without any signification, the mere phenomenological coherence of the tones, would resemble an acoustical kaleidoscope. As absolute signification, on the other hand, it would cease to be music and pass, falsely, into language." (Adorno, 1956). Though still a controversial point, language and representation are posited in many instances, as music's others.

For Deleuze, it was precisely the aconceptual, nonrepresentational dimension of music that made it a suitable model for 'doing philosophy', as in *Difference and Repetition*. In seeing the Aristotelian *category* and the resultant hierarchical semiotic systems as the largest mistake in the tradition of Western philosophy, Deleuze and Guattari in *Thousand Plateaus* promote a temporal, Bergsonian, antirepresentational, rhizomatic thought which uses the cyclical *refrain* nature of musical development as a way to expand the field of 'perceptual semiotics'

(Prieto, 2005, 9). In so doing, Deleuze and Guatarri also introduce concepts such as the non-arborescent *rhizome*, *detrterritorialization*, and *becoming-molecular*, which describe the ability to move, unrestrictedly between disciplines and semiotic codes without regard for the oppression of the category. For Deleuze and Guatarri, however, it must be shown that music should also be thought of as a field for deterritorialization, for becoming-molecular, where lines of flight may be extended across strata. Peter Ablinger's work with *Phonorealism* illustrates this possibility.

During the past ten years Peter Ablinger has been producing a body of work that he describes as *Phonorealism*. This work consists of an extensive series of pieces called "Quadraturen" (or "Squarings"), a cycle of installation-, electroacoustic-, and concert-pieces in which a recorded document, a phonograph, is analyzed in terms of time and frequency content and then reconstituted in various media: instrumental ensembles, white noise, or computer-controlled player piano [7]. In describing the series Ablinger compares the temporal and frequency grids (or *squares*, as in the title of the series) with techniques used in the graphic arts in which photographs are rendered into prints. This series of pieces similarly creates 'best possible fits', so to speak, between time- and frequency-segmented recordings and what might be thought of as the sonic analogue of pixels: bands of white noise, or musical tones. This process can also be described in terms of materials generated from spectral analyses in which the instrumental (or noise) textures can be considered analogous to the original with respect to certain morphological properties (Wulfson, Barrett, 2007, 1). This process shares certain properties with the Itineraire school of French spectral composers though Ablinger's focus is more toward the use spectral analysis and re-synthesis as a method of reproduction (as opposed to the creation of an 'original' as traditional musical production). However, Ablinger describes his concern in this series of works as actually not in "the literal reproduction itself but precisely this border-zone between abstract musical structure and the sudden shift into recognition - the relationship between

musical qualities and 'Phonorealism': the observation of 'reality' via 'music'." (Ablinger, 2005). In the case of the player piano pieces, *Quadraturen III* (actually consisting of an ongoing series of pieces, a series within a series), Ablinger has found that with a small enough temporal grid, around 16 units per second, the original material may become recognizable and that the player piano may actually be able to perform structures the listener can, with practice, understand as spoken language. I would like to explore just how this work deals with the relationship between music and language and precisely how it re-imagines either field. I will also discuss concerns that relate to the material reality of these pieces' presentation, the player piano, using as the main example a piece in the 'series within a series', *Quadraturen IIIf: A Letter From Schoenberg: reading piece with player piano*.

Quadraturen IIIf: A Letter From Schoenberg: reading piece with player piano.

Mister:

*You.... In spite of my protest,
you have published
Leibowitz' performance
of my Ode to Napoleon
with a woman voice,
which I find
terrible.
(...behind the orchestra...)
I can only tell you now,
that you will
hear from me.
You will, I can tell you,
you will regret this act
severely.
I will
be busy to help you
to be ruined
by this
what I will do....
(Some of the instruments ... in small....)
You are not only a bugger ...*

*You are not only a man who disregards an artist's wishes,
his artistic beliefs,
you are also a man
who does not care
to keep a contract.
You know that you signed a contract,
according to which
you have
to account to me regularly.
You must have sold
quite
a number of records
of my Violin Phantasy,
of the Trio,
and other things which you...
but which you issued without my consent.
I tell you,
you will hear from me also about these things,
and I hope it will cost you very much money.*

Yours...

In a 'performance' of *A Letter From Schoenberg*, the audience is asked to read the preceding text, which is transcribed from an original archival recording of Schoenberg reading the letter [8], while a player piano plays a reproduction of the same recording. The original phonograph is never presented. This experience is quite unequalled and perhaps unparalleled in any other instance. Possibly most importantly is the way listening oscillates; one hears large scintillating masses of piano tones that seem to have a certain speech-like (though also quite alien) quality. However, it is not until the listener reads the text along with listening to the piano that the speech should become intelligible. At this point a listener might think to herself something like, "The piano is speaking." More specifically, "The piano is somehow reproducing a phonograph of Schoenberg speaking". More generally: the 'reality' of mediated (recorded) speech is *observed* through 'music' (Ablinger). The listener is drawn to the perceptual fusing she must execute in order to understand the speech itself. This perceptual activity may be thought of as a kind of composite sound object [9], consisting of the singular piano tone that, in its multiplication, combines to

form somewhat intelligible speech. This does not necessarily invoke established modes of oscillation between modes of listening as with 'speaking melody' (Kramer, 2005). There is no melody per se; perhaps more importantly, language is not assumed to be out of reach of the materiality of music. Neither does it participate in established modes of representation within music; it is not program music and should not fall victim to narratological hermeneutics (see Abbate, 1991, 20). However, there may be some kind of "surplus, excess, or remainder" in *Letter from Schoenberg* of a different kind than what Kramer discusses (Kramer, 2005, 128). Music as institution constituted through language, mediated through recording technology, then reconstituted through "music".

Letter from Schoenberg can be thought of as an attempt to expand the field of "perceptual semiotics" that Deleuze describes. It seeks to observe language by means of music: music as "a tool of understanding" (Attali, 1985, 4) [10]. It conceives of both music and language in a manner Deleuze and Guatarri might describe as becoming-molecular: rather than starting with the category of music, Ablinger starts with the molecule, the atom of the musical tone. Similarly, language is conceived of temporally and speech, in its acoustic dimension. The tone is then mapped onto the acoustic and temporal field of speech and language—a mapping that would not be possible without this molecularizing, atomizing of both of these fields. *Letter from Schoenberg* does to music what Deleuze and Guatarri wished to do to all of thought.

Performance, Non-performance and Non-presence

Performance is the subject of Schoenberg's letter. Specifically the violation of presumed wishes concerning an interpretation of Schoenberg's *Ode to Napoleon* in which apparently the publisher uses a woman's voice. There is a sense in Schoenberg's letter—in the text itself and perhaps Schoenberg's tone—of a loss

of autonomy, a feeling of betrayal, of unfaithfulness to the work itself. This loss of autonomy, the questioning/destruction of authorship, the non-present (death of the) subject maybe considered another of music's others.

Ablinger's *Letter from Schoenberg* is a witty engagement with the history of automata and musical *technics* (referring to the *technique* and *technology* of creating music). Its presentation includes in its material and perceptual or esthetic (Nattiez) dimension the musical automaton of the player piano [11]. As for its construction (the poietic dimension), there was the computer system, which analyses the input signal the original recording and outputs it to the player piano and there was obviously the original phonograph recording.

Much of the discourse on recording technologies deals with the violence done to the "liveness" (Auslander, 1999), or the ephemeral or "drastic" (Abbate, 2004) nature of performance. However, some have argued that appreciating the recorded medium involves hearing the end result as *human*, as alive, (Sheffield, 2006). But the recorded medium was not always intended to invoke the (a)live. Thomas Edison's invention of the phonograph (1877) was a by-product of experiments designed to reproduce the human singing voice (Abbate, 2001, 202), and was a culmination of a desire to "fuse speech and writing", (Kahn, 2001, 91), and to communicate with the dead (Kahn, 2001, 214). "Prior to inventing the phonograph, [Edison] sought to develop a device that could take the phonautographic signatures of vocal sounds and automatically transcribe them into the appropriate letter." (Kahn, 2001, 91). Ablinger's machine turns the "phonautographic signatures of vocal sounds" into piano tones; performance contains its other of non-performance.

"The piano is speaking." From just where does an audience member hear this voice coming? Is the author of this voice simply absent? or invisible, non-present? In Carolyn Abbate's essay, *Debussy's Phantom Sounds*, a compendium of operatic, filmic, and musical instances of sound with invisible

origin is presented. In it, Michel Chion's *acousmetre*, a theatrical adaptation of Pierre Schaeffer's *acousmatic*, [12] is applied to everything from God's voice in *The Ten Commandments* to the Wizard's voice in *The Wizard of Oz* and to the offstage broken string in Chekov's *Cherry Orchard*. Sound with a concealed origin is described as a "master voice because of its invisible origin." (Abbate, 2001, 128). And disembodiment is discussed even as a mark of omniscience or divinity: "Pythagoras's curtain is also a visual motif that expresses a hoary truism, one with a long history: invisible speech is equivalent to divine speech, and God's authority is predicated on the presence of his voice in the absence of his body" (Abbate, 2001, 148). *Letter from Schoenberg* creates some interesting problems in that its disembodiment occurs at a few distinct levels. The 'original' master voice of Schoenberg is never heard; it is veiled by its translation into 'piano music'. This voice is not simply *acousmetric* because it does not materially exist; nor does it perceptually exist (the only actual requirement for the *acousmetre* or *acousmatic* is phenomenological perception). It is made conspicuously apparent for the audience that it is a perceptually oscillating construction; the audience member must 'train' herself with the accompanying written text to discern the speech. There is also the disembodied *voice* of the (player) piano.

Carolyn Abbate describes automata in relation to the 'mechanical' music of Ravel (i.e. *L'Enfant et les sortilèges*) and discusses such early speculations on automata such as E.T.A. Hoffmann's "Die Automate" (1814) and "Der Sandmann" (1816). As for the physical components of automata, first the sounding instrument: the keys and hammers in the case of the player piano; second, that which touches the instrument: a fitted player; and third: "an inscription of the musical work, which determines rhythm and pitch as well as other nuances by the specific arrangement of pins on the cylinder, or punches in disks, or in rolls of paper or brass." (Abbate, 2001, 203). This third state for *Letter from Schoenberg* is being constantly deferred. First, the computer is controlling the player piano (the listener is aware if she is aware of the piece's

title), then there is knowledge of the voice of Schoenberg exerting its force on this process and then perhaps the knowledge of the mediation of the recording apparatus itself, and then the (non)voice of the composer, Peter Ablinger. There is, however, some kind of (composer) subject present. It may be closer to the kind of dispersed subject encountered in working with algorithmic music. Cage on computer music: "I am heartened and delighted with the fact that there are no secrets in this field; that programs that are already available are shared; that what seems to be resulting is not music made by one person but rather music made by men, or many people." (Cope, 2001, 181). Software programmers, instrument technicians, Schoenberg, the institution of music.

Conclusion

Peter Ablinger's music provokes us to accept radical difference, otherness, and possibly may point toward a rejection of normative consenses and attitudes within the institution of music. Attali has noted that theorists of totalitarianism "[...] have all explained [...] that it is necessary to ban subversive noise because it betokens demands for cultural autonomy, support for differences or marginality: a concern for maintaining tonalism, the primacy of melody, a distrust of new languages, codes, or instruments, a refusal of the abnormal—these characteristics are common to all regimes of that nature. They are direct translations of [...] cultural repression and noise control." (Attali, 1985, 7). Noise as (not reified or "musical") noise. Performance as absence and absent performance. Ego-less composition (Cage). These things are not simply *outside* of music as their otherness might suggest; they are its twin! Foucault: "The unthought (whatever name we give it) is not lodged in man like a shrivelled-up nature or a stratified history; it is in relation to man, the Other: the Other that is not only a brother but a twin, born, not of man, nor in man, but beside him and at the same time, in an identical newness, in an unavoidable duality." (Foucault, 1994, 326).

Notes

[1] This is analogous to what is known in phenomenology as *eidetics*.

[2] Causality was *ignored* if the recorded material went mostly unaltered; it was almost entirely a matter of a perceptual/listening practice (esthetic). The poietic (part of the process of creating the work) *removal* of traces of causality occurred as a result of various tape manipulation procedures, editing, etc.

[3] Most notably the Hierarchical Temporal Gestalt model developed by James Tenney in *Meta-Hodos*. See also *Morphological Metrics*, Larry Polansky. A derivative of *l'objet sonore* comes from Francisco Lopez in what he refers to as *sound matter* which has a flexible (if any) relationship to the material/work distinction.

[4] The score describes a few acceptable methods for producing this "pop":

the pop comes through the loudspeakers

and has to be as loud as responsibly possible

(for the sake of the sound system, and the ears),

as well as extremely short (less than 0.01 seconds);

it can be produced by various means, such as:

a prepared pop on CD, a pop from a faulty (pop-producing) switch or a broken cable

(but only when these are practically feasible/controlable), etc;

an example of a pop that can be put on CD and used in performance can be found at:

<http://ablinger.mur.at/audio/pop.wav>

(add 0.2 seconds silence before and 4 seconds after the pop to make a CD-track out

of it; also, beyond simply playing the 2-channel version, you have the option of using

*either one alone: the more bass-sounding pop of the left channel, or the white-noise
pop of the right)*

[5] I must share an anecdote about a concert I attended in New York City that included *two strings and noise* (*Wet Ink presents: Berlin/New York, October 27, 2006, Greenwich House*). After the piece ended, there was a slightly confused, hesitant applause. My neighbor in the audience then whispered to me, "This guy has definitely been severely alienated somehow."

[6] These are the definitions of noise R. Murray Schafer provides in his *Soundscape: The Tuning of the World* (Schafer, 1997, 273).

[7] Ablinger offers an alternative description as a single piece with multiple realizations: as an orchestra piece, sound installation and computer-controlled player piano piece.

[8] Available at: http://www.schoenberg.at/6_archiv/voice/voice48_e.htm

[9] Nattiez describes this kind of phenomenon as thus: "In studying the 'throat games' of the Inuit, on the other hand, we are able to recognize a superimposition of two sound-objects (which therefore constitute what Schaeffer calls a 'composite object')." (Nattiez, 1990, 96).

[10] In line with Deleuze and Guattari, Attali says, "Music is more than an object of study: it is a way of perceiving the world. A tool for understanding. Today, no theorizing accomplished through language or mathematics can suffice any longer; it is incapable of accounting for what is essential in time—the qualitative and the fluid, threats and violence." (Attali, 1985, 4).

[11] This is a specially-produced player piano developed by Winfried Ritsch. For

details see: http://ablinger.mur.at/docu11.html#tech_develop

[12] "[...] [Chion] modified Schaeffer's cool insistence that concealing sound simply meant enabling a concentration on acoustic morphology." (Abbate, 2001, 155).

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