Project Description

'The Well-Prepared Instrumentation' – Investigating selected compositional concepts for instrumental noise music based on extended playing techniques

1. Abstract

The purpose of this project is to **increase** our **knowledge** about the **historical significance** and actual **artistic value** of different instrumental noise music concepts based on extended playing techniques and preparation of instruments, and thus to strengthen the **ability** in musical life **to adopt** instrumental noise music **adequately**.

The thesis will be divided into two parts: The goal of the **introductory part** is to reassess four existing compositional concepts with timbre as an essential parameter: impressionism (Debussy, Ravel), tone-colour-melody (Schoenberg), sound masses (Varèse, Xenakis, Ligeti, Penderecki) and spectral music (Grisey).
Critically analyzing to which degree timbre is dominated by or dominates other musical parameters during the compositional process of the composers in question, I wish to evaluate their conceptual affinity to and their possible influence on prominent instrumental noise music concepts: art of noises (Russolo), piano as percussion instrument (Cage), musique concrète (Schaeffer), musique concrète instrumentale (Lachenmann), percussion music (Cage, Xenakis, Globokar, Lachenmann) as well as noise aesthetics in other genres (Einstürzende Neubauten).

The goal of the **main part** is to work out the craftsmanlike and artistic qualities of instrumental noise music based on extended playing techniques and preparation of instruments (i.e. excluding Russolo and Schaeffer) by reconstructing the order of the creative process:

1. A spectromorphological classification of the noise material and an analysis of its melodic, harmonic, syntactic and semantic potentials (*What is there?*).
2. A decoding of the instrumentation, i.e. the production of the noises (*How is it made?*).
3. A demonstration of the formal logic behind noise combinations (*Why is it there?*).

2. Background of the project

In his essay on noises in Helmut Lachenmann's music, Frank Hilberg (Hilberg 2009) makes very clear that the **research on** Lachenmann's **sound material** has been very insufficient so far: there has been almost no research at all on the question *What is it?* and only very little research on the question *How is it made?*. Instead, extensive investigations have been undertaken on the question *Why is it there?* in terms of formal analyses or aesthetic-philosophical studies. These studies might suffice for listeners as an introduction, but do never 'penetrate' to the nucleus of Lachenmann's creative process and compositional concept. In the end, even the question *Why?* is only superficially answered without the necessary basic data. And noise music, reduced to form and aesthetics, becomes vulnerable for doubts about its craftsmanlike and artistic quality.

The main reason for this dilemma, which can be transferred to other composers' noise music, might lie in the fact that the established **analytical tools** of traditional pitch-based music (particularly the theory of harmony), are not applicable for unpitched music. Besides, no notation system for the sonic characteristics of noises has been standardized so far. This makes it more essential than ever not only to analyze notated scores, but also the recorded sound objects.

To solve this problem, all my analyses will start with profound **listening** and follow the order of the questions *What?*, *How?* and *Why?*.

Monika Fürst-Heidtmann's PhD thesis on Cage is the only example I know, in which formal analyses are preceded by considerations on timbre. Though she mainly illuminates the possibility to discriminate pitches between the poles of tone and noise, not explaining the contour of the ADSR envelope (Fürst-Heidtmann 1979), as done in spectromorphology.

Georgia C. Hoppe is in her PhD thesis on extended techniques on reed instruments the only to examine syntactic and semantic aspects, but mainly relates to pitch-based musical examples (Hoppe 1992).

To my knowledge, there exist very few books or theses internationally, revealing and comparing compositional concepts for instrumental noise music, illuminating their historical context and relation to pitched timbre-based music and at the same time being based on timbral, **spectromorphological categories**, including the questions of **melody-harmony** and **syntax-semantics**.

3. Theoretical foundation, case studies and analytical method

a. Theoretical foundation

Noise music, i.e. *støymusikk* in Norwegian or *Geräuschmusik* in German, is an enormously loose term without exact definition, not least as it occurs in many different musical genres. A fairly universal definition would be, that noise music, contrary to traditional and conventional music, does not build its structures primarily on discreet solid pitches, melodies and harmonies (i.e. on harmonic progressions and motivic-thematic work), but on timbre and the liberated, emancipated sound or noise as independent parameter.

Differences between various types of noise music depend amongst others on the various degrees of importance given to pitch and on the way the noises are produced: by exclusively electroacoustic media, by electric distortion of ordinary musical instruments, by newly constructed musical instruments and noise machines or by unconventional, so-called *extended* playing techniques on conventional musical instruments.

Since the appearance of noise music in the early 20th century, there was a demand for new **compositional concepts**, as a long tradition of musical craftmanship seemed to fall away, where harmonic progressions and motivic-thematic work formed both complex microstructures and coherent macrostructures like large-scale symphonic forms.

In his futuristic manifesto *The Art of Noises* (*L'arte dei Rumori*, 1913), Luigi Russolo postulates that the timbres of noises prove an infinite and greater variety than ordinary pitches and that they therefore evoke passion and strong emotions (Russolo 1916). On the contrary, in the 1960s, Pierre Boulez appears sceptical that noise material is sufficiently flexible to allow compositional hierarchies, the core in the creative process, according to him (Ruschkowski 1993).

Frank Hilberg explains this prevailing scepticism about the craftsmanlike and artistic quality of noise music with the complex, aperiodic frequency spectrum of noises making them musically 'unscalable' (unlike semitones in well-tempered tuning). For him the suitability of noises as musical material and their ability to create meaningful structures depend on the differentiability or discriminability of their acoustical elements in combination with a self-imposed set of rules by the composer (Hilberg 2009). Such a set of rules, the hierarchies in noise material Boulez asks for, can e.g. be found in Russolo's *noise families*, Schaeffer's *sound typology* and Lachenmann's *sound types*.

Finally, in the probably first empirical study ever on the perception of noise structures,

Peter Wilson concludes that new materials require new formal principles and that noise material can be structured according to musical procedures and thereafter be adequately perceived (Wilson 1984). Though Hilberg specifies that these structures can only be perceived if the sonic characteristics of the noises themselves have been understood by the ear beforehand (Hilberg 2009).

That is why I start my analyses of noise music aurally, with spectromorphological classifications, and why I regard my research on compositional concepts (comprising both their set of rules and their structuring) as eminent for the adequate future adoption of noise music.

b. Case studies

In the ***introductory part***, four cases of pitch-based timbre concepts will be analyzed:

1. The *impressionistic* masters Claude Debussy (1862-1918) and Maurice Ravel (1875-1937), appreciated for their sense for new concepts of timbre.
2. The vision of the *tone-colour-melody* (*Klangfarbenmelodie*) which Arnold Schoenberg (1874-1951) elaborates on the last two pages of his *Theory of Harmony* (1911). Like the pitches in a melody, different tone colours or timbres are related to each other according to an inner logic (Schönberg 2005 / Schoenberg 1984).
3. Edgard Varèse's (1883-1965) artistic heritage that bears witness to a compositional concept for sound processes. *Sound masses* are set into structural relationships through horizontal *transitions* or vertical *counterpoint* (Ruschkowski 1993). Iannis Xenakis' (1922-2001) works for large orchestra from the 1950s onwards, but also György Ligeti's (1923-2006) and Krzysztof Penderecki's (*1933) works in the 1960s stand in the legacy of Varèse.
4. Gérard Grisey's (1946-1998) formal concept for *spectral music* that deals with the organization of time in a large-scale process of permanent *sound transformations* (Cavallotti 2006).

In the ***main part***, six noise music concepts will be discussed, whereas only works from concepts 2 and 4-6 refer to *instrumental* noise music and will be analyzed:

1. The above mentioned manifesto by Luigi Russolo (1885-1947), where he determines 6 characteristic noise categories, so-called *noise families*, and dreams of imaginative *noise combinations* and an intoxicating *noise orchestra* (Russolo 1916).

2. John Cage's (1912-1992) works for *prepared piano* (1940-52), in which he alters the piano sound to that of percussion instruments, can be interpreted as a realization of Schoenberg's tone-colour-melody. In these works Cage develops the *spinning-out* of motifs, the *repetition* and the *collage technique* as three possible structural principles for noise music (Fürst-Heidtmann 1979).
3. The compositional practice of *objets musicaux* (1966) by Pierre Schaeffer which is based on both a complex *sound typology* of all possible acoustic phenomena and a *theory of composition* that shall help to create sense with the sounds of the typology (Schaeffer 1977).
4. The vision of the *structured sound* (*Strukturklang*) which Helmut Lachenmann (*1935) describes in his essay *Klangtypen der Neuen Musik* (1966/93). With both horizontal and vertical richness the structured sound can be considered as a *symbiosis* between *form* and *timbre* and as a *global consonance* (Lachenmann 1996).
5. Compositional concepts in the rich percussion repertory since the 20th century, e.g. John Cage, Iannis Xenakis, Vinko Globokar (*1934), Helmut Lachenmann.
6. Compositional concepts in the noise aesthetics in other genres, e.g. the industrial rock band *Einstürzende Neubauten* (*1980) (Olofsson 1997).

c. Analytical method

In the ***introductory part***, I will perform brief **listening analyses** of selected works by the discussed composers to carve out their most striking timbral qualities and moments as well as their assumed timbral strategies in the formal process.

Thereafter I will critically consult the **notated scores** in order to discover convergences or divergences to other parameters like pitch, register, melody, harmony, counterpoint, dynamics, rhythm, metre and form. Generally, I expect a high number of divergent elements to imply a high degree of timbral independence during the compositional process of the respective composers. However, I will try to strengthen or modify my hypotheses in comparison to the analytical **musicological literature**, not least in respect to the order in which the parameters have been composed (in case I find information about that from previous sketch research).

In the ***main part***, my listening analyses will go deeper and initially identify different noise materials occuring in the selected works. With the help of **spectral analyses** I will cata-

logue and classify the noises into the basic spectromorphological categories given by Lasse Thoresen, i.e. *pitched*, *dystonic* and *complex* in the vertical, spectral dimension, *sustained*, *impulse* and *iterated* (as well as further specifications) in the horizontal, morphological dimension (Thoresen / Hedman 2007). In order to be able to spectrally analyze noises which are overlaid with other noises in the compositional construction, I can find the pure sounds in the **sample** material of my private library.

Having unfolded the **material per se**, I will, still relating only to recordings, investigate the **compositional potentials** of the material to generate artworks of craftsmanlike and artistic quality by questioning its capability to build melodic, harmonic, syntactic and semantic structures.

Through the **spectromorphological classification** and the **analysis of potentials** of the sonic material in the analyzed recordings I intend to reconstruct the starting point in the compositional process of each composer and to answer the first question ***What is there?***. Subsequently, I will try to strengthen or modify my results in comparison to the composers' **sketches** (in case they reveal information about the systematization of the material).

Now I will face the second question ***How is it made?*** by decoding in the **notated scores** (resp. in the **videos** of *Einstürzende Neubauten*) which (combinations of) noises are produced by which (vertical combinations of) instruments, extended playing techniques or preparations. Thereby I wish to present the **instrumentation** of the works.

Finally, to answer the third and last question ***Why is it there?***, I plan to demonstrate the **formal logic** behind the horizontal and vertical combinations of noises. Here, I will compare my own formal analyses with existing analyses in the **musicological literature** as well as with the composers' intentions which can be extracted from their **sketches**. In the case of *Einstürzende Neubauten* I will depend on information I get in **interviews** (, whereas interviews with *Vinko Globokar* and *Helmut Lachenmann* on the *Why?* can also be important).

4. Material and source studies

The material for carrying out my research consists of six different sources:

1. The attached **bibliography** comprising 63 titles of books, theses and sample-material highly relevant for this project.

2. An internationally unique collection of **literature** and **media** from my **private library** containing many out of print, unpublished or limited edition items: more than 600 books, theses, private documents, occasional sheet music collections and sample-material related to the topic of contemporary instrumentation.
3. A wide range of **scores** and **audio recordings** from my **private library** including one score and at least one audio recording of all works to be analyzed.
4. Lots of **video clips** to be found at YouTube (www.youtube.com), visually revealing the aspect of sound production and playing techniques in the case of *Einstürzende Neubauten*. The videos may work as score substitutes.
5. **Interviews** with *Einstürzende Neubauten* (Berlin) and the two living composers Vinko Globokar (Berlin) and Helmut Lachenmann (Stuttgart) who I already know personally.
6. Original handwritten **sketches** illuminating the artistic creative process. They are only locally accessible. For my source studies I will have to travel to *The New York Public Library for the Performing Arts* for Cage, to the *National Library of France* in Paris for Xenakis and to the *Paul Sacher Foundation* in Basel for Globokar and Lachenmann.

5. Additional information

My project will fit well to the **academic environment** of The Norwegian Academy of Music. The investigation of some of the most innovative composers (of their time) in general can be related to focus area C, Musical Creation and Renewal. The focus on extended playing techniques and preparations in particular covers the goals of focus area A, core project 3, New Instrumental Practices, but also the goals of two core projects from focus area C, Konkressens (microtonality) and Auditiv Sonologi (spectromorphology). NMH would be an ideal place for my research project, as there are several research fellows who specialize in contemporary music on their respective instrument and whose expertise will be highly valuable for my own research.

As **main supervisor** for my research project I would suggest prof. Erlend Hovland, lecturer in music history at The Norwegian Academy of Music. Besides, prof. Lasse Thoresen can assist me in my spectromorphological analyses. As **co-supervisor** I would propose Christoph Reuter, professor of systematic musicology at the University of Vienna.

My **stays abroad** for this project will have three different purposes: meetings with Christoph Reuter in Vienna, studies of the handwritten sketches and expeditions to Europe's

largest music libraries, mainly in Paris (IRCAM) and Munich (Bayerische Staatsbibliothek). Most of the interviews can hopefully be executed via email or telephone.

6. Presentation and documentation

The presentation and documentation of my research project will consist of three elements:

1. First of all, my written PhD thesis with some extracts of selected scores will be published as a book by a publishing house, maybe including a cd with some crucial sound examples.
2. Besides, already before finishing the final thesis, single chapters (e.g. on one of the compositional concepts or on the aspects of melody, harmony, syntax and semantics in noise music) can be published as scientific articles in periodicals such as *Perspectives of New Music* (Seattle), *Contemporary Music Review* (London), *Journal of New Music Research* (London), *Nutida Musik* (Stockholm), *Neue Zeitschrift für Musik* (Mainz), *MusikTexte* (Köln) or *positionen. Texte zur aktuellen Musik* (Berlin).
3. Thirdly, I can give lectures and workshops on conferences as well as to the teachers, research fellows and students at NMH.

7. Time schedule

1st term

- Install my workplace at NMH, purchase relevant material.
- Determine internal and external supervisors.
- Revise project description and time schedule, prepare finance plan.
- Course 1 (10 ECTS-credits): Philosophy of science and ethics.
- Course 3: Researcher forum, at least 1 presentation / 1 commentation.
- Course 4 a (6 ECTS-credits): Elective course, submission of essay.
- Start ***introductory part***, investigate and analyze compositional concepts for pitched timbre-based music (1), concepts by Debussy, Ravel, Schoenberg and Varèse.

2nd term

- Course 2 (9 ECTS-credits): Research methods.
- Course 3: Researcher forum, at least 1 presentation / 1 commentation.

- Course 4 b (3 ECTS-credits): Elective course, no submission of essay.
- Continue ***introductory part***, investigate and analyze compositional concepts for pitched timbre-based music (2), concepts by Xenakis, Ligeti, Penderecki and Grisey

3rd term

- Course 3: Researcher forum.
- Publish articles on *introductory part*.
- Give public lectures/workshops at NMH on *introductory part*.
- Start ***main part***, perform spectromorphological classification and analyze melodic, harmonic, syntactic and semantic potentials as well as the instrumentation and formal logic in selected works for *prepared piano* of Cage.

4th term

- Course 3: Researcher forum.
- Continue ***main part***, examine the same aspects in selected orchestra works of Lachenmann.

5th term

- Course 3: Researcher forum.
- Finish ***main part***, examine the same aspects in selected percussion repertory since the 20th century and in the noise aesthetics in other genres (Eintstürzende Neubauten).

6th term

- Course 5 (3 ECTS-credits): Dissemination of academic material.
- Course 3 (5 ECTS-credits): Researcher forum.
- Publish articles on *main part*.
- Give public lectures/workshops at NMH on *main part*.
- Final editing, publish book (publishing house) and pdf (internet).
- Public defence and final assessment.

8. Bibliography

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