WORKING BETWEEN MUSIC AND PHILOSOPHY: THE TRANSFORMING GESTURE.

PhD submitted to FEIT / CCS at

UNIVERSITY OF TECHNOLOGY, SYDNEY

by

SCOTT SIMON

BA HONS ANU / MA ADELAIDE UNI.

2016

Abstract

This thesis is concerned with the creation of unique multi-media artifacts and an analysis of the processes involved. The artifacts are built from three linked components. The first component is a music composition with a title. The second component is a short program (about one page or less) that offers a poetic interpretation of the title. The third component is the thought form, a more in-depth analysis of some philosophical or theoretical elements that are suggested by the title and program. These three elements make up each object / artifact. The philosophical texts that are generated are utilized to create a series of textual metaphors that serve as the basis of musical processes and compositional forms. The musical compositions consist of electronic synthesis and improvised or composed guitar parts. In addition to the artifacts proper the artist undertook an analysis of the working processes that went into the making of each object. The research outcomes are a series of working models that allow other composers to increase their understanding of the field. Knowledge is created in the form of new understandings of the connection between art objects and philosophical texts in connection to the "making" process.

The creative process was organized into three phases, each phase containing the analyses of a series of artifacts. The process of making was subjected to a reflective logic at every level. The analysis of the creative process, and the analysis of the emerging artifacts, were utilized to augment and develop those artifacts. An iterative circle of practice and theoretical reflection was built into the structure of the thesis. The findings of the thesis are arrayed around the models of practice that were developed during this process; (1) A more complete understanding of the activity of working between music and philosophical text was produced. The techniques of past practitioners were codified and refined. (2) Tacit working modes were brought forward into the circle of discourse. Such explication produces valuable information

for artists and researchers working in similar contexts. (3) Connections between instrumental logic (guitar improvisation) and blended-space components were developed. This aspect of the practice produced reflective commentary and aesthetic outcomes that outlined progressive forms of compositional and performance-based activity. From codification to refining and developing – the process of identifying actual practice and adding new elements to such are the concrete outcomes of the research.

CERTIFICATE OF AUTHORSHIP/ORIGINALITY

I certify that the work in this thesis has not been previously submitted for a degree nor has it been submitted as part of the requirements for a degree except as fully acknowledged in the text.

I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of Copyright Act 1968.

Signed,

Scott L. Simon

Acknowledgements

I would like to thank my main supervisor Ernest Edmonds for the many conversations about the topics of music, art, philosophy and research that helped structure and refine this thesis. I would also like to thank my co-supervisor Sam Ferguson for the good advice concerning the work and the musical components of the work. Thanks go also to the many people at the Creativity and Cognitions studio at UTS in Sydney.

I would also like to thank Sandra Starkey Simon and Leon Simon for supporting me throughout writing this thesis and in life.

Table of Contents

Chapter 1 - Introduction

1.1 Introduction to the research

1.1.1 The thesis

This study addresses itself to the problem of working between disciplines, specifically *music* and *philosophy*. In particular it deals with the construction of models that can be utilized in working between music and philosophical text. The definition of the various terms that are utilized is the task of section 1.2 in the introduction. The basic thesis of the research is: *new models of practice can be built which codify and extend existing practices of working between music and philosophical text.* The core contribution of the research will be these new models. These "models" will be described in terms of artifacts created during the course of the study. The models will be an integral part of the research into the *making process.* "Models of practice" are provisionally defined as the description of a creative practice as it unfolds. The models are the very specific narrative of "making" in relation to particular artifacts. The approach to the creative process in a more general and schematic form is articulated as the "conceptual framework". The *conceptual framework* and the *models of practice* are related and both are integral to the study. These two components can be understood as the *starting point* (conceptual framework) and the developed *narrative of practice* (model of practice). The research outcomes are understood to be *models* which allow other practitioners and researchers to work between music and philosophical text, providing tools and strategies to enhance the basic (or refined) creative modes already in place.

If we state the thesis in terms of a solution to a problem then we can describe it in the following terms. The "problem" is understood to be centered on the fact that instrumental music does not easily lend itself to a univocal conceptual content (in terms of its reception). The use of philosophical concepts is often only a "process"

that has meaning on the artist's side of the activity. Certainly one can contribute to knowledge about "making" with descriptions and analyses of this side of the activity. However another important element of the present research is the development of a *habitus* or *ecology* which other practitioners can make use of. The models of practice, and the logic that guides them, can (taken all together) be understood to represent such a habitus.

Examples of working between music and philosophy - in a manner such as Strauss's *Zarathustra* - show that there can be emergent content upon both sides of the equation. That is to say, music can take on philosophical traits and philosophy can take on musical traits. The process of working between the different domains can be structured in such a manner as to *foster* this dialog. In the present study the use of a three-tiered artifact in which the philosophical text and musical composition are part of a dynamic whole (a complete habitus or ecology) is an extension of earlier solutions (such as the "tone-poem"). In terms of an internal artistic dialog the "habitus" is constructed around fostering connections between music and philosophical text that can be explicated (later) for audiences or listeners. Furthermore the dialog can be made a collaborative process in which participants work upon the connections between music and philosophy together. Using a specific type of practice one can create philosophical and musical forms that make sense to participants and relate musical form to philosophical metaphor. A complete explication of these concepts can only be taken up in relation to the actual artifacts, that is the task of Chapters 4-7.

1.1.2 The context

The context of the present research is located within an already existing body of work and practice. Many artists work between disciplines generally, and many work between music and philosophy specifically. In the present research there are various artists that have been identified as important and relevant. Franz Liszt and Richard

Strauss are names associated with the *symphonic poem* and *tone poem* respectively (Nieck 1908). Richard Wagner is associated with the *Gesamtkunstwerk*. R. Strauss and Wagner made use of specific philosophers within their work (Nietzsche and Schopenhauer) (Strauss 1896; Wagner 1983, part III). John Cage was a 20th Century experimental musician who made use of various compositional strategies, some of which involved philosophy (Cage 2006). Iannis Xenakis made use of philosophy in his electro-acoustic music, *La legende d'eer* (*The legend of er*) is titled after a passage from Plato (Xenakis [1977-78] 1995; Plato 1968). Pierre Schaeffer utilized the work of philosopher Edmund Husserl and the phenomenological epoché in his work (Schaeffer 1977).

On the theoretical side *metaphor theory* and *conceptual blending theory* (CBT) are descriptions of how different domains can influence and structure each other (Fauconnier & Turner 2003). Some work has been documented in the literature (and in documented practice) on the creative application of blending different domains (see Chapter 2)

The research as a whole is based upon, firstly, identifying and clarifying an existing artistic practice or language. Significance of the research is claimed in terms of extending that language in a manner that other artists can comprehend and utilize.

1.1.3 The method

The method that the present research makes use of is a "multi-method" type (see chapter 3). The three main components are: (1) case study; (2) artifact creation / analysis; (3) use of conceptual blending theory (CBT).

These three methods will be used to build a narrative of process which will serve as the basis of working models of practice. The models will be organized differently according to the artifact beings analyzed. The question could be asked: "Why not

skip to the analysis of the last artifact as the example of the most advanced process?"
Answer: Each artifact will present a different perspective on working in the cross-
disciplinary *habitus*. Also: the entry through phase 1 of the research is analogous to
walking before one runs. To understand phase 2, phase 1 will be assumed, and to
understand phase 3, phases 1 and 2 will be assumed. Thus the phases will be akin to
essential "repertoire".

The method of research involves the three components described above (case study,
artifact creation and analysis, use of CBT). Artifact creation (in the present case) is
linked also to compositional practice. Techniques ranging from engineering
techniques (in recording) through to working with notation as a way to develop ideas
are important to the making process. Thus we would perceive the insertion of a
section of notated music (within a chapter on the analysis of an artifact) as having the
following attributes: it represents an element in the practice that the artist feels to be
necessary, and therefore is not merely a diary extract (or indeed finished product) but
a way of representing the music akin to a waveform scope or spectrogram. Notation
can be conceived as "…a repertory of symbols that refer to the sounds which the
instruments can play…the composer can resort to 'inner listening', he can form an
idea of the music by looking at the score" (Risset 2003, p. 2). When it is conceived in
this manner the use of notation can then be linked into the working models alongside
other elements of practice such as *graphic user interface* (or "GUI") creation (for
example). Through a series of such elements one can gain an insight into working in
the creative network (habitus) being developed.

It is important to note that the analysis of the artifacts as an unfolding process will
include whatever components the artifact made use of in its genesis. This would
normally include GUI creation, musical notation, analysis of blending domains and
mapping procedures. "Normally" is to be understood here as relating to the specific
artistic practice of the researcher. The outcomes of such research however are not
merely new ways of working for the artist. As Morwenna Griffiths notes:

Arts-based, practice-based researchers are able to develop knowledge and ways of disseminating it which informs the development of practices and skills of people in similar but not identical contexts (p. 181).

The present research is focused upon revealing a *model of working practice* and is therefore not analogous to a kind of knowledge that will provide a discursive "solution" as final result. The knowledge here is related to a kind of "how-to" knowledge that requires other practitioners, researchers and users to engage with the framework in its function as a model of action. Utilizing the research for further practice, or further research, can involve a development of skills particular to the process (similar to learning a musical instrument) or it can accommodate an application to a related (similar) context. The method of research necessarily involves a close analysis of the artifacts as research into a "mode of making". As Scrivener points out in his keynote for C@C 2015: "A contribution to making is a contribution to knowledge" (Scrivener 2015).

1.1.4 The outcomes

The outcomes of the research are to found in four main areas. The first research outcome is centered in *models of practice*. These models of practice allow artists to further their technique and comprehension in relation to working in the cross-disciplinary *habitus*. The models are conceived to be fluid narratives of process that will allow others (researchers or artists) to develop the métier of the practice.

The second related outcome can be described as the *explication of tacit working processes*. Through a process of codification and analysis an existing practice is brought forward into discursive comprehension.

5

The third identifiable outcome is in the area between the instrumental logic of the artist (guitar improvisation) and the blended-space artifacts produced by the creative process as it evolved. Working towards training the bodily gesture to reflect the changed sonic landscape produced new strategies and solutions. This outcome is described in detail in chapter 6 of the thesis.

A further outcome is centered on the *framework* of the practice. A framework is a higher level structure that is similar to a paradigm (Edmonds & Candy 2011). A framework however is less overarching than a paradigm and can vary from artist to artist (p. 127). An artistic-research framework will, in its role as shareable research, open a dialog with other frameworks. Artist frameworks are, therefore, modular (this is discussed in detail section 3.2). A framework can still build upon earlier frameworks, and in the most general sense a good framework can claim to develop existing frameworks. The present research develops a framework which extends an existing framework series.

1.1.5 Outline of the key research elements

There are four key areas that were identified as necessary for the project to succeed as new knowledge in the field of practice-based research.

1. The compositional techniques of the past must be clearly delineated and described. This description will show the manner in which the lineage has solved previous artistic problems and will point the way to new elaborations.

2. The project must show clearly how and in what manner the present practice is extending and elaborating upon earlier modes of working. The forms of the artifacts must be progressive in a way that is demonstrable as working models and practical formulations. The demonstrable formulations of the project will be research outcomes that are communicable to others who wish to work in a similar field.

3. The role of "philosophy" must be clearly defined in relation to the project as a whole. As a working definition I understand philosophy as representing a "philosophical text" within a multi-media artifact.

4. The techniques that are employed must be shown to be effective. In relation to an internal logic of composition the techniques will be situated within a defined perspective or framework. To elaborate on point 4: (a) the study must establish that there is a language or practice already present (historically or as accepted compositional practice); (b) the components of this practice must be clarified and analyzed; (c) the internal logic of the present artistic research will clearly show an extension of this historical or existing compositional practice.

1.1.6 Research questions

Above we provided a thesis statement and out of that thesis various research questions can be developed. The research questions must also address "gaps" in the knowledge that an analysis of past practice can reveal. This is the task of the "state of the art", undertaken in chapter 3. At this juncture a summary of the analysis of earlier practice (the identification of research "gaps") and the research questions are provided.

1. Earlier working modes fail to codify in detail how philosophy and music are to be related. There are many tacit procedures in place, and many artists make use of philosophical ideas in their compositional process, however there is a lack of concrete working models. A more detailed description of how one might approach this way of working is central to the present research.

2. Following on from the previous point is another related one. The codification of earlier "languages" of practice allows a more refined language to be developed. Thus the theorization of work as both "expressive" and "network based" is central.

Research question 1: How can the research extend and elaborate upon the lineage of the creative arts in relation to music composition and philosophical text?

Research question 2: What are the processes that go into making artifacts that blend music and philosophy? In what manner can these processes be analyzed and further developed?

Research question 3: What is the relationship between art objects and philosophy?

Research question 1 emerges from the state of the art presented in chapter 3 and can be understood as partaking in the innovative application and development of previous modes of working. The state of the art is utilized in relation to the project's practice as a way of identifying spaces that can be developed. This allows the researcher to quite clearly delineate and provide evidence for a significant contribution to knowledge in the form of a continuation of a clearly defined lineage of artists and artworks. The particular significance is to found in: (1) codification of tacit procedures; (2) developing models of practice that can be clearly understood; (3) refinement (development) of earlier modes.

Research question 2 can be understood as a "reporting" about the processes involved in the creation of the artifacts. This reporting will allow others to make use of the knowledge and methods that are utilized by the artist / researcher. The self-case study will take in working practices and problem solving: compositional methods, notation, engineering, programming notes [Max/MSP, Supercollider], performance development and theorizing are all described in relation to the creative process.

Research question 3 targets the kind of information that emerges from working in a creative endeavor that has a philosophical component. The artist will be working in a mode that makes use of philosophy in a manner that will highlight the relationship of

art objects to philosophical text. This working mode generates information in the form of philosophy of music / aesthetics.

1.2 Defining terms

The research focuses upon the connection between music and philosophy. These are very broad fields – what is music? What is philosophy? These questions must be answered within the research as it unfolds – a coherent space of activity must be delineated. Artistic research must produce knowledge that makes sense in relation to other practitioners and researchers, and the end results (models or frameworks) must function as shareable knowledge in the relevant fields.

The topic in its broadest sense is the activity of musical composition and performance in connection with philosophy. The thesis here re-stated: *new models of practice can be built which codify and extend existing practices of working between music and philosophical text.*

Another way of stating this thesis with a slightly different emphasis: *The combination of philosophical text and music is a form of practice that can be developed into an integrated system.*

It is apparent from these formulations that we have already some internally defined ideas about what "philosophy" is going to signify in the context of the research. These must of course be expounded in a more complete and detailed form. As an entry point to more complete explanations let us first point out that "philosophical text" is not conceived to be the equivalent of philosophy *per se*. What is meant here by "philosophical text"?

In the present research the words "philosophical text" will have a quite precise definition as befits a type of structure that will become part of a compositional or performance process. It will be beyond the scope of the practice to make claims about philosophical systems or historical ideas and/or to make claims regarding their truth or falsity. A more valid mode of proceeding is to think of philosophy as a type of field that can inspire musical activity. In the same way as evolutionary biology can be seen to inspire generative art, or natural science data concerning eco-systems inspire algorithmic processes in musical research (McCormack et al. 2009) philosophy too can have a role within musical research. We already have a long history of this type of interaction and the examples of musicians utilizing philosophy within their work is a long and varied one (for example Strauss 1896).

The aim of the present research is to develop further an already existing process. The actual manner in which philosophy is utilized in relation to music historically must be scrutinized and a detailed analysis offered. The process whereby other artists have made use of philosophy will be an invaluable guide to extending the process itself. The processes in question are not always explicitly formulated in the writings or declarations of artists. Indeed, there are many tacit modes of utilizing philosophy which have not been, and perhaps cannot be, formulated precisely (for example the idea that Beethoven's music is a kind of philosophical "dialectic" more "Hegelian than Hegel" (Adorno 1998, p. 160; see also Spitzer 2006, pp. 51-52).

There are however some very clear uses of philosophy which can guide us (for example R. Strauss and Wagner) and there are besides some other examples of interpretations based upon philosophical principles in regard to music that are illuminating (the interpretation of Beethoven by Adorno can be counted as one such example; see also the interpretation of music in relation to Bergson's theories of time (Mailman 2013, p. 130)). If at some points we can only be said to be making explicit what many have done tacitly – this will be acceptable. In any case it will be shown that through this bringing forth into the light of hidden processes we will make some

further modest advancements. The gesture of uncovering is one that allows a new series of processes to form above and within the practice.

It is conceivable that the research here could be turned to making music that is e.g. "sociological" or "feminist" – this does not problematize the general rationale of the research. The use of "philosophical text" is formed in relation to a pragmatic orientation towards ideas and discourse that are understood to be *philosophical*. This pragmatic orientation extends to the use of literature (for example artifact TG in the present study makes use of Tolkein's *Silmarillion*), and the articulation of those texts in terms of *philosophical* ideas.

In order to elucidate in more detail the definitions of music and philosophy the section 1.2.3 will look at Levinson's paper on the subject *Philosophy and music* (Levinson 2009). This will make available a preliminary reading of the relationship between the fields of philosophy and music.

An important aspect of the present research is the concept of the "model of practice". This concept is introduced in the following sub-section 1.2.1. Another term central to the study is "habitus". This concept requires some brief introduction in relation to its use here. This is undertaken in section 1.2.2. It will be shown in that section that the use of the term is primarily in an "everyday" mode that requires no specialized explication.

1.2.1 Models of practice

The models of practice as they are conceived in the present study are similar to a "narrative of process". This description is useful as it provides insight into the basic structure and content of the models. However it is a definition in need of supplementation. The models are, firstly, not simply a research diary. The form that each model takes can vary according to the perceived use-value of information

associated with artifact making. For each artifact there is a corresponding model, yet the models take different forms. In one model there might be an exhaustive description of every aspect of the making process. In another a simple description of a philosophical idea in relation to the artifact might be enough. This reflects the fact that the models are not a series of rules to be followed but rather an entry point into the practice of working between music and philosophy. As a whole the models of practice will form themselves into a habitus – a series of forays into a type of practice that give other practitioners and researchers insights into that practice.

The concept of a reflective practice that documents a "unique case" is one that Schön (1983) and others put forward as a methodology for design practice (Finn 2014, p. 79). The "research diary" is a form of documentation that allows some insight into the working practice of the artist or designer but also lacks some components necessary to communicate the research (p. 77). The present study makes use of the "model of practice" as a form of documentation that is integrated with the research goals.

1.2.2 Habitus

Habitus is defined for this study in a "common sense" manner related to Bourdieu's use of the word. A habitus can be understood to be a "generative scheme" that one takes up and makes practical use of (Moore 2004, p. 329). A habitus can also be understood as a system or structure which one can "join" – i.e. one becomes a member of a particular habitus. In this sense we can speak of the "jazz habitus", a system of ideas, skills, people, histories etc. that make jazz something that one can "become a part of". A habitus is that idea of a system of functional understandings and skills (including bodily and theoretical) that a particular aspect of culture has. There is an academic habitus just as there is a jazz habitus. The use in the present study conforms to this general definition. The *habitus* (for the present study) is that system of practices, skills and theories that make up the process of working between

music and philosophical text. The significance of the concept is centered upon the fact that a habitus points to a complete network within which the practice is located and not merely the production of a mode of expression. The habitus allows the work to become a form of cognition in which ideas and creative forms are related to each other, and in which other practitioners or members can become involved and generate coherent results and dialogs.

1.2.3 Philosophy and music

Jerrold Levinson in his essay *Philosophy and music* (Levinson 2009) looks at the various ways that philosophy and music are related. The beginning of his essay describes some ways that philosophy and music can influence each other. Levinson utilizes some historical examples to illustrate this point. The examples are divided between two general categories described below. Levinson provides a good "stage" upon which the various elements can be arranged, and a description of his piece draws out the major "voices" in relation to the topic. In entering the topic through Levinson's paper a definition of "philosophy" will begin to appear in outline, a definition that can be further built upon as the study progresses.

Levinson's first general category is *music inspiring philosophy* (Levinson 2009, p. 119). The examples he gives here are Schopenhauer, Thomas Mann, Herman Hesse and Aldous Huxley. Levinson's aim (at this stage) is not to describe in detail how the philosophies were inspired by music but rather to show some "fairly obvious" connections and relationships (p. 119). Schopenhauer's philosophy is described as one that "…both accords music a supreme role in the search for personal fulfillment and also views music as a mirror of the underlying nature of things" (p. 119).

The next general category is *philosophy inspiring music* (Levinson pp. 119-120). In this category we have R. Strauss, Wagner and Satie. Once again Levinson does not go into great detail here – but he wants to establish that the inspiration exists. We can

give numerous examples in this category. It is of course well known that Strauss based his tone-poem *Zarathustra* on Nietzsche's work of the same name, and this work will be introduced in section 1.3. Also mentioned is the connection between Schopenhauer's philosophy and *Tristan and Isolde* (p. 119).

Levinson goes on to discuss the different ways that philosophy and music can be said to be linked (p. 120). His discussion takes in various similarities that might be said to exist between music and philosophy ("wholeness" as a shared aim and the fact that music and philosophy are "ways of thinking" (p. 120)).

Of interest in the present context is both the "inspirational" connection (an attribute of the general categories already described) and also the concept of a type of *strategy of integration* that a composer might make use of. Levinson broaches the topic of how philosophy might become music in his section "On the import of philosophy for composers" (p. 122). This section addresses itself to the manner in which different philosophies inform the compositional process. In relation to Cage it is noted that the Zen Buddhist ideas that are inherent in the compositional practice are realized in the music through stochastic principles of organizing sound (p. 123). It is also noted that Cage's philosophy is not only important as a facet of the compositional process but that the reception of his works is enhanced by a knowledge of the principles that the works are based upon. An understanding of the philosophy that Cage is making use of increases the interest in otherwise "baffling" soundscapes (p. 123).

Levinson holds that the use of musical systems is not quite the same as making use of an abstract philosophical idea. He lists various composers who do make use of abstract ideas but notes that the ideas are not effectively embodied in the music, or at least, how they are embodied in the music is "unclear" (p. 123). He concludes that there is no such thing as *the music of philosophy*. However it is clear from the context that what is meant here is that one cannot create a univocal meaning within a *discrete* musical expression. Within a more encompassing definition of music-as-artifact, a

discourse can become part of the work and thus allow (as Levinson seems to grant) meaning to be generated.

Levinson points out that Zen Buddhism is an active principle in the work of Cage, and the use of this principle is embodied in the compositional process. Behind Cage's compositional process is the idea that "sounds should be liberated from their dependence on personal interests and allowed to induct listeners into more meditative and impersonal states of mind" (p. 123). This philosophical principle organizes Cage's compositional process and makes sense of the concept "chance" within his work. The compositional system is organized by the philosophical principle. The listener must bring an understanding of the philosophical ideas to the perception of Cage's work, the meaning of a work is not solely located on the surface of the work. This kind of composition is "networked" between different levels: the philosophical ideas are an essential part of the work. This "networked" component is relevant to the present research.

In 4'33 Cage is using musical forms to represent or symbolize philosophical abstractions. The metaphorical "silence" of 4'33 is one that represents (symbolizes) a Zen Buddhist philosophical silence. It will be noted however that this does not give us a sounding musical form as such – Cage is not shaping a sounding form in relation to a philosophical idea. However he is creating a kind of artifact in which philosophical discourse is an essential category.

What is required for the present study is a process or, a set of processes, that connect music and philosophy in a concrete manner. In Levinson's account we can perceive a couple of good candidates for forming prototypes upon which to base the creative process of the research. These are: *program music* and *experimental / avant-garde* practice. Further rationale for these choices is provided in the following sections.

1.3 Introduction to theory of the basic process

The connection between music and philosophy has a long history. We can point to Plato's work *The Republic* as an early example of the connections between music and philosophy being theorized (Plato [380 BCE] 1968, 398c-399a). Philosophy is, in Plato's *Republic*, understood to be the guiding force that will manage the form that music takes. This philosophical intervention is perceived as necessary in order that the dangerous effects of an unmanaged music are avoided (see Book III).

Here we will focus on the construction of a *creative* dialog between music and philosophy. Through symbols or metaphor philosophical ideas can become part of a composition or artifact (see for example Magee 1983, pp. 350-402; Youmans 2010, p. 92) or, more provocatively, composing can itself be a philosophical process (Adorno 1998, p. 21). This connection between music and philosophy corresponds to the creative (*poeitic*) process. This is an artistic use of "philosophy", the artist only answerable to him or herself in relation to the processes involved and the meaning generated by those processes.

In relation to the meaning that a work holds for a listener / audience the situation is less straightforward. Nattiez notes that the *esthesic* dimension of a work is rarely in accord with the creative intention (Nattiez 1990, p. 17). The meaning of musical works - their ultimate meaning – is something that cannot be clearly defined (Nattiez 1990, p. 17; Scruton 1997, p. 130). Some philosophers and theorists have therefore described music as a non-representational art (for example Schopenhauer 1958a, pp. 263-264; Scruton 1997, p. 138). It follows that creating meaningful dialogs between music and philosophy is problematic.

Nevertheless, the main theme of the study is the creation of a *philosophical music*. The research is based in a creative process that connects philosophical thought forms to musical structure. The artifacts themselves are formed from three components: (1)

philosophical "thought form" (2) short program text (3) musical composition. We will describe the elements of the practice in more detail in section 3.3.

This section will describe the research in a form as *introduction to basic process*. The *introduction to basic process* will provide a more complete description of what is involved in working between *music* and *philosophical text*. Specifically the section describes how philosophical metaphor can be utilized to create musical form. *Metaphor* is an essential concept to the study, it is an entry point for understanding how to relate the different domains of music and philosophical text.

There are three main methods that the research makes use of, and these were introduced in section 1.1.3. The first of the methods is the description and analysis of context (analyzed in detail in the "state of the art" chapter 2). The context focuses upon the analysis of past practice in order to codify and analyze that practice for further development. In the following sub-sections (1.3.1 and 1.3.2) the introduction to the context is provided in the form of a preliminary analysis of "program music" and "avant-garde" practice.

As noted in the previous section both program music *and* avant-garde or experimental practice provide useful starting points for the research. It is also essential to point out that this does not capture the entire structure of the research. There are other components in the study, already briefly outlined above in the method sub-section. These further components are: (1) the reflective engagement with the artifacts produced by the present research (in relation to the actual making process), and; (2) the use of "conceptual blending theory" to further develop the practice.

1.3.1 Zarathustra

We will take our bearings in the basic process from Strauss's *Zarathustra,* an example of a piece that works in the space between music and philosophy. Other composers

that make use of philosophical ideas for compositional purposes are Wagner and, in the twentieth century, Cage and Schaeffer. Analyzing the practice of composers like Strauss, Wagner, Cage and Schaeffer is a useful starting point in theorizing how one might approach working between the disciplines of music and philosophy.

Strauss's *Zarathustra* is a good example of a "philosophical music" and it can serve here as prototype 1. The idea of a "philosophical music" is itself contentious and Strauss himself specifically rejects the idea that he was "trying to philosophize with music" (Niecks 1906, p. 503). Strauss however immediately qualifies his rejection and refers his composition to a more general account of *evolution* that he wanted to "convey" with music (Strauss cited in Niecks 1906, p. 503). I shall discuss this account of evolution in more detail below, but let it be noted that Strauss's evolutionary account and its conveyance through music have all the hallmarks of a useful prototype.

In relation to the philosophical element within *Zarathustra* (the symphony) Strauss has a quite particular mode of operation. He makes use of Nietzsche's title but he points out that the work was "freely" constructed after the thought of Nietzsche (Strauss 1896; see also Youmans 2010, p. 81; Williamson 1993, p. 1). This points to the *inspirational* utilization of Nietzsche. Thus we find Strauss discussing the genesis of the work in terms that point to a more general philosophical idea concerning evolution:

I meant to convey by means of music an idea of the development of the human race from its origin, through the various phases of its development, religious and scientific, up to Nietzsche's idea of the Superman. The whole symphonic poem is intended as my homage to Nietzsche's genius, which found its greatest exemplification in his book Thus spake Zarathustra (cited in Williamson 1993, p. 28).

A couple of points are worth taking note of in this description. The composer is not fixing Nietzsche's philosophy once and for all in music. Not only is it "freely" after Nietzsche (*Frei nach Nietzsche* (Strauss 1896)) it is also only making use of Nietzsche's work within a general evolutionary framework that synthesizes various ideas. It is well documented that Strauss was immersed in the work of various philosophers at the time of writing *Zarathustra* (Williamson 1993, pp. 22-24). For present purposes we can utilize Strauss's position on the use of philosophy, viz. philosophy is an inspirational "text" which can accord with a compositional process. From the outset we will accept this description of philosophy as an inspirational "text", a text that - while connected to a philosopher or thinker (or thinkers) - is not taken to be a definitive reading as such.

We have then a very general protocol in relation to the use of *philosophy* within a compositional practice. Concerning the actual *process of composing* with a philosophical text (the internal structure of this process), a more complete and detailed description is required. It should be noted that if we are dealing only with a kind of inspiration that takes place intuitively there is not much more to be said in relation to an "actual" process. However if we construct even a basic analysis of *Zarathustra* in terms of *ideas shaping musical form* we can perceive that there *is* more to be said.

We can sketch in the outlines of such an analysis here. The *Sunrise* section of *Zarathustra* can be related metaphorically to the evolutionary thought form provided by Strauss (quoted above). A quite basic (but nevertheless interesting) description of mapping between evolution (conceived of as "upward" motion) and the musical content of *Sunrise* can be plausibly articulated. This metaphorical connection between music and ideas is a type of connection that has been the subject of analysis in the work of some musicologists and music theorists (for example Zbikowski 2002); also related are analyses of the "kinetic" qualities of movement translated into music (see Beardsley 1958, pp. 184-187).

In the interest of developing these ideas let us turn now to a description of the concepts of "mapping" and "metaphor". These concepts will allow us to approach the problem via another route and further develop and articulate the rationale of the research.

The use of metaphor as a structuring principle in art is well documented (think of Kandinsky's "compositions" or Mussorgsky's *Pictures at an exhibition*) (see Pereira & Cardoso 2002). A further example of what is meant by such *structuring* is warranted here. McCormack et al. (2009, p. 356) point to the importance of biological metaphors in their creative research (they create generative art and music systems (pp. 356-357)). They point to the fact that many artists and musicians resort to metaphor in order to describe the artifacts that they produce (and the processes involved in making them). The example given is that of Reich, the minimalist composer, who describes a piece in terms of an "organism" (Reich cited in McCormack et al., p. 256). McCormack et al. are not content to describe finished pieces metaphorically, they make use of the structural language and process of evolutionary biology to organize generative art systems (p. 356). This inspirational connection allows the artists to re-frame their practice. It is in this spirit that we must theorize the connection between music and philosophy. We might posit at this point that: *Philosophy can inspire music in the same way that evolutionary biology can inspire generative art or generative sound-art.*

1.3.2 Avant-garde practice

In this study we are concerned, specifically, with multi-media artworks that utilize music and philosophical text. The present practice could be, from one perspective, described as a type of program music in which instrumental music and philosophical text are aligned. This perspective is the subject of the previous section. Another perspective might describe the work as a kind of extension of the avant-garde's

emphasis upon *contextual discourse* (in opposition to purely expressive frameworks). Both of these characterizations would be appropriate descriptions of the kind of study that is being undertaken here. That said, there are elements in this project which cannot be said to fit neatly into either category. In this sub-section we will introduce the avant-garde component of the context, and provide a second prototype.

An approach in which philosophical text and music are brought together in one object leads to a singular type of expression. The artifacts as they emerge from this combination have their own logic, and the research has its own focus and objectives. It can be clearly perceived from just a cursory description that the artifacts have a specialized interest that will escape any purely sensuous "expressive" ends. This is not to say that the musical component will not be of a type that will offer sensuous aesthetic experience, but rather that the pieces as a whole will escape any reduction to one or other of the facets - the meaning will be a complex nexus of parts that require study and time to be assimilated.

The concept of a cross-disciplinary object is not one that is alien to the worlds of art and music. A work of art such as Marcel Duchamp's *Large Glass* of 1915-23 (Duchamp 1915-23) is such an object. While it is true that *Large Glass* is in a different medium (in different media) to the present research objectives, there are points of reference that make clear a certain mode of activity that is relevant.

Hamilton in a lecture concerning Duchamp in 1957 notes that the *Large Glass* is a "freak object" (cited in Maharaj 1996, p. 76). Maharaj elaborates on this idea:

As we look back at the Bride and her Bachelors from the 1990's we are struck by its "one work, many texts" character, a sense of its diverse textual manifestations, its monstrous multiplicity. For strictly speaking, the Large Glass (1915-23) is accompanied not only by the Green Box but by a chain of related texts from as early as 1912 and published as late as 1980 (Maharaj 1996, p. 76).

The *Large Glass* is not just a monstrous or freak object but also, I would like to suggest, a complex object. The connection to textual elements within the *Green Box* make it a piece with a slightly different take upon how philosophy and text can appear in relation to an artwork. In conceptual art (for example) the text will, usually, appear in a simple form in the work or the work will be an illustration of a concept (LeWitt 1967). In a work such as *Large Glass* the text is a formal appendage to the work that can be accessed (or ignored) by the audience and critics (for an appraisal without reference to the *Green Box* see Honour & Fleming 1984, p. 800). The *Green Box* creates a nexus that resists any purely formal understanding of the object becoming definitive, and yet the object is - in its sensuous aesthetic dimension - irreducible to an idea or text itself. Thus it is a "complex object" that straddles more than one sphere of knowledge and creative zone. The present project also seeks to create complex objects, musical and textual structures that are not easily assimilated to formal or reductive schemas and which challenge how music is received and created.

Of central importance here is the idea that "expression" is tempered by other more dynamic and interactive paradigms. The contextual discourse of the avant-garde, referred to above, moves the location of the author away from the center. The development of modes of working which emphasize the "ecology" (Guervich & Trevino 2007) or the *habitus* within which one is located are essential to this kind of practice.

In this section Duchamp's *Large Glass* is presented as prototype 2, but it could easily be John Cage's 4'33. Both works make sense in relation to a de-structuring impulse that pushes the artwork into a more "networked" and discursive formation. To understand Cage's 4'33 one must look past the "surface" of the work. The discourse that Cage provides in relation to the work is as important as the "expression" of the work in any particular performance. 4'33 is certainly an "extreme" manifestation of de-structured art making, and it illustrates perfectly the concept of an art-form that

becomes *dialogical*. The use of the creative process as a vehicle to go beyond the expression paradigm and consciously push towards art as a "form of cognition" is directly relevant here.

In the next chapter a more detailed analysis of the background will be constructed. This will necessarily include a more nuanced version of the concepts introduced here. It will also provide a more complete analysis of John Cage's work, and the ideas that we have only briefly touched upon here.

1.3.3 Basic process: additional methods

A brief discussion of two further methods will round off our introduction to the basic process. Firstly we will introduce the concept of "conceptual blending theory". Secondly we will introduce the role of the reflective practice as it relates to artifact creation. This will necessarily be a cursory "sketching in" of the final components. The body of the thesis and the description of the making-process (in relation to particular artifacts) will provide the canvas upon which detailed forms are analyzed and outcomes produced. At this stage the bare and unadorned structures are provided in order that an overview be produced.

(1) Metaphor theory and Conceptual Blending Theory are branches of cognitive linguistics that are of interest to both music theorists and practicing musicians and artists (for example Zbikowski 2002; Borgo 2005). In terms of the re-purposing of conceptual blending theory (hereafter CBT) there are some examples that relate to music and creativity (in relation to creativity and AI see Pereira & Cardoso 2002; in relation to music see Kaliakatsos-Papakostas et al. 2014). There are also some discussions in the literature of earlier examples of cross-domain blending. Pereira and Cardoso (2002) refer to Mussorgsky's *Pictures at an exhibition* as an example of creative blending.

(2) "Artifact creation" becomes research through the reflective analysis upon the making process. In order to elucidate the process as a whole the study will produce and analyze multi-media artifacts that utilize philosophical text and music. Vital for the present study is the idea of creating a space of interaction in which music and philosophy become part of an artifact. The "space of interaction" is the artifact itself, allowing discussion to produce emergent meaning in both the philosophical "thought form" component and the structuring of musical shape through metaphor. Schön's insights into "reflection-in-action" and the idea that the artist can engage in a "reflective conversation with the situation" provide the starting points here. Incorporating theory into the actual making-process creates an iterative circle in which the *insights of theory* and the *structure of practice* work upon each other in real and identifiable ways.

If we now combine the various elements presented in this section a working template can be revealed. We began our section with two brief case studies focusing on program music (Strauss) and avant-garde practice (Duchamp and Cage). Case studies of earlier practices such as these provide us with prototypes that can be further elaborated through the implementation of theory (in this case *conceptual blending theory*). Theory in turn can be re-purposed through a practice-based research and reflection-in-action (Schön 1983). Between these three methods of inquiry - case study, theory implementation and a reflective creative process - we have a multi-method strategy with which to approach our problem (see chapter 3 for a more detailed account of this multi-method strategy).

This *introduction to basic process* is by necessity a cursory (and schematic) introduction, yet it reveals some of the main loci of the research. In the actual making-process and its explication within the research, the practice will be more nuanced and less schematic. In some artifacts the "hold" of one method might be weak and others more emphasized. The very fact that one is building upon the work of the past makes an introduction such as this a starting point only. Finally, the

analysis of past practice cannot be fully realized without a more comprehensive literature review or "state of the art". In order to provide such an analysis the *state of the art* is presented in chapter 2. The "state of the art" chapter will analyze in detail relevant practices and theories.

1.4 Introduction to the portfolio

The present project is engaged with producing artifacts that are uniquely constituted, artifacts that have three levels or components. Each work is a three-tiered multi-media artifact. The three components are: Musical composition, program text and expanded philosophical text (thought form).

The musical component takes the form of a combination of electronic synthesis and guitar improvisation. The philosophical text is realized as short program text and longer philosophical text. The program text is realized in two ways during performances: (1) as a visual movie or interactive visual with the text superimposed; (2) as a physical program for the audience to read. The longer philosophical text is part of the artifact - it is worked on in conjunction with the music.

The project is split into three main phases, representing the development of the research. The three phases are shown on the timeline in section 3.3. In what follows "composition" will designate the musical component and "artifact" the entire three-part object. Each composition will fit into an artifact consisting of musical composition, program text, and extended text. The first phase contains the artifacts *Transforming gestures, Stopping the world, The dialectical gesture* and *Fragmenting reality*. The second phase contains the artifacts *Wasp and orchid* and *Spectrality*. The third phase contains *On the philosophical idea of beauty, Constellation theory of knowledge*. Supplementary artifacts are: *Glass bead* and *Flight*.

The musical component of the portfolio will consist of 70-80 minutes of recorded music divided between the three main phases. A score is attached to compositions / artifacts where it is appropriate. The three (3) phases of the research are set out in more detail as a graphic in section 3.3. The musical elements are each embedded in a complete artifact (titles given above).

Chapter 2 - State of the art

This chapter will be divided into various sections according to both conceptual categories and individual artists / composers. The first sections will deal with music composition (instrumental music) in relation to philosophical and textual elements, including composers who make "program music". Further sections are related to experimental and avant-garde artists / musicians that are perceived by the researcher as relevant to the present study. By giving space to various artists / composers that work between music and philosophy a context will be generated. This context will demonstrate the different aspects of past artists / composers in relation to the present research. This context also includes an analysis of objects, compositions, performances and artifacts where it is deemed necessary.

The "state of the art" is understood as providing an overview of the relevant historical relations and lineage of artifacts that have a connection to the research being undertaken.

2.1 Music composition and philosophical text

Music composition is a form of artistic practice that is not generally connected *formally* to philosophical speculation. The two practices are located, after all, in different fields. That is not to say that philosophy is not a part of a musician's mindset but rather that the formal connection between music and philosophy as embodied, for example, in a multi-media / multi-modal object comprised of instrumental music and philosophical text, is not a commonplace in musical history. The exceptions to this rule are however multiple and various; examples of music that make use of philosophical texts include Xenakis's *L'egende d'eer* (Xenakis [1977-78] 1995), Satie's *Socrate* (Satie 1919) and R. Strauss's *Zarathustra* (Strauss 1896).

The manner in which Romantic composers (on the one hand), and experimental musicians in the modern era (on the other hand), make use of "philosophy" in the compositional process is a central focus of the chapter. Needless to say the approaches differ substantially. This will be discussed in detail below. Also discussed will be the differences that exist between different artists of the same era – it will be shown that there are a wide range of strategies and directions.

The use of "metaphor" or "conceptual blending" (Fauconier & Turner 2003) as concepts in relation to compositional (creative) procedure is a way of describing the linking of different input spaces (musical and extra-musical spaces) (Kaliakatsos-Papakostas et al. 2014). Zbikowsky describes the process of "conceptual integration" and the compositional techniques of metaphorical "text painting" (Zbikowsky 2008). Many artists use "blends" of some description, blending one mode with another. Mussorgsky's *Pictures at an exhibition* and Kandinsky's abstract "compositions" are examples of this conceptual blending (Pereira & Cardoso 2002). Blending and integration of media and modes are relevant to the present research, in particular the manner in which different disciplines and modal networks can be brought meaningfully together. Specific examples will be discussed throughout this chapter.

It is worth pointing out here that a theory of metaphor in relation to philosophical concepts – mimetically rendered as musical form – is not something that appears as an important facet of 19th century program music (this will be demonstrated below). Schumann's depiction of "distance" as a metaphor for Romanticism itself, as described by Hoeckner (1994, p. 97), or Wagner's use of harmonic suspension to represent Schopenhauer's description of the "Will" (Magee 2002) might be the closest to this type of mimetic process. Another important and relevant articulation, a specifically philosophical blend, is Strauss's *Zarathustra* (1896).

In the following sections (2.1.1, 2.1.2, 2.1.3) the focus is artists that make use of specifically philosophical ideas in relation to a program. However the ideal of the

program *in itself* is relevant to the present study so I include Liszt in the analyses. Of course Liszt also included the poetry of a philosopher proper in one of his works, namely Schiller (Liszt 1856-57).

2.1.1 Program music

We can point to the idea of the "tone poem" in the work of Richard Strauss and the "symphonic poem" in the work of Franz Liszt as early examples of instrumental music that is "textual".[1] In general such works are referred to as "program music" (or programme music) (see Beardsley 1958, pp. 348-349). We must also take account of the notion of *Gesamtkunstwerk* in the work of Richard Wagner, and the "philosophical" aspects of his compositional practice (section 2.1.2).

The fact that a piece of music has "extra-musical" content does not qualify it to be program music. There must be a stated intention – a formal connection of text to music as program (Dahlhaus 1987, pp. 96-97; Beardsley 1958, pp. 348-349). The idea of the program is something that is relevant as a context to the present study but there are also some noteworthy differences. It is very important to keep in mind that program music of the 19th Century from Liszt to Berlioz to Strauss etc. is very much about emotional content: the metaphors of music for Berlioz (for example) are centered around evoking a framework that is analogous to one that might be evoked affectively in a particular actual circumstance (Rodgers 2009, p. 54). There is however no single description that captures what program music is *per se* (Niecks 1906, preface). It is a diverse practice and its relevance for the present study can be revealed only through careful strategies of source selection and interpretation.

---

[1] Opera too could be so construed - but the texts that I am interested in here are less entertaining stories / drama than philosophical meditations.

Liszt created his first symphonic poems in the years 1848-58, and it is generally accepted that his are the first to be structured in the form (Beckett 1968, pp. 113-4). He was also the first to use the name "symphonic poem" (pp. 113-4). Berlioz and Liszt are described by Taruskin (1906, p. 265) as important to the genesis of program music.

Liszt's work took its starting point from both literary and visual arts (Niecks 1906, p. 304). His theoretical writing was certainly the first such to make a central concern of the *formal* connection to extra-musical factors (in the quite specific sense that we will detail below), though Romanticism as a whole found literary and textual elements to be important in composition (Lippman 1964, p. 310; Dahlhaus 1982, p. 62). Liszt was a great influence upon the symphonic poems of other later artists and the program music of the late 19th century (Beckett 1968, p. 114).

Liszt's work *Orpheus* of 1854 (Liszt [1854] 1900) emerges from the myth of Orpheus - the music is conceived not as a programmed "painting" of the text but an evocative expression (Wagner [1857] 1995, p. 249). Liszt also used visual images (for example von Kaulbach's *Hunnenschlacht* (Niecks 1906, p. 304)) as the basis for musical pieces. In the case of *Hunnenschlacht* Liszt wrote a "programme in words" as a poetic representation of the picture, a program that acted as a "transitional stage" to the music (Searle 1954, p. 75). Humphrey Searle writes concerning Liszt's symphonic poems:

In the symphonic poems Liszt wished to expound philosophical and humanistic ideas which were of the greatest importance to him, and many of which were connected with his personal problems as an artist (Tasso, Orpheus, Prometheus). Thus where Beethoven's symphonies may be said to be concerned with undefined philosophical problems which cannot be expressed accurately in words, Liszt in this new form was trying to represent more explicit problems which had been set out in many cases by writers or painters; he was not interested in the minute pictorialism into which the

symphonic poem later degenerated, nor in the first place, in "telling a story" in music; the story, if any, to him was merely the symbol of an idea (Searle 1954, p. 77).

Dahlhaus describes program music in his *Esthetics of music* (1982, pp. 57-64) with reference to Liszt's symphonic poems and the milieu around them. Franz Brendel (a theorist of music and editor of the *Neue Zeitschrift für Musik* writing in 1867) saw in Liszt a potential for a type of future music that would go beyond the current symphonic work (Brendel cited in Dahlhaus 1982, p. 57; see also Taruskin 2005, p. 425). The integration of text and instrumental music was to create a complete "culture" – the works would become something more than a pleasant succession of tones (Dahlhaus 1982, p. 62). In the ideas circulating around music and text and music and philosophy in the 19th Century we see the emergence of a type of music that had the potential to be turned to something wholly new. Brendel saw the symphonic poem as the next logical step in musical evolution – the utilization of text to push music forward past any "naturalistic" reliance on mere motivic elaboration (Dahlhaus 1982, p. 58).

The importance of Hegel's aesthetics in relation to the historical era of the program is not to be underestimated (Dahlhaus 1982, p. 57; see also Gor 2012, p. 352). Liszt is described by Dahlhaus as an "usurper" who sought to reverse Hegel's aesthetics and put music in the place of text. He quotes Liszt: "Music in its masterpieces more and more incorporates the masterpieces of literature into itself" (p. 61).

Taruskin (2005, pp. 423-424) describes Liszt's program in relation to *Les preludes* (1856). The work is a Symphonic poem based on Lamartine's poetry. Various musical motives are set out (in notated form) by Taruskin as relating to the themes of the piece (p. 424). The table of themes as set out by Taruskin could be read as kind of sequence of Leitmotifs that appear within the work, all of which are derived from the main motif. It is noted that Liszt's structuring of the form of the piece departs from the standard symphonic forms but retains some similar structural elements (p. 424).

The process whereby the overall form of the symphonic poems changed according to the program shows the impact of a textual component on the structure of the overall work. However it is also noted that *Les preludes* was written originally in connection with the poet Joseph Autran, and that Liszt simply made use of, and enhanced this written work adding the Lamartine program later (p. 425). This does not alter the fact that Liszt was attempting to tie his works to the *ideal* of the program, and in his *Harold* essay it is clearly stated that the musical form is to be subordinated to the poetic idea in a work of this type (Liszt & von Sayn-Wittgenstein [1855] 1998).

Wagner in an essay on program music points to the dissolution of sonata form through this new compositional process (Wagner 1972, p. 49). The works of the young composers using this compositional process leads to a breaking down of the standard form (sonata) as the music comes to reflect a poetic text (p. 49). As noted above there are still similar structural elements.

Charles Rosen has theorized that there exists no "sonata form" (singular) only "sonata forms" (plural) (Rosen cited in Cook 2007, p. 249). In general however we can see that the overall structure of some program music *does* reflect a more fluid, poetic and *individualized* narrative. The sonata form is an "external" structural principle, and Wagner goes so far as to describe it as "cramping" (Wagner 1995, p. 248). Note also that symphonic poems are invariably one movement (Searle 1980), a fact that Wagner saw as a step on the road to "individualizing" musical form (Wagner 1995, p. 247). How Wagner conceives of "individualizing" in this context will be briefly described below.

This imposition of external (extra-musical) factors upon the motivic and overall musical form is important to the present study. This section is analyzing the manner in which a textual element can work upon the musical expression (specifically in relation to "tone poems" and "symphonic poems"). Motivic elaboration that deals only with the themes of a piece as they relate to each other, is a type of plastic

sculpture in which one unlocks the power of the themes within harmonic and rhythmic contexts (Rosen 1971). In Liszt's case a "pure" motivic logic is replaced by one that allows external textual elements into this logic (Liszt 1855, p.81). These external factors can also change the overall form of the work itself. It is sometimes observed that Liszt's work has a certain "formlessness" that adheres to it, and some make this criticism of program music in general (see Wagner 1972, p. 49). Sometimes program music is perceived also as "unmusical" – these kind of descriptions often emerge from a polemical debate that took place in the name of "absolute vs. program music" (Bonds 2014, p. 219).

There is, at least subjectively speaking, a change of overall dynamics in comparison to artists like Beethoven or Mozart – this overall dynamic seems to reflect a more *mediated* unfolding of a musical idea. The overly dramatic content of some of the passages in symphonic poems (Wagner's description) are also, sometimes, balanced by a languid and subtle unfolding of musical ideas.

Rosen notes in relation to classical music (he is specifically referencing Mozart, Haydn, Beethoven) that it is always "eventful" (Rosen 1971, p. 68) and it cannot give much space to a slow unfolding over time (in "slow motion" as Rosen puts it). The point is made in relation to Wagner and it speaks of a type of artistry in which thematic elaboration is drawn onto new ground that allows extra-musical factors to influence the aesthetic proceedings (pp. 67-68). I will give some more space to these interpretations below, for the present it is the fact that the program intervenes on the level of the overall form *and* the thematic elaboration in different ways that I wish to draw attention to.

Monroe Beardsley also briefly describes a similar idea to Rosen's description of "slow" mediated musical expression (Beardsley 1958, p. 351). The passage concerns Liszt and the concept of the symphonic poem. He notes that such music has a tendency to "fall into the background" in service to the story (p. 351). Yet he admits

that even here "…the tremendous vitality and power of music to creep into things and become a part of them is evident" (p. 351).

A few remarks based upon a (subjective) aesthetic listening to program music seem warranted at this point. In Liszt's *Faust* (Liszt 1866) it is as though the music does not have to make a quick effect - there is an unfolding logic that makes long stretches meaningful in a subtle, shaded manner. Some motivic power is given away – the work does not always retain the attention within a formally developmental mode – but it replaces this with a dreamlike quality. One can perceive this most clearly in works such as *Faust,* but also in relation to *Orpheus* (Liszt 1900). Liszt describing the compositional process notes:

In program music, repetition, succession, variation, and modulation of motives are determined through their connection with a poetic idea. Here, one theme no longer calls forth another; nor do stereotyped affinities or contrasts of timbres effect the succession of motives; and color, as such, does not determine the arrangement of ideas. All purely musical considerations, though not disregarded, are subordinated to those of the plot and the given subject. Thus, in this kind of symphony, plot and subject demand greater interest than the technical handling of the musical material (Liszt 1855, p. 81).

This way of working appeared entirely new to some and it became important even to the later symphonies that were not program music (Bonds 2014, p. 249). Thus we see that the "formless" nature of program music became important to later absolute music – the new symphonies were "dialectical" – they made use of some of the features of their opposite "program music" (Dahlhaus 1989b, p. 268). The "conventional schemata" that had governed composition had been overcome by program music (Bonds 2014, p. 249).

As noted above Brendel represented a position within 19th Century society that perceived program music as a new and progressive form. The creative process itself (which Liszt championed) had various compositional innovations in its arsenal (see Dahlhaus 1989b, p. 238). An important component of the system is to condense multi-movement works into a single movement (p. 239), and to allow an idea, or text, to enter into and disturb all the different levels of symphonic composing (p. 268). Wagner, and others (for example Baudelaire (see Bloom 2005, p. 94)), believed that such a compositional practice must also be balanced by a reception that could clearly perceive this text in place (Bloom 2005, pp. 94-95).

Wagner became a defender of this new form of music program – and he made some of the insights of Liszt into important structural components of his music drama (See Searle 1954, p. 64). However no theorist or artist provided a complete integrated system of the program text in relation to musical form. Wagner does however give us some very interesting insights, or at least hints, into the manner in which he perceived Liszt as having a system of sorts in his *Open Letter* (*On Franz Liszt's symphonic poems*) of 1857 (Wagner 1995).

Wagner describes firstly his "silence" in relation to what has been imparted in the poems and he also points to a personal reversal of an earlier, negative, assessment of program music (Wagner 1995).

Wagner speaks of an "invisible hilt" which must be in Liszt's hand, a hilt which one cannot see as it fits that hand so readily (Wagner 1995, p. 243). One imagines that what is being described here metaphorically as the "hilt" is precisely the *individual* aspect in composition. One imagines further that the hilt represents a process or artistic disposition that can re-align form in a way that makes sense (to an audience) but which is not apparent to that audience ("*invisible* hilt").

The process of composing with a program is not one that any can take hold of - Wagner specifically criticizes Berlioz as being too much interested in a base version of the literary text (he is speaking of the text that will serve as program) (p. 249). The "secret" that Wagner perceives in Liszt is related to the management of the program text. In Liszt there is a new (transformed) text, quite different to the text that one encounters in its basic form (this or that literal text) (Wagner 1995, p. 249). In relation to the program text: "The musician…sublimates whatever lies within it (the text) to its quintessence of emotional-content" (p. 249).

For a text to be programmed correctly it must be (re)written in a particular manner – the basic text will not serve. So Liszt must re-write the textual works in order for their essence to be one that makes sense as musical form. Wagner says as much: the ideal text of the poem is revealed by Liszt and this ideal text is translated into musical form (p. 249).

The entry point for expressing a text (in music) must consist of something that is already a prototypical part of music, for example the "dance" (p. 247). Wagner points also to the dance (and the "march") as being prototypical in relation to music *comprehension* (p. 247). To bypass these dance-motives is to become esoteric with no way for the audience to grasp what is occurring (p. 248). The entry point for composing to a program is located within the prototypical dance-motives. Once one has founded an expression within these prototypes more "individualized" gestures and soundscapes can be created (Wagner 1995, p. 247; Wagner 1903, pp. 27-28). The ideal form of *Orpheus* (for example) must be understood as an extrapolation from the earlier "dance" form (motive) of symphonic music. Some attempts to do this have been "bumbling" (p. 247), and Wagner gives some examples of failed attempts. The potential for new expressive forms seem real for Wagner:

We must place our doubt, then, less in Music's capability (for things undreamt have been already compassed in the older cramping forms) than in the artist's possession

of the needful poetic-musical attribute, the gift of beholding the poetic subject in such a way as to serve the musician for molding his intelligible musical forms (p. 248).

The task is to create an expression that is comprehensible (in the same way that a dance-form is comprehensible) but depicting more "individualized" and complex ideas. For Wagner, and one suspects for Liszt, there is a direct line stretching from a "dance-motive" to an "Orpheus motive" (p. 247).

From a composer's perspective there are various observations that can be made at this juncture. These observations are directly relevant to the creative process, and they represent an initial audition of possible research connections formed through the analyses undertaken here.

The shape of musical expression, the form of motives and their elaboration all of these can become stilted by the imposition of a program. The *idea* can release and erode some structural components but it can also create some clumsy or undeveloped components. In Liszt the superficial begins to take on a new form and surprises the listener: it is subsumed in the gesture of the artist. Motives become nuanced "diagrams" that are worked with internal and conflicting energies (Faust).

Liszt developed a theme (12 note chromatic) in *Faust* and then took that theme like a Leitmotif and put it though various transformations (Hamilton 1996, p. 51). The themes are transformed according to different emotional and drama-oriented components – extra-musical content realizes itself through the thematic manipulations (see Saffle 2002, p. 240).

A symphony as a series of variations on one theme is a process that Berlioz utilized in *Fantastic symphony* (the "idée fixe"). Often described as "thematic transformation" both composers made use of it (in relation to Liszt see Saffle 2002, p. 246; in relation to Berlioz see Barzun 2016). Berlioz was a master of the overall motion of a work –

the motivic and thematic components start to move within a rich and varied *process*, a motion-process that extends the expressive palette into new realms. The motives remain but are surrounded now by layers of gestural intensity: gestural intensity and a motion-filled harmonic structure modulate the musical motives and carry them away (listen to the 5th movement of *Symphonie fantastique*). We can hear in Liszt what he understands from Berlioz – the thematic components are balanced by a type of gestural / motion process. In Berlioz the movement of the external forms and the internal motion of the harmonic structure are brought together: the external, gestural, motion governs – infects - some of the harmonic motion in a kind of dance (battle) with traditional notions of theme or harmony.

In such observations as these we cannot claim to have shown any actual "facts" about the composers and the music. However such reactions are important to a background in which creative process is being prepared. The rational document of aesthetic evaluation and aesthetic listening provides the practice-based researcher with the necessary counterbalance to the accumulated opinions of other writers and theorists. This idea is discussed in more detail in section 2.1.9.

Program music is, in some respects, the expansion of the mediated component that exists in all music – even "absolute" music contains some conceptual content (Dahlhaus 1978). The textual form begins to make inroads on the "purely" musical structures and forms (Liszt 1855, p. 81). Liszt's music can be seen as an aesthetic departure in relation to earlier forms, precisely in the expansion of this "mediated" component. A music that incorporates literature into itself is the goal of the program (Dahlhaus 1980). Nothing is attempted precipitously: the work unfolds in a temporal space that is organized around a structure that is not immediately apparent to the listener. One can perceive that there is a change in the manner in which the music is unfolding (in comparison to other forms of music), and an understanding of the textual program will allow one to understand more completely the immediate component of the work (that which is presented to the senses). One might also point

to the lessening of the importance of sensuous gratification in favor of a more mediated and multi-modal experience.

The essential point for the present study is Liszt's stated intention that the overall form, as well as the technical handling of the material, could become something that reflected a textual program (see above). This intention and the speculation upon how this might be realized bring to light a number of relevant practices and methods of creation.

The composer of program music has before the mind's eye a particular poem or idea that creates an antagonism in relation to a pre-defined form (Wagner 1972, p. 49). "Form" in this sense is to be read as the overall structure of the work. There is present in *On the application of music to drama* (Wagner [1879] 1972) an analysis of two different levels of form: the overall structural form in relation to poetic programs and the motivic form in relation to music drama (overall form is discussed on pages 48-49 and motivic form in relation to music drama on pages 51-55). It is beyond the scope of the present study to describe all of the nuances of this relationship. The analysis offered here points to some relevant aspects of the symphonic poem in relation to working between philosophical text and music.

Two ideas that emerge from this section are important to the current study:

(1) the power of the text to shape and form music in various ways and at various levels. Musical form starts to relate itself concretely to concept – it becomes a form that grows both internally (motives and internal structure) and externally (the extension of textual metaphor into those internal motives). As Liszt notes: "…one theme no longer calls forth another" (Liszt 1855, p. 81). Rather the criteria established by the text construct a new way of working that moves beyond external rules. The works become "individualized" as discussed above.

(2) the use of conventional, or prototypical, forms such as the "dance" and the "march" are conceived of as entry points to more esoteric expressions. The earlier convention becomes a component in the new expression – a dialectic in which various contexts are made use of within the boundaries of the work. Liszt inherits the symphonic form without being chained to its formal working mode (Dahlhaus 1989b, p. 238).

2.1.2 Richard Wagner

Richard Wagner was not the first to use the word "Gesamtkunstwerk" - the 'total' work of art - but he made it famous.[2] Wagner sought a way to create art that re-united the various spheres of creativity that had been split asunder since the time of the ancient Greeks (Wagner 1892, p. 61; Silverthorne 2014). Wagner was influenced by Liszt musically and theoretically (Gibbs & Gooley 2006, p. 231). The total work of art was Wagner's way of allowing the affective and emotive power of music to be tempered and modulated by other forces and spheres, creating a whole that would move beyond the purely sensual and ecstatic elements of music (Silverthorne 2014). Drawing on Nietzsche and Schopenhauer, Wagner sought to provide a theoretical path for his music that would allow a "defusing of the orgiastic self-annihilation that Dionysian music represented" (Shaw-Miller 2002, p. 57). Wagner sought to re-harness the "natural" and "archaic" power in music to other forms of art (poetry / myth / drama) in order that a balance be achieved in which the different disciplines were brought back together (p. 63). The Dionysian would be brought under the power of the Apollonian (at least seemingly) and this would allow insight into the world without immersion and destruction (p. 57). Wagner in one sense sought a sophisticated art work of the future, but in another he was reviving the ancient Greek tragedies and chorus in which art was a "unique activity, where dance, music, and poetry all operated under the banner of Drama, and where the tragic Drama was a

---

[2] Karl Trahndorf used the word in an essay in 1827 (Trahndorf 1827).

mass religious event" (Shaw-Miller 2002, pp. 53-4). Music was to be brought back into a relationship with the whole, so that it could speak the language of modern man - a precise language that bound music to a text while still letting it work its magic upon the senses. Wagner's *Prelude to Lohengrin* (composed 1846-48) (Wagner 1881) had a lengthy textual description provided by Wagner himself which points out aspects of the music in relation to the text.

Tempering such accounts of Wagner's work there must always by an accounting in terms of essays such as *Judaism in music* (Wagner 1995). The essay is a tirade against the artistic prowess of the Jewish people. The "mass religious event" described above is to be organized, at least partially, by ideologies that can only be read as racist. The idea of the religious event in which all of the different arts were brought back into unity – this must be studied in the light of a personal ideological agenda. In the present context the Wagnerian process offers insights into the connections between music and philosophy, and therefore must be analyzed.

It is well documented that Wagner was influenced by the work of Schopenhauer, especially in regards to the work *Tristan und Isolde* (cf. Magee 2002, pp. 350-402; Wicks 2011, pp. 148-149; Grey 2011, pp. 380-389). What the effect of this influence was and the manner in which Wagner worked with this influence are more contentious. Brian Magee maintains that Wagner made use of a particular aspect of Schopenhauer's writing as a blueprint for a compositional process (2002, p. 380). Also of this opinion - citing a passage from Wagner's essay on Beethoven – Wicks (2011, p. 148) describes a compositional mode that comes directly from Schopenhauer.

The most moving idea to Wagner - as we can read in his 1870 essay on Beethoven - is that Will is an endlessly striving energy that in its higher manifestations, expresses itself emotionally as a continuum of yearning desire. When translated into sound, this yields a flow of music that holds us in emotional suspension for extended periods of

time, never fully resolving, as it repeatedly transforms into new structures that perpetuate the suspense, expectation, and inner tension. Wagner's later music offers this kind of experience, for indeed, he self-consciously embodied Schopenhauer's idea of the ideal musician whose individual will reflects Will itself.

Magee ties this "yearning" energy even more directly to the compositional model:

The very first chord of Tristan, perhaps the most famous in the history of music, contains two dissonances, one of which is then resolved but the other not; the same is true of the second chord, and the third and forth; and throughout the work the perpetual longing of the ear for the resolution of discord is at every moment partially satisfied and partially not. This goes on for more than four hours of music, until finally, on the very last chord - when Isolde joins Tristan in death - resolution is at long last achieved, and a full close reached (Magee 2002, p. 380).

Schopenhauer himself – cited in full by Magee - writes:

Now the constant discord and reconciliation of its two elements which occurs here in melody is, metaphysically considered, the copy of the origination of new desires, and then of their satisfaction...The effect of the suspension also deserves to be considered here. It is a dissonance delaying the final consonance that is with certainty awaited; in this way the longing for it is strengthened, and its appearance affords the greater satisfaction....Music consists generally in a constant succession of chords more or less disquieting, i.e., of chords exciting desire, with chords more or less quieting and satisfying... (Schopenhauer [1958 pp. 455-456] cited in Magee 2002, p. 381).

Magee points out that the harmonic device of keeping two notes suspended from the chord before resolving only one of them creates a suspension of resolution (p. 381). This musical device known as "suspension" - alluded to in the Schopenhauer quote - was usually only used sparingly at the end of a piece to delay resolution (p. 381).

Wagner utilized it throughout a whole work making it the "theme" of *Tristan* (Magee 2002, p. 380).

Magee's description could be supplemented on various levels. The fact of "harmonic suspension" is not so easily realized as Magee imagines – the motion of the main theme through the chords does indeed carry instances of the suspension of a note from one chord to another, but there are also instances in which the logic of the prelude surpasses this schema. The construction of the chords around the main melodic voice at the beginning of the prelude (see figure 1: main voice here is the cello) is one that has a logic of progression built into it in which one can follow the voice without that voice ever coming to rest. This restless voice that moves through the prelude is perceived as a kind of agent – an agent that never reaches a haven.

Figure 1 Opening bars of *Tristan und Isolde*

This in itself would not be remarkable: any dissonant harmonic structure would create such an agent of an instrumental voice. It is rather the logic of the motion of the main voice in relation to a meaningful harmonic progression that makes it both musical and "dissonant". The non-resolution of the voice is one that is resonant with the structure of a *meaningful* direction and a meaningful temporal unfolding. If we return to Schopenhauer's description and try and understand it in terms of a compositional process there are some elements missing. The mapping from one domain to another does not, in itself, explain how the prelude captures the significant formal properties we are alluding to.

The basic point made by Magee is however well taken: the ideal of a suspension that reflects Schopenhauer's theme of a delaying of satisfaction (directly tied to music by Schopenhauer) seems to fit the form of the *Tristan* prelude remarkably well. The chords that "excite desire" (Schopenhauer 1958, p. 456) without the longed for resolution – such an overall conception certainly could be attributed to the prelude.

We are of course assuming various metaphorical mappings here between musical structures (dissonance and consonance) and emotional states (desire, longing, resolution). Did Wagner make conscious use of metaphor derived from Schopenhauer's philosophy and map these to musical structure? This will be discussed in more detail below. The mapping of philosophical metaphor to musical form is central to the compositional practices and artifact creation of the research. These issues are discussed in detail in the method (chapter 3).

Schopenhauer, according to Magee, writes about the compositional device of "suspension" in direct relation to the satisfaction of the will (p. 380). We can see this in the Schopenhauer quote above. Thomas Grey however disputes the idea that Schopenhauer had a direct effect on Wagner's composition (Grey 2011, p. 388).

Magee…proposes that Wagner's musical language was fundamentally changed by his exposure to Schopenhauer, explaining the freer, more expansive unfolding of musical designs and the intensified levels of expression in Die Walküre *and* Tristan *(as compared to the tentative, experimental quality of* Das Rheingold*) as a response to the philosopher's views on the unique, essentially autonomous status of music as an unmediated reflection of the will. While…Schopenhauer did provide an account of musical autonomy more palatable to Wagner than Hanslick's version, it seems unlikely that such an abstract articulation of the matter could have a compositional effect, even if the chronology is roughly plausible* (p. 388).

Grey is however focusing on the concept of the autonomy of music as unmediated reflection of the will and not the specific passage regarding dissonance and consonance reflecting desire and fulfillment and the musical device of "suspension". Grey does point out that the significance of Wagner's contribution to philosophy must take into account the manner in which philosophy was integrated into the works, however he does not broach the question of harmonic suspension as a metaphor that could plausibly inform his compositional practice.

Others who see Schopenhauer as influencing the compositional style directly include Joan Grimbert who also cites the same passage as Magee (Grimbert 2002, p. lvii) and R. Wicks cited above who points to the chromaticism and harmonic suspension of Wagner's practice as compositional illustrations of Schopenhauer's theories (p. 149).

It is, in any case, beyond the scope of the present research to decide whether or not Schopenhauer's writings had a direct compositional effect upon Wagner. Regardless of whether or not Schopenhauer's model of "suspension" was directly taken up by Wagner it is in any case an interesting model. The practice of putting forward a series of philosophical ideas that become the working criteria of a compositional process is worthy of consideration and directly relevant in the present context.

It will be noted at this point that the program music of the 19th Century was specifically tailored to fostering such a compositional procedure. Liszt's "symphonic poems" were a solution to a problem formulated by Hegel, viz. music was merely the pleasant play of tones and could not rise up into the realm of the poetic (see Dahlhaus 1982, pp. 57-63). Hegel's basic conviction in relation to music is that it is an art of affect and that it cannot rise to the realm of the concept. It can accompany poetry and give an indication of the internal spiritual content of the words but it cannot go further and create a conceptual meaning (Hegel 1975, p. 904). He notes also that simple poems that have room for spiritual elaboration are the best subjects, poems by Schiller

for example are too complex (p. 901)[3] Furthermore music for Hegel should not try and go beyond the accompaniment for a libretto (if intelligibility is the goal). In the case of a purely instrumental music it becomes an expression not for the intellect, but rather an expression that is understood in terms of a musical logic alone (p. 936). This last is an expression that is based in musical (motivic) elaboration and technique and thus available as meaning only to the music connoisseur (p. 899).

Liszt and the New German School created a new form of symphonic expression that was to address the problem of music not being able to rise to the level of the intelligible (Dahlhaus 1982, pp. 57-63). This new form (the symphonic poem) was to free music from earlier structural forms by subordinating form to the "idea" (Liszt 1950, p. 870). Berlioz and Liszt were depicted by Liszt in his *Harold* essay as going beyond the logic of autonomous form and fusing music and literature (p. 870).

2.1.3 Richard Strauss

Some of Richard Strauss's compositions are known as *tone-poems* due to the fact that they make use of an external textual element as part of the creative process and finished object (Williamson 1993, p. 1). A famous example of a Strauss tone-poem from 1896 is *Also Sprach Zarathustra* (Strauss & Nietzsche [1896] 1979). Strauss seeks to unfold some kind of formal musical dimension to ideas inherent in the Nietzschean text, using a variety of strategies, the relevant elements of which are discussed below. Some commentators hold that the composer's written descriptions (for example the designation of a "disgust" motive) have no actual relationship to the musical motives (see Newman 1908, p. 72).

Strauss's work is perceived by some critics as containing an internal logic that overcomes any illustrative elements, making use of texts rather than being dominated

---

[3] Beethoven seems not to have taken this to heart, utilizing Schiller in the 9th symphony.

by them (see for example Newman 1908, p. 66). The concert programs that were provided at performances of his work were written after the music, and they were provided for the audience as a listening guide (Werbeck 2003, p. 116). Certainly Strauss used texts to inspire his works, and is quoted as saying: "I have long since learned that in my composition I am unable to write without a program to guide me" (quoted in Werbeck 2003, p. 116). He also goes as far as creating musical themes which are attached to an idea or phrase that is jotted down in the notation and score (Williamson 1993, p. 37). Strauss's full score made use of "section headings" from Nietzsche's work and he also included a "Vorrede" transcribed from the book (p. 37). However while the section headings survive in full score the Nietzschean passage is not present (Strauss 1896).

The manner in which he makes use of these themes derived from Nietzsche's text - quite sparsely textual in themselves - is according to W. Werbeck, entirely within the logic of musical form (Werbeck 2003, pp. 116-7). Listening to *Zarathustra* one must agree with this position - Strauss's treatment seeks to unfold a musical idea that entirely relies on its own logic. This is not to say that Strauss does not indulge in some tone "painting" in some pieces (For example the *Alpensinfonie* (Strauss [1915] 1993)). For present purposes there is no need to discuss in detail Strauss's general compositional process – this section is confined to a few remarks in relation to some of the more relevant aspects of that process.

In relation to the tone-poem *Zarathustra* Strauss has engaged with Nietzsche's text as an evocative counterpoint that entwines itself with the compositional process without being represented as such. Strauss was not merely utilizing Nietzsche in a manner that was "unthinking" or superficial. It is documented through his correspondence and other evidence (see Williamson 1993, pp. 22-23) that he had immersed himself in various philosophical works (from Schopenhauer to Nietzsche to Stirner).

As was noted in relation to Strauss's working mode in section 1.3 the account that he gives in relation to *Zarathustra* as the conveyance of a personal synthesis of ideas is key. There is no need to repeat in full what was written there, however a brief re-iteration of the main themes is necessary. Strauss's general description of evolution and the kind of mapping that takes place between the different components is directly relevant. [4]

To re-iterate: the composer can establish a path from philosophical thought to musical form, the manner in which this is accomplished will naturally take different forms (according to the aims of the artist). However there are some components within the process that can be formulated as intrinsic. Firstly it must be the case that the correspondences that act as the bridge between music and philosophy must have some type of *invariance*. I am alluding here to the invariance principle in conceptual blending theory – this principle has some use in the creative process that is being described. Briefly, the invariance principle describes the manner in which only some components of target and source domains are made use of – a kind of cognitive filter is applied that allows complementary structures to be utilized from the different blended spaces (Fauconnier 1997; see also section 2.2.2).

The thought form (philosophical text) must be connected in some manner to an image schema (a negotiated or inter-subjective form of such). In *Zarathustra* we have Strauss's text as one which can be visualized in a form that connects it to "upward motion". The question of whether evolution really has *upward motion* or not is one that is bypassed. It is bypassed precisely because we are dealing with a negotiated,

---

[4] Stanley Kubrick added another dimension to the work *Also Sprach Zarathustra* when he included a section of it as the soundtrack to his movie *2001* (1967), an inclusion which shows the music finding new areas of articulation as it is juxtaposed with futuristic and cosmic visual imagery. The movie can be described as a depiction of evolution and projected evolution (a visual version of Strauss's piece).

cultural, ontology. In the particular Western cultural tradition that we are analyzing we can provide a plausible graph that maps "evolution" to "upward motion".

Williamson (1993 p. 46) quotes Gerlach that Strauss's work is concerned with "abstractions symbolizing ideas", a phrase that comes from Gerlach's *Rozenkavalier* essay (Gerlach 1966). Yet the abstractions are not wholly arbitrary. There are points of correspondence between the "upward motion" schema that is present in Strauss's thought form and the ideal of upward musical motion – metaphorical as that may be. Zbikowski points to Palestrina's work as representing basic musical ideas that connect to a text of "ascension" (Zbikowski 2002). *Zarathustra* could be read in this context. The Western musical tradition has forged a strong connection between moving from *low* frequency to *high* frequency notes as being tied to motion upwards.   Other cultures have different emphases (Zbikowski 2002).

2.1.4 Schumann / Romanticism

That Romanticism was "philosophical" is documented:

The time was one that spontaneously coupled music and philosophy; musical ideas assumed a new importance both in literature and in metaphysics; newspaper articles discussed the nature of music as a matter of course; musical philosophy even had its counterpart in philosophical music (Lippman 1964, p. 310).

Lippman here points to a preoccupation with the philosophical – but I think we can also see it as a preoccupation with the poetic and textual. That said, the idea of the music program had some important philosophical components. The importance of the program for Romantic music could be seen from one perspective as being a reversal of Hegel's conception of music as an incomplete art that tended towards poetry (Dahlhaus 1982, p. 61).

The program music of the 19th century was certainly textual but the *surface* of the musical work was still "self-sufficient" (Dahlhaus 1987). The status of the Romantic work was still perceived to rest upon its "purity" and its ability to stand alone. As Bonds points out even Wagner and Hanslick were in agreement over the point that the extra-musical content remained "outside the true essence of music" (Bonds 2014, p. 212).

The artists themselves often exhibited an ambiguous and fluctuating opinion in relation to the program and how important it was for either reception or praxis. Lipmann points to a type of vacillation on the part of Schumann in connection to the significance of the program for the music he produced (Lipmann 1964, p. 313). In general the distinction between the styles (absolute versus program) is sometimes not clearly formed. There appears often an uncertainty in terms of the artistic expression's debt to extra-musical text (p. 313).

The fact that Schumann was "uncertain" (p. 320) about whether or not a text accounted for the musical form points to an internal tension in the material. The surface of the art-form (its self-sufficiency) was still, ostensibly, the central component in the Romantic composition and Schumann often changed – or erased - the titles and the programs to his pieces (p. 314). This reflected an agonizing over the reception of the works and the imposition of any stable meaning: the music should firstly speak for itself (Bonds 2014, p. 212). However it is obvious that a discursive component was nevertheless crucial at some level of practice or reception (albeit a conflicted component).

If one analyzes one of the *Kinderszenen* by Schumann purely from a composer's perspective one can make sense of how his work incorporated text as form. How much the program envelops and is developed in the musical form is an open question, but one can certainly make some kind of reading based on playing or listening to the works. The structures of *Bittendes Kind / Traumerei* are such that one is impressed by

a certain textual logic. *Bittendes Kind* (Hereafter BK) has a form that opens with a falling (descending) motive. The conscious impression is one of "falling falling" – but it is a logical and, perhaps, beautiful fall.

Figure 2 Example from *Bittendes Kind*

There is a questioning feel – the lilting descent of a questioning child: a pleading cadence. However: the music does not merely descend it evinces a type of structural logic – something is being asked but it is done so beautifully and logically (see figure 2). Not the type of asking done by a demanding child, but something other. This opening (bars 1-4) then is continued in the next passage; once again we are descending. Yet this time the logic has shifted; the question is now shifting its balance towards a *statement*. Certainly we are still in the circle of the question but now it wants nothing of us, and this feeling is continued from bar 9 onwards. The entry of the slower section (starting on the F#) completes this statement (and the *display* of convincing / explaining), and the first pleading cadence returns. Does the recapitulation signify success or the question rephrased on a firmer basis?

Certainly we cannot hope to know if such descriptions – belonging to an empirical and subjective appraisal – are close to the author's intention. They do however give

us a type of entry point into making use of a text in relation to musical form. As we pointed out above Schumann's use of text was something that was not fixed or strictly definable. He seemed to use the text / titles in a type of "self reception" (Hoeckner 1994, pp. 78-79). Such a reception was perhaps a way to further develop the practice and not so much something for an audience. This practice can be read as a composer's iterative strategy that projects a direction for future composition. Schumann was "discovering" the shape of the text within the expression, and working out ways that such shapes could be developed. Most relevant in the present context is the interpretation of Schumann's music in relation to textual metaphor. Some space is devoted below to this relationship.

Jean Paul's definitions of Romanticism were very influential in terms of Schumann's actual compositional practice (Hoeckner 1994, p. 38). The image of the fading of sound into the distance as some kind of Romantic infinity was influential for Schumann. Hoeckner notes:

Both in the Divertissement and in the "Finale" of the Papillons *the thematic material gradually fragments. Although the much more complex layering at the end of the* Papillons *has been described by numerous commentators, it appears in a new light when the concept of distance is taken into account; indeed, it looks as if Schumann had literally composed out Jean Paul's definition of the Romantic* (Hoeckner 1994, p. 38).

This is a slightly different way of using text within composition than our earlier description of form in *Bittendes Kind* (above). Here we have a type of philosophical analysis of Romanticism itself (Jean Paul) that is taken up as a metaphor for musical form. The metaphor appears in the music of Schumann in a clearly wrought form (on this interpretation). This metaphorical code or syntax appears as a sign in the musical expression and plays a subtle but definable role. To understand the allusion one would have to be involved in the conversation – the meaning of the trope would be

lost on outsiders. This circle of discourse is one that pushes music into a philosophical realm and focuses the attention: the trope will stimulate conversation / communication in relation to an analysis of Romanticism itself. Certainly, if one accepts the analysis, this is a philosophical "shape" that appears in the music and requires of its listeners knowledge and discussion.

Schumann was never interested in the idea of a program that took over from the purity of absolute music (Bonds 2014, p. 212). The music must retain its purity and a program was only acceptable once the beauty of the music itself was established (p. 212). The program to Berlioz's *Fantastic Symphony* was rejected by Schumann as "something undignified and quackish" (cited in Dahlhaus 1982, p. 62), though he also praised the music itself (Bonds 2014, p. 212). Dahlhaus, in his Esthetics, describes Schumann as the antithesis of Liszt (his musical opposite) but he offers no analysis of the entry of text into Schumann's work. His point rather is that Liszt accepts such works as Berlioz's *Fantastic Symphony* as "establishing the dignity" of instrumental music (p. 62). This "dignity" for Liszt is precisely the establishment of music as "culture" in opposition to being merely "enjoyment" (p. 62). Absolute music was open to the criticism of being merely the play of tones that could not be fixed with any clear discursive content (Hegel 1975). Hegel notes: "the musical product can easily become something quite devoid of thought or feeling, which needs no awareness of culture or character" (Hegel 1975, p. 322).

The concept of a "psychologically true course of ideas" as the content of a work is important to the description of 19th Century program music (Newcomb 1983-4, p. 234). Newcomb points to the idea that some 19th century artists, critics and audiences understood music as a kind of work of literature (a novel) (p. 234). Schumann himself is quoted in relation to playing Schubert on the piano, noting that the logic of the unfolding music is like a Jean-Paul novel (p. 234). However: thematic unity was of the highest importance to Schumann and the program could not be seen to break

into this unity. This speaks of a kind of tension in respect to the relationship of textual and musical forms.

Newcomb notes that the tonal balance *is* disturbed by the development of thematic character and the evolution of such themes. This mode of working utilizes themes in a constantly evolving and interactive manner – the individual themes can take on different guises and be transformed through (within) various harmonic contexts (pp. 236-237). These themes can be understood by analogy as "characters in a novel" that interact with one another in various contexts (p. 237).

The first sections of this chapter have focused upon program music and the 19th Century. It is clear that any research that seeks to create a dialogue between music and philosophy must "come after" 19th Century program music. Certainly the meaning of the word "philosophy" is not a constant – it changes meaning according to the context and the artist. Yet it is nevertheless a strong theme in relation to composition in this period.

In the next sections the analysis shifts to experimental music and the avant-garde. In relation to Romanticism and the avant-garde, both use the concept of "philosophy" in quite different ways – this will be shown below.

2.1.5 Beyond the program / musical modernism

Program music becomes at the beginning of the 20th Century a problematic category (Dahlhaus 1987, p. 96). Many artists become ambivalent or openly hostile to the idea that extra-musical content is present in their compositions (as a formal component). Stravinsky epitomizes this hostility and is at pains to deny any "program" in his works, stating that his music is about nothing but itself (Stravinsky 1962, p. 53).

It is however important to note that some early 20th Century compositions such as *Verklärte Nacht* by Schoenberg were indeed formed in relation to a program (see Dahlhaus 1987, p. 94). The type of expression embodied in that work is of course very far away from any "tone painting". Nevertheless an account of the "program" in relation to the piece can be given (Dahlhaus 1987, p. 97). The idea that a program could give a precise meaning was, however, criticized by Schönberg in an article in *Der Blaue Reiter* (1912): "The assumption that a piece of music must summon up images of one sort or another, and that if these are absent the piece of music has not been understood or is worthless, is as widespread as only the false and banal can be" (reprinted in Schönberg 1950, p. 1). The text for Schönberg was something that inspired the composer in some way, but it was not something that one slavishly adhered to (p. 4). Obviously for Schönberg's atonal works "abstraction" (or "expressionism" is perhaps better) is more important than any "tone painting" – the musical idea is inherent in the form (See Grove dictionary entry "Grundgestalt"). The topic of "Grundgestalt" is outside the scope of the chapter, a few key components in relation to musical form are described here.

In the early 20th Century the program was internally conflicted and its right to life became questionable (Dahlhaus 1987). We mentioned above that *Verklärte Nacht* was programmatic to a certain extent – its very structure reflects the structure of the poem by Richard Dehmel (Dahlhaus 1987, p. 96) – but of course the meaning of a program and how it relates to musical expression changes from artist to artist. Artists were anxious to distance themselves from any simplistic textual representations in music (Stravinsky 1962, p. 53; Walsh 2007, p. 9). In practice, the use of extra-musical ideas and structures was still a part of "modernist" composer's work even if (polemically) it became suspect (Dahlhaus 1987). It is worth noting that even "tone painting" so called could be, in the right hands, a valid compositional procedure. One only has to take the example of *La Mer* by Debussy (Debussy [1909] 1983) to see that such "tone painting" could rise to the level of an art-form.

The idea that music should move beyond the Romantic paradigm and start dealing with the aesthetics of the modern world was voiced by Debussy (Debussy 1977). Debussy stated that artists must move away from the Romantic past and deal with the modern world around them (Griffiths 1978, p. 104). Debussy whose work is decidedly impressionistic does not always embrace such an agenda. His music is often connected to programs and can be read as a music that "evoked the sound of nature" (Potter 2003, p. 149).

Stravinsky's work can be read in terms of ideas about "modernity" and the machine. Stravinsky's music is, from a composer's perspective, rhythmically complex and, also, machine-like (in relation to the difficulties of *Le sacre's* rhythms in terms of choreography see Peter Hill (2004, p. 106)). If one listens to a Stravinsky piece – for example *Le sacre* – one can hear a very definite machine-like influence in the music. T.S Eliot elaborated on this machine-like component of *Le sacre*: "It did seem to transform the rhythm of the steppes into the scream of the motor horn, the rattle of machinery, the grind of wheels, the beating of iron and steel, the roar of the underground railway, and the other barbaric cries of modern life; and to transform these despairing noises into music" (Eliot cited in Kelly 2013, p. 214). To add to this description: there is almost a collaged quality as things move from one point to another – one has the impression that one is zipping quickly through various rooms and ideas, the movement and noise of industrial machines and industry competing with a pared down tonal palette.

The importance of the category "form" is apparent in the writings of theorists like Clement Greenberg (Greenberg 1971). He writes: "Content is to be dissolved into form" (Greenberg 1971). Writing mostly about painting Greenberg argues passionately for the "purity" of the arts. In some kind of performative contradiction, his very argument points to importance of the text in relation to expression. The formalist ideal is that art only refers to itself. Whether one can generalize and say that "modernism" represents, in some way, a "purification" of the arts is contentious (see

Albright 2004, introduction). There is no basic definition of "modernism" (Albright 2004). In the present context there is in fact no necessity to find any comprehensive definitions. The task here is to provide a discussion of some key points of contact. The scope of this chapter is necessarily constrained to relevant compositional and theoretical ideas, and a few key points will suffice to contextualize the next sections.

Even in the Romantic era the first articulations of modern "formalist" conceptions had been making their presence known. The early formalist position had been set against the program music of the New German School. Wagner's critical nemesis Hanslick articulated the first coherent "formalist" position in his work *Vom Musikalish-Schönen* (Hanslick [1854] 1986). This work became immensely successful and influential, and it prefigured much of the aesthetic philosophy of the 20th Century (Bonds 2014). Mark Bonds notes that this book, and the aesthetic position it represents (the centrality of "form" a central tenet), is an articulation of ideas that become influential in musical modernism in the 20th Century (Bonds 2014).

The music semiologist J.J. Nattiez points out that the conflict between the "formalists" and the "expressionists" is one that has a long history in Aesthetics (Nattiez 1990, p. 110). Nattiez is here utilizing Leonard Meyer's characterization of the different aesthetic categories inherent in reception. It is worth noting that Nattiez's use of the word "expressionist" is related to the idea that music has an *extra-musical* content (not "expressionist" in the art "ism" sense). Of interest in the present context are the absolutist-formalist and absolutist-expressionist positions (the opposite ends of the aesthetic spectrum) (see Meyer 1956, pp. 3-4). Nattiez notes that the formalist position becomes the dominant one after WWII (Nattiez 1990, p. 110).

Nattiez gives an example to illustrate the fact that even though the formalist position was dominant after WWII it was not ubiquitous:

Let Boulez be the leading man in the neo-serialist school, and we are ready to acknowledge that "music is a non-signifying art" (Boulez 1990, p. 32)[5]*, but let Stockhausen successfully make music into a vehicle for cosmological visions, and music once more bears meaning* (Nattiez 1990, p. 111).

Such descriptions of the position of different composers within defined categories, are read in the present context as perspectives on a complex reality. Griffith notes in relation to Stockhausen that the composer (speaking of *Klavierstück XI* [1956]) was also interested in the purely "statistical" structure of sound partials (Stockhausen quoted in Griffiths 2010, p. 109).

Another significant facet of "modernist" music is the idea that composition could become an "objective" activity (Griffiths 1978, p. 35). Emmerson describes this theorization of the "being" of music in historical terms. He begins by titling a section *Metaphorical language: 'science'* (Emmerson 2001, p. 35). He discusses the manner in which "science" as a metaphor became a component in music composition.

Twentieth century western art's engagement with the sciences and technology increasingly appropriated its language. In the 1920's and 1930's the new sciences of astronomy and atomic physics were moving headlong into popular imagery as well as into the arts (Emmerson 2001, pp. 35-36).

The ideal became one of "objectivity" or in German *Sachlichkeit*. This tendency became a gesture of opposition in relation to the cult of Romantic feeling. Hans Eisler writing in 1928 (on the situation of modern music) describes this new music as uninterested in the emotions of the composer and instead focusing on "pure music making, without feeling, without expression, simply a play on tones" (quoted in Lipmann 1994, p. 403).

---

[5] Translated as "music is an art that has no 'meaning'" in some texts (see Boulez 1990, p. 32).

Emmerson describes the development of the rejection of personal expression and the Romantic tradition after 1945:

With the discrediting of both the German romantic and French neo-classical traditions, the past literally lay in ruins. Perhaps personality itself had become associated with such a heritage. At least initially, impersonality was the order of the day. A claim to "objectivity", a negation of history and hence part of the self, was the aim. The idea that "systems other than the composer" might generate aspects of the music came to the foreground of avant-garde *ideas after 1945* (Emmerson 2007, p. 37).

The ideal of objectivity became for some artists a significant structuring metaphor in relation to compositional practice. Varese described his work as "science-music" and he named some of his works in a manner that reflects this tendency (for example *Ionization* (1931-32)). However we should point out here that music is a structure that bears within it multiple points of contact and experiential potential. A work that is ostensibly only about "form" and which develops the "machine" within its domain may also have expressivist tendencies or components.

The type of metaphor that is employed to structure musical practice has many repercussions in terms of the produced artistic form and the discourse that is generated. Many positions can be seen to be polemical but they also drive an underlying creative process. Scientific metaphors are very important in the current environment, yet few composers would claim to be "doing science". There is always room for a perception based heuristics (see Roads 2012; Manoury 1984). The presence of natural science metaphors is still influential today in music and art. Physics and the structuring of music according to motion processes is a point of contact for many composers (see for example Cipriani and Giri 2014; Smalley 1997). Biological metaphors are sometimes used to construct "generative artworks" (McCormack et al. 2009).

The ideal of a "scientific music" and the ideal of an "objective" music were ideals that never quite came to pass. These ideals could not, ostensibly, be realized for various reasons (see Manoury 1984; Griffiths 1978). Some composers see the nuanced and sophisticated aesthetic dimension of consciousness as irreplaceable. Thus Schachter holds that the composer should retain control over the technology and software:

To that extent we should not let the design of the complete composition's outline be dictated solely by the design of software. Instead, the perception of the entire construction and the management of different degrees of live control and randomness or degrees of aleatoric organization, should remain in the composer's hands (Schachter 2007, p. 2).

The use of philosophical metaphors addresses some of the "problems" or aporias described in this section – the use of philosophy opens up paths that allow the composer to structure the manner in which technology is utilized. The trajectory of processes (algorithmic or compositional) is defined in some measure by the metaphors that an artist or composer embraces. This is discussed in more detail in chapter 4. In the *oscillation* between possible principles of organization ("formalized" versus "intuitive" for example) there appears the space of artistic research.

We can posit that music (as defined for this research context) *is understood not to be exhaustively characterized or exhaustively formed by the structuring principles that guide the composer*. This then is also part of the overall definition of music and the compositional framework of the present study. This equates to a splitting of the musical component of the artifacts into that which provides research-based outcomes that are demonstrable as "models of practice" from a more intuitive and expressive element that grows out of that research. That said, the studio-based form of knowledge that the present study embraces cannot draw any clear line between the

"intuitive" and the demonstrable: there exist ways to bring forward into discourse the tacit creative procedures.

2.1.6 John Cage

John Cage is an experimental musician and composer of the 20th Century, some of his ideas are directly relevant to the present study. In this section Cage's work is described in terms of the philosophical principles that organize it. Cage uses "philosophy" in a different manner to earlier composers. His metaphors attack the top level of music – he uses philosophy to deconstruct the meaning of music itself. The liberation of tones is a strategy that seeks to theorize the interaction between artist and audience. These ideas will be analyzed in this section.

Cage's musical output straddles various styles and compositional processes. However a general description can be offered as an introduction. Charles Ford notes on Cage:

Classical composers in Vienna in the second decade of the twentieth-century, led by Arnold Schönberg, discarded diatonic scales and their associated harmonic logic and returned to the secondary musical matter of the twelve equally spaced divisions of the octave. Whereas tertiary tonal musical matter involves a more-or-less strong gravitational pull, by force of which all pitches are heard as being more-or-less distant from a tonic, "atonal" melodies constitute free-floating patterns linked by similarity relations. Schönberg's new serial method of composition organised these patterns by way of "pre-compositional" pitch matrices, which were particular to each new composition as its unique tertiary musical matter from which he forged his music. Then, John Cage's experiments with recorded ambient sounds rejected even primary musical matter in favor of found or "ambient" sounds, as if to get behind or beneath music as previously understood (Ford 2010).

The quote above captures a very general historical outline, the caveat being that such descriptions leave out an engagement with specific objects.

Cage is utilizing on one level a theory of organization which takes part in a questioning of foundations attached to seductive ritual. On this level as part of a lineage in the avant-garde his work is a kind of critique of power relations (Simon 2014). The critical force of his work breaks open un-theorized power relations – music is for Cage no longer the servant of human expression. Relational forms of art, circles of discourse entering the space of expression, these are some of the consequences of this kind of thinking. Artwork that follows such work (comes after) must have an understanding of the ideas and solutions Cage offered. For the present study this is especially true. The move towards a type of art in which a participant or audience must understand the discourse to fully appreciate the expression is directly relevant.

There is no philosophical program in terms of a musical grammar or language in Cage. There is a theoretical and critical de-structuring tendency which continually works in the background on the level of the being of music itself. We might say that the form of the music is sculpted by this philosophy. *Music of changes* (Cage [1951] 1961) has less structuring principles in terms of harmonic theory than a serial piece by Schoenberg (it makes use of extended aleatoric process). The principles of organization are connected to Cage's ideas of liberating sound from its "expressive" role (Cage 2006). Such a work is only understood within a circle of discourse. It is philosophical through and though – one talks of it and works within its structure discursively. The operations of chance, the moving beyond the lineages of virtuosity and musical expression – these are philosophical interventions.

Cage did not deny affect as such, but affect was to be liberated from its power relation. We can see this in the following quote:

Hearing sounds which are just sound immediately sets the theorizing mind to theorizing, and the emotions of human beings are continually aroused by encounters with nature. Does not a mountain unintentionally evoke in us a sense of wonder? otters along a stream a sense of mirth? Night in the woods a sense of fear? Does not rain falling and mists rising up suggest the love binding heaven and earth? Is not decaying flesh loathsome? Does not the death of someone we love bring sorrow? And is there a greater hero than the least plant that grows? These responses to nature are mine and will not necessarily correspond with another's. Emotion takes place in the person who has it. And sounds, when allowed to be themselves, do not require that those who hear them do so unfeelingly. The opposite is what is meant by response ability.(Cage 2006b, p. 9).

The giving up of the desire to control sound is at the center of Cage's work, it is concerned with the liberation of sound. The other side of this liberation is that sounds need no longer be the vehicles of human expressions.

And what is the purpose of writing music? One is, of course, not dealing with purposes but dealing with sounds. Or the answer must take the form of paradox: a purposeful purposelessness or a purposeless play. This play, however, is an affirmation of life—not an attempt to bring order out of chaos nor to suggest improvements in creation, but simply a way of waking up to the very life we're living, which is so excellent once one gets one's mind and one's desires out of its way and lets it act of its own accord.

This "purposelessness" is a way of organizing a network of reception and creation, a network of discourse. There is a principle at work here that ushers in a *moving beyond* entrenched power relations – thus the philosophy is one that includes "ideology critique" (in a very specific sense) and it also contains a de-structuring moment. Experimental music becomes an inclusive project in which people are no longer tied to a one-sided relationship, they are free to appropriate a space within the

affective power of nature - or at least a space defined by "purposeless" sounds. This is conceived also as freeing the space in connection to the relations between people. The "experimental" here relates to a re-definition of the whole foundation of performer and audience in addition to a de-structuring of musical form.

One commentator perceives Cage's move as one in which the "privileged" status of music is deconstructed (Carroll 1944, p. 93). The music becomes a simple structure that does not carry an intention: "it just is" (p. 93). Following on from this interpretation some observations can be made. For Cage the music "centers" the subject in him/herself. The music's *meaning* is subjected to a critique that puts the subject back in control – the affective power of music and its expressed meanings are no longer central to the relations between people. Philosophical ideas that accompany Cage's work are not embedded in an "expression" of the artist's musical skill. Musical sound is a presence – it is also a space of interaction between people.

Cage's strategies, as we have described them, are philosophical. They are also strategies that recall other artists of the avant-garde; for example, Marcel Duchamp. The emptying out of the gestural and virtuosic content in order that the discursive content of the artwork becomes more prominent is a component in both artist's work.

Cage intervenes in the musical process in a quite identifiable manner, and this intervention is one that is discussed and described by the artist. In his work *Silence* Cage states about music: "...(there is) a present need for discontinuity (discontinuity has the effect of divorcing sounds from the burden of psychological intentions)" (Cage 2006, p. 83). He is referencing here the need to bring chance operations into his work. Aleatoric process was of course an element of the historical avant-garde in Dada and Surrealism (in the work of Tzara, Breton, and others (Kuenzli 2006)). Cage adds his philosophical take on the outcome of chance procedures:

It is thus possible to make a musical composition the continuity of which is free of individual taste and memory (psychology) and also of the literature and "traditions" of the art. The sounds enter the time-space centered within themselves, unimpeded by service to any abstraction, their 360 degrees of circumference free for an infinite play of interpenetration (Cage 2006, p. 59).

In Cage's work *Empty Words* the more philosophically resistant element of his philosophy is united with this use of chance. In that work he discusses a commission that he is offered for the American Bicentennial (1975-76) (Cage 1980, p. 5). He brings philosophical ideas into his work from Henry Thoreau while working on his composition, specifically the *Essay on civil disobedience*, and discusses problems of ecological import. He also quotes Martin Luther King as quoting Thoreau in one of his prose works: "We can no longer lend our cooperation to an evil system" (Thoreau quoted in Cage 1980, p. 4). Cage then brings these discursive positions into alignment with his chance operations:

They (chance operations) are a means of locating a single one among a multiplicity of answers, and, at the same time, of freeing the ego from its taste and memory, its concern for profit and power, of silencing the ego so that the rest of the world has a chance to enter into the ego's own experience whether that be outside or inside (Cage 1980, p. 5).

Cage's work does not use a philosophical program as such, yet it is philosophical. His philosophy of music is a de-structuring, totalizing, critique. Philosophy becomes the central figure in such "music": the musical form exists as part of a whole in which discourse is *essential* to the work. The work can be seen as an example of completely relational works that begin and end in discourse, and that cannot be understood without that discourse.

The historical avant-garde, surrealism and Dada, have a strong connection to Cage in respect to the de-structuring of traditional creative forms and processes. The philosophical (discursive) component that is present in art is also emphasized by some avant-garde artists. In this respect Duchamp can easily become part of a discussion on Cage: the move away from a self-sufficient *artwork* (a whole that is present for an audience on purely sensuous grounds) is present in both artists. The works must be understood *in terms* of discourse – that at least is an important aspect of their life – and I am thinking here of such objects as the *Ready-mades*. The emphasis upon the discursive component as an *essential* discourse – such an emphasis brings the works forward as sophisticated cultural expressions.

Dahlhaus stresses that the "self-contained work" is the "central category of the Romantic theory of art" (Dahlhaus 1987, p. 217). In opposition to this category the musical avant-garde has its own, re-formulated category. The very notion of a "work of art" becomes problematized by the musical avant-garde (p. 210). Dahlhaus points to the importance of the liberation of sound from the "tyranny of form" that Cage's work embodies (p. 215). Dahlhaus does not however pursue this insight into a focus on the emphasis upon the *philosophical* that this "liberation" embodies.

2.1.7 Electronic music

Electronic music in the modern (modernist) era is a broad topic. In this section a brief engagement with two artists who utilized philosophy (philosophical texts) in relation to electronic music practice, Pierre Schaeffer and Iannis Xenakis.

Schaeffer writing in his *Traités des objets musicaux* (Schaeffer [1966] 1977) was interested in a science of hearing in relation to an artistic practice. Citing Husserl in relation to phenomenology Schaeffer points to the fact that the sound object is not the cause of perception it is the "correlate" (Schaeffer 1977; Kane 2014, p.3). Schaeffer's description of the acousmatic is the idea that one detach observation from the

detection of what the sound "is" and move instead towards the pure sound-object itself (Kane 2014). This is the practice of the epoché.

Schaeffer's stated approach departs from: (1) the idea of the developing context in musical time and; (2) the indexical reference of musical tones. He is interested in the object as it appears in itself: the "sound object" (Schaeffer 1977; Kane 2014). Treated indexically a sound aims at an object, for example, a "car". The development of a "reduced listening" is a way to come to terms with the sound object itself. Schaeffer wants to free the mind from earlier systems and create a new "solfege". In a later interview Schaeffer affirms that his research was important but showed him that the diatonic basis of Western music was essential (Schaeffer interview by T. Hodgkinson).

Nattiez points to the fact that the description of the new solfege was a training that would reduce the location of agency within the musical form (Nattiez 1990, p. 100). He observes that Reich's works are like a musical exemplar of Schaeffer's writings (p. 101). The dwelling on one "object" that then slowly changes: the listener still "hears" the earlier object. Perception has not caught up, in such cases, with the change, our listening still determined by an earlier context. This is like an illusion in which the evolution of a sound shows itself as pure form – the seeing through the sound to another harmonic or melodic world is minimized.

Nattiez perceives this to be a creation of a static sound "object" as Schaeffer described, an object that becomes imprinted and then is retained as one moves on (p. 101). For our purposes this is very close to the idea of a retention which has a logic built into it, a logic organized around the experience of perception. Where the present study is very different is the stress on the importance of the temporal unfolding of music and its connection to a variety of *contexts*. For a more detailed discussion of this see Chapter 7 (phase 3).

Various criticisms have been leveled at Schaeffer's practice. The framework of activity described by Schaeffer calls for an "essential" mode of listening. Seth Kim-Cohen is critical of this call towards the purity of origins (Kim-Cohen 2009) and the medium specific concerns and "immanent features of sound". Chion notes in relation to the context of a sound that the practitioner is required to *reduce* the sound from its connections (Chion 2009, p. 63). Kim-Cohen points to the fact that Schaeffer's work can be perceived as close to Greenberg's position on painting. Both are trying to purify the senses and the form of the expression. A more critical practice in which the intellectual and philosophical components are made part of the work is proposed by Kim-Cohen (see Andrews 2013, p. 79; Kim-Cohen 2009).

Young (2015) looks at Boulez in relation to the notion of "instinct as memory" – the reservoir of solutions one has at one's fingertips. This must be bypassed by new approaches which look to go beyond the reservoir (p. 154). Schaeffer's reduced listening (based on the epoché) was also put forward as a philosophical intervention that would create a new language (a new "solfege"). Schaeffer eventually expressed some reservations about whether such a new language is possible – the influence of his work however seems to show that it was fruitful.

The importance of the philosophical intervention (in connection with Schaeffer), the change towards a more framework oriented component (thinking outside of the "new" paradigm – one more "new paradigm"). The language of electro-acoustic music is structured in the present study as neither going beyond equal temperament (ET) or staying with it – each framework is organized through a philosophical engagement. Roads seems to point to this possibility when he describes granular synthesis suddenly coalescing around a series of ET chords – but he also seems to take the opposite view when he describes the fact that ET has worn out its welcome in terms of novelty (Roads 2015).

Important to Schaeffer is the concept that the "facts" of music must be taken to task (Young 2015, p. 156). One must re-organize one's perception by listening to the sound objects themselves free of one's notions of index and harmonic system. This is the beginning of an expanded palette.

Schaffer's "use" of the Husserlian epoché is significant for the present study. Schaeffer certainly makes use of this philosophical idea in his work, the epoché determines some specific elements within the compositional practice. It is obvious though that the composer is using the philosophical ideas to change the listening approach to the sound spectrum: the philosophy does not appear in the music symbolized (metaphorically or as a symbolic abstraction). From this we can see that the manner in which a philosophical idea comes to imprint itself within music is not always *metaphorical* or, indeed, *symbolic*. Music can accommodate a connection that is built within a perceptual understanding as easily as it can a connection built upon metaphorical representations (structured as musical form). Schaeffer's insights into changing the way one listens in order to compose, and the corresponding changes to praxis, have remained important to the present day. The concept of the "acousmatic" is still one that makes sense of a certain type of practice and a way of aligning music to experience. The use of Husserl's concepts brings into the musical dialog a particular phenomenological engagement. This engagement remains entwined with ideas about musique concrète – to understand the compositional process one must engage with the philosophical ideas at some level.

In a manner of speaking the *bracketing* of the system, within which a subject is located, is a kind of counter-balance to a complete formalization process. Schaeffer's position can be read as a way to open up a closed field to new possibilities. In this sense the work of Schaeffer is a way of thinking about music that is not determined from the beginning by the historical system that one inherits.

Reading the texts that have sprung up around Schaeffer and his musical system a couple of points make themselves conspicuous. Schaeffer, in bringing his work into a relationship with Husserl and the epoché, is now within a discourse that includes phenomenology. There are some texts (books and journal articles) which take this relationship up (Kane 2013; Young 2015; Kim-Cohen 2009; Andrews 2013). There is no consensus about whether Schaeffer understood Husserl or whether his musical practice makes sense in the light of phenomenology – some commentators are positive some not so. In the present context this unfolding discourse is relevant and worthy of more consideration than this brief introduction can accommodate.

Xenakis writing in a preface added in 1970 to *Formalized music* ([1962] 1992) alludes to the "failure" of Fourier synthesis (p. vii). The point for Xenakis there was simply that composers required a better model than the one that makes use of periodic trigonometric functions (p. vii). This highlights an element of his framework, namely the more stochastic data-driven modes of operation that make use of microsound and granular synthesis. In the book itself Xenakis allies his work with a mathematical foundation based on a theory of stochastics (Xenakis 1992). This in Xenakis's words is the "study and formulation of the law of large numbers, the laws of rare events, the different aleatory procedures" (p. 8). These ideas ground his work firmly in a mathematical framework, yet his goal is one that includes a spiritual component – the mingling of the individual in a "rare, enormous and perfect truth" (p. 1). The expression of this *truth* as a kind of mathematical revelation has before (in past compositional process) been reached without a knowledge of the mechanisms that underpin it (p. 1). He holds that his system is a more scientific path to this "meta-art" (p. 1).

These ideas are certainly relevant to the present study – just as they are relevant to electronic music of the modern era in general. However the immediate point of contact that is required here is the process in relation to multi-media artworks such as *La legend d'eer*. Philosophy is utilized within that work and Xenakis creates a

complete experience in which a performance program is provided, a program in which various different descriptions of the cosmos and Being are assembled. The exact meaning of the program in relation to the music and the lighting within the *Diatope* is unclear. Nevertheless Xenakis's "thought form" is present in the program, and one can find, or make, connections between this program and the overall design.

The creation of a formalized framework of activity that makes use of "granular synthesis" as one of its aspects has various proponents in electro-acoustic music. Barry Truax, Curtis Roads and many others make microsound and granular synthesis a central facet of their conceptual frameworks in electronic music research.

2.1.8 Avant-garde (excursus)

I would like now to extend the discussion on the avant-garde to accommodate a few concepts and ideas that our previous discussion has only touched upon. In relation to the thesis as a whole an understanding of these concepts will provide entry for a creative process that is nuanced and detailed.

Let us point out that notwithstanding the radical intentions of the avant-garde (defined here as Surrealism / Dada) the project as a whole has been subsumed back into the mainstream. Jürgen Habermas drew attention to this in a speech in which he characterizes the avant-garde project as a whole as a "failure" (Habermas 1983, p. 11). Such a position must be taken into account in a thesis that emerges, on some levels, from the avant-garde lineage and purports to extend that lineage.

Avant-garde art is usually defined as a seeking of the new areas, a breaking of new ground and, for Habermas, an attempt to "invade new territory" (1983, p. 5). Yet the avant-garde is deemed to be a failure for Habermas insofar as he reads it as a purely political and textual endeavor. For Habermas (1983, p. 11) the Surrealist attempt to shatter the "autonomously developed cultural spheres" was a failure on two counts (p.

11). Firstly, he points to the fact that a "de-structured form" is not necessarily followed by an emancipatory effect (1983, p. 11). Secondly, he notes that due to the interconnected nature of the spheres of knowledge, "(A) rationalized everyday life, therefore, could hardly be saved from cultural impoverishment through breaking open a single cultural sphere - art - and so providing access to just one of the specialized knowledge complexes. The Surrealist revolt would have replaced only one abstraction" (Habermas 1983, p. 11). Nattiez also points to the "failure" of surrealism (Nattiez 1990, p. 36). Sartre too notes that a lot of writing and creating was done underneath the ideal of "destroying" art (Sartre). In any case it can be perceived that the work persists in avant-garde movements, polemics of "destruction" notwithstanding.

It seems possible that here some of the critics are missing an important facet of the Surrealist and, by extension, the avant-garde practice of art. The works in question are not seeking an unmediated shattering of one sphere of knowledge. If one looks further into the Surrealist praxis it will be clear that the objects are not to be reduced to mere attempts to destroy the institution of art. Dada and Surrealism engage with the audience and the wider world through an inter-disciplinary praxis, a strategy that includes both *destruktive* texts and aesthetic objects.

Certainly some de-structuring of form is apparent (perhaps Habermas is thinking of the readymade in this context and the automatism of the Surrealists) but equally apparent are productions that can be measured against the most rigorous judgments of taste as they are applied by traditional aesthetics. One need only think here of the paintings of Dali, Masson, Klee, Magritte and the collages of Ernst. The texts which accompany these works and the more radical de-structured and conceptual pieces are part of an engagement with society. The objects cannot be reduced to a text which has then been deemed to "fail" or "succeed", the objects are part of a meaningful whole - a dialectic of object and text - which provides ongoing transformative energy and information. The works are the site of a battle which cannot be refuted as though

only a text were at stake. Thus when Surrealism is reduced (and I think perhaps that Dada was also a real target here) to a denial of *das Existenzrecht der Kunst als Kunst* (Habermas 1983, p. 10) we perceive quite clearly that the objects have been explained away as a failed discursive intervention. Even if the real target was Dada it would still be reductive to collapse the objects of Dada to a shattering text, for it is apparent that such a text exists in relation to performances and objects that must be accounted for.

Peter Bürger extends this kind of critique into the neo avant-garde of Warhol and the factory. The serial object (Warhol's silk screens of multiple Campbell's soup cans for example) is criticized as staging the avant-gardiste gesture for the second time and thereby losing all power (Bürger 1984, p. 60). This misses the point that the object is to be understood in relation to Warhol's "text", i.e. the factory and the life-style that went with that. To reduce the entire nexus of the work to the formal attributes that are presented and then judge those attributes on a pared-down textual (political) "goal" is to miss vital elements in the life of objects and text / nexus. Adorno implicitly suggests this in (the earlier work) *Aesthetic theory* (1984, p. 50). He writes there that

One aspect of isms has only recently become relevant. The truth content of many artistic movements does not necessarily culminate in great artworks; Benjamin demonstrated this in his study of German baroque drama. Presumably the same holds true for German expressionism and French surrealism; not by accident the latter challenged the concept of art itself, a defiance that has ever since remained admixed with all authentic new art. Since art all the same remained art, the essence of the provocation may be sought in the preponderance of art over the artwork. This preponderance is embodied in the isms. What in terms of the work seems failed or no more than a citation, also testifies to impulses that can scarcely be objectivated in the particular work any longer; impulses of an art that transcends itself; its idea awaits rescue.

At issue here is the connection of the object to a text that, while seemingly a failure insofar as art has not been destroyed, is actually an intervention attached to the object and which then becomes part of all future art. The "isms" by which a conservative understanding and defined (closed) canon is established by critical art theory (and gallery culture) are one of the targets of the attacks of Surrealism.

In this critique the outline of a praxis that seeks to connect an object (musical) to a text is prefigured. Such conceptual art is not to be understood as being reducible to a text that then succeeds or fails but rather a meaningful whole in which such text and object configurations can occur again and again within history.

In relation to the present study an engagement with the avant-garde project is one that is deemed necessary. After Cage's experimental music subsequent articulations made in the space between philosophy and music require an engagement with his work. The object does not "disappear" into the text – the text does however become an ascendant elemental force that exists on, and engages with, every level of the object.

The manner in which philosophy becomes a deconstructive force that re-organizes the way in which art is to be understood has implications for subsequent practice that makes use of philosophy in a slightly different form. If, as we have argued in this excursus, the art of the avant-garde cannot be *reduced* to a discourse or text, that art is in any case strenuously *re-modeled*. Art and music become part of a discursive nexus and the work can only be understood from within that nexus.

2.2 Theoretical background

Until this point in the chapter the focus was the different artistic and compositional practices relevant to the study. In the following two sub-sections an introduction to some of the theoretical background of the present study is offered. The theoretical

background clarifies some of the aspects of music theory and blending theory that are part of the research. Section 2.2.1 deals with the manner in which past practice is interpreted for the present research through an analysis of the theoretical constructs in *Machine Musicianship* (Rowe 2001). A theory of practice in which past compositional and theoretical forms can be interpreted and brought into the present is described. The importance of an analysis of past works and theories is formulated as a "working practice". This in opposition to an analysis that reveals the "true intentions" of composers. This general orientation underlies the development of *working prototypes* in the present context. The working prototypes are based upon a particular interpretation of the past practices. Specifically, in the present case, interpretations of program music and the musical avant-garde.

Section 2.2.2 focuses on "conceptual blending theory" (CBT), an important aspect of research into the creative process for the present study. CBT is one of the three research strategies for extending the existing methods of working between music and philosophy (the other two being; (1) analysis of earlier processes, and; (2) the reflective engagement with the artifacts [and associated making-process] of the present study). CBT is utilized in the present context in a quite specific manner and a discussion of the theory is required.

2.2.1 Music system and theory

Robert Rowe's book *Machine Musicianship* (hereafter MM) has some theoretical and methodological procedures that are relevant to the present thesis. The book looks at some of the ways that music theory and computer programming work together within the field of composition. As the main concern of the present research is not machine-learning algorithms or AI it may appear of slight relevance. However there are two elements that make the work interesting in the present context: (1) the methodology in relation to analysis of musical form, and; (2) the general method of working from theory to computation that Rowe delineates.

The main focus of the programming examples in Rowe's book (C++ and Max) are centered upon realizing different analytical theories as algorithm. Important to the methodology of the book is the "formalization of musical concepts" (Rowe 2001, p. 9). This formalization is a process that focuses upon elucidating the application of music theory (also AI and music cognition) to programming and algorithms. Rowe describes various examples of this process (Rowe 2001).

The process of a practice-based music analysis is of central importance to MM. The analysis of music through the prism of music theory and cognitive theory is not taken to be an operation that fixes a discrete musical object textually, but rather the beginning of a codifying activity (p. 201). Objectivism has no place in Rowe's general method in MM. Instead ideas and theories that may or may not have objectivist components are understood to offer a wealth of insight into algorithmic processes as they relate to human listening and composition (p. 201). This method of proceeding is necessarily pragmatic in its relation to the status of the knowledge – nothing is claimed in relation to ontology. The book's analytic method is concerned with a modeling of both human listening and the compositional process.

An analysis of what is going on in a piece of music can give us tremendous insight into a *facet* of that object. That is to say an objective description of the work cannot be constructed but we can instead create a "rational document" that will be useful in revealing "formal constructions" that can be implemented in a further creative process (p. 202). This method of proceeding gives us some very fruitful insights on a variety of levels. Firstly, the whole notion of theory becomes one that is opened up to computational process. Certainly Rowe does not mean to suggest that computation will be able to replace the human element because that is "fleeting and unconscious" in some of its qualities (p. 202). The point rather is the definition of the processes within this theoretical context and making use of theory to integrate and organize processes.

Secondly, the idea of a "rational document" is useful insofar as it points to the analysis as being important for the construction of algorithms. The production of such a document is one in which various organizing principles are distilled from an engagement with a piece of music. One must examine such a document for "formal constructions" and use these as a kind of pseudo-code for the working up of code that will either transform musical input or reproduce compositional practice as computation. Rowe points out what is at stake clearly in his description of musical analysis. He states (p. 207) that analysis is a way of working and not something which can perform an inverse transform on the music to arrive back at the composer's intentions and ideas.

The work also looks at the manner in which a theory of music might become part of a compositional process. Ideas about the meaning of music, for example Schenker's system of analysis, are very good models for algorithmic compositional processes. Rowe's work is important in defining how we can make use of the many theories about musical form. Indeed it is a delving into the different ways that ideas can become algorithms. The ideas of theorists are taken as the beginning point of programming new ways of articulating music. This can only be seen in the light of a type of shaping of musical expression through ideas concerning musical expression. The many and varied ways that this has been done as an ongoing project is the true focus of the book Machine Musicianship.

Rowe utilizes "music theory" and "music-analysis systems" as the basis of electronic composition. This is a powerful way of working insofar as the ideas of theorists are treated as guidelines to structuring principles (rather than as definitive statements about musical form or being). The various systems and methods both past and still evolving that fall into the scope of his work are detailed in respect to this orientation. The underlying paradigm here is a kind of pragmatic representational model. This signifies that the theories which are presented and which become the basis of various

musical systems are not taken to be a "true" objective model of what is going on in past composition (perhaps at odds with the intentions of the various authors) but are rather taken to be models which present possible modes of working.

For the present study it is the analytical process in relation to composition that is immediately relevant. One of the central elements of the present research is a particular reading of past practice. It is by no means certain that the prototypes that the research constructs from works from Strauss to Cage are "accurate" in the sense of objectively representing the content of those works.

The method of creating a rational document that forms a solid foundation is central to the work of some artists. The establishing of a coherent language within which new utterances can be situated is an element within that process. Nattiez has described this mode of working in his *Music and discourse* (Nattiez 1990). His descriptions of artistic interpretation are in step with Rowe's methodology described above. Nattiez emphasizes the idea of artistic interpretation of past works in relation to a pragmatic artist's logic.

2.2.2 Metaphor theory / conceptual blending

Metaphor theory (MT) and conceptual blending theory (CBT) have origins in the cognitive linguistics of the 1980's. Lakoff and Johnson described, in their work *Metaphors we live by* (first published in 1980), an "experiential" theory of knowledge (Lakoff & Johnson 2003). Fauconnier and Turner developed the idea of conceptual blending as a theory of cognition (emerging from metaphor theory) (2008). In the present context CBT is understood to be focused on a "theory of meaning construction" (Coulson & Oakley 2005). The theory locates meaning (semantic and pragmatic) in relation to "blending" different conceptual spaces (Coulson & Oakley 2005, p. 1512).

In this theory, understanding meaning involves the construction of blended cognitive models that include some structure from multiple input models, as well as emergent structure that arises through the processes of blending (Coulson & Oakley 2005, p. 1512).

The interest that CBT has for practice-based research (as the present study) is one tied firmly to a practical utilization of key concepts. The present research is not concerned with the aspects of linguistic theories in relation to cognitive science. The use-value of CBT and MT is here confined to some of the more creative aspects of the theories in relation to semiotics and pragmatics. Other designers and artists have perceived the potential of the theories in relation to practice. *Designing with blends* (Imaz & Benyon 2007) is an example of the practical application of CBT. The idea of blending two "spaces" is important to many artists – from Mussorgsky to Kandinsky to Wagner (Pereira & Cardoso 2002, p. 2). Pereira and Cardoso point to the importance of "running the blend" in creative work. This involves the elaboration (the "running") of the emergent logic in the blend (2002, p. 2) Musicologists and music theorists also find these theories useful. Lawrence Zbikowski and Jack Ox (to name two) make use of "conceptual integration networks" in their work (Zbikowski 2002; Ox 2014). In order to understand these ideas and concepts more fully some contextualization is required.

In *The way we think: conceptual blending and the mind's hidden complexities* a quite "ontological" view of conceptual blending is offered. In the present context that type of narrative is too strongly formed. The notion there is that "conceptual blending underlies and makes possible…diverse human accomplishments" (from tool-making to painting to religious practice) (Fauconnier & Turner 2003, p. vi). The authors put forward a case for the fact that "nearly all important thinking takes place outside of consciousness" (Fauconnier & Turner 2003, p. 33). Thus the metaphors that we make use of in relation to "desktop computing" for example have an *obvious* component (we understand it as a practical *way of doing*) and a *hidden* component. The hidden

component is something that consciousness does not apprehend, but which, presumably, some kind of neuroscience could start to uncover. The construction of meaning through blends begins at an early age and is a very difficult process that demands "constant working" (p. 390). Once the young mind has "the integration" it is "difficult or impossible to escape it" (p. 390). Living in the human world is described as living "…in many coordinated blends" (p. 390).

Such descriptions of the human consciousness and the acquisition of meaning-forming behavior may indeed have merit. However, in relation to the present study the "way of doing" approach is sufficient and it allows meaning to be generated in relation to blending and metaphors. In connection to the use of metaphor (not exactly the same as the use of blends for reasons that we will show below) we can posit clearly that a constructive and on-line process is occurring. The use of metaphor in conversation makes use of a practical orientation that is located squarely in human discourse: when two interlocutors are involved in a discussion in which metaphors are being used to establish different, and opposing, visions of reality we are in the realm of *semiotics* or *pragmatics*. This "creative" forming of the world through the construction of a series of connections is discussed below.

In a 1954 essay philosopher Max Black pointed to the importance of pragmatics in understanding metaphor (Black 1954-1955, p. 278). The context that one is embedded in as a subject that *creates* meaning is essential to the kind of meaning that is generated. The context can include the cultural aspects of a *sign* or *analogy*, and also the *intention* of a writer or speaker (p. 30).

Another significant aspect to Black's essay is a focus on the creative use of metaphor. The example given in the essay is "man is a wolf" (Black 1954-1955, p. 286). Black notes that the metaphor *organizes* understanding just as much as it *describes* a state of affairs. A metaphor such as this can be understood as a "filter" in which certain ideas are emphasized and other ideas de-emphasized. In the "man is a wolf" example, the

metaphor implies certain things about the nature of man. The "wolf-system" of "related commonplaces" is evoked in relation to the principal subject man (p. 288). The conceptual system "man" is manipulated and re-organized according to a new series of attributes and traits. The metaphor is a particular perspective on "man", and it brings with it a "system of implications".

A metaphor may be a useful way of defining in discourse a relationship between two domains. It can then also be used as something which creatively structures such relationships (Black 1962). Black also describes the importance of the *model* to physics and other scientific disciplines. In his essay *Models and archetypes* he describes this relationship and how a model functions as a type of metaphor (Black 1962, p. 236).

The difference between a metaphor and a blend needs some elucidation. In the "man is a wolf" example, given above, some additional points can be made in relation to the connection between "metaphor" and "blend". If during conversation a person states "man is a wolf", that statement can be understood as a metaphor. There is the possibility of further interpretation, and the possibility of different speaker intention. However in an everyday discursive context the statement is most likely to be understood as a metaphor. If, on the other hand, I produce a sculpture or figurine that is half-man and half-wolf then it cannot be said that one has *created* a metaphor. Rather it is more correct to say that one has produced a *blend*. The blended-space artifact may be a symbol of the metaphorical statement, yet in pragmatic terms they are not the same. Conceptual blends are more geared towards creating new emergent structure from different domains and can consist of many inter-related components. A "blend" need not be structured linguistically in the form a *is* b. Also (however) a blend may be set up by an initial metaphorical statement.

Blending can also be described as having a broader and more functional axis in terms of creative procedure. As noted not every blend is a metaphor – this can be seen quite

easily in terms of the actual process of creating blends. Integrating animal traits with human traits for children's stories is an example of "blending". The process is described in Zbikowski's work *Conceptualizing music* (Zbikowski 2002). Zbikowski analyzes the blend of human and animal traits in Milne's character "Eeyore". With the aid of a CIN (Conceptual Integration Diagram) Zbikowski shows that the blend of the various components leads to an emergent blended space (p. 79). Not all aspects of the different input spaces are made use of – there is a selective or creative blending in place. Thus we do not expect Eeyore to be human-sized or walk on two feet (p. 79). These insights into blending theory were part of the deepening of the method in relation to the making process. This is discussed in more detail in chapter 5 in relation to phase 2 of the research.

Fauconnier gives the example of a conceptual blend between an "office desktop" and a "computer desktop operating system" that is relevant here. This blend between the *office environment* and the *computer windows interface* brings together various components that make moving into a virtual world easily cognizable for new users (Faconnier 1997; Imaz & Benyon 2006, p. 50). It also allows emergent structures to be elaborated upon. However this blend is also formed with a guiding metaphor first: "My computer is a desktop" (Benyon 2006, chapter 4). However the blend is not completed by the metaphor – a metaphor can be the entry point for the blend but a metaphor does not necessarily produce a blended space with emergent properties (see Benyon 2006).

In any case, this kind of design work is of course slightly different than artistic endeavor, but one can perceive similarities too. In the creation of artworks that seek to integrate music and philosophical text we are taking part in an activity that has a long history outside of any theorizing of "blends" and metaphor theory. Yet the insights offered by such theorizing can be useful. When I talk of "blending" mental spaces I can conjure up a picture that allows me to speak of "blends of blends" - a

series of blended structures creating new forms - and so on. Such appropriation allows different perspectives on practice to emerge and become useful.

The fact that CBT offers us new insights into the creative process itself is important to systematizing and researching such processes. The tacit or intuitive blending of domains to create new artworks can be enhanced by an understanding, and theorizing, of the processes involved. The very focus of the research itself must be one of demonstrable and shareable knowledge, and theories of mapping and blending offer new ways of talking about tacit creative procedures. One such practice, mentioned above, is showing (often with the use of graphics) the mapping of different domains in the "conceptual integration network" (CIN). This use of the CIN is present in chapter 5 of this study in relation to artifact WO.

More generally, the significance of CBT is connected to the concept that through the blending of ideas one comes up with new emergent structures (Imaz & Benyon 2007). The book *Designing with blends* (Imaz & Benyon 2007) stresses the creative side of working with metaphor and conceptual blends (with a focus on design). The book *Conceptualizing music* (Zbikowsky 2002) looks in detail at the manner in which music can be interpreted through an analysis of conceptual blending.

As we noted "blending" different spaces has been a part of art for a long time – indeed one could hold that it is a central component of art. The whole notion of a "blend" needs to be defined clearly when one is talking about art and practice-based research. A blend is usually understood to be a blend of conceptual spaces or mental spaces. Certainly this is helpful terminology in some respects as it does capture an important facet of how one works creatively. Mussorgsky created a blend between music and an imagined walk through an (actual) exhibition of paintings (Mussorgsky 1918). However we must be wary insofar as musical and artistic creativity involve structures and principles which problematize any simple notion of *blending*. The "concept" of blending does not capture the entire structure of integration with cultural

and social forms. The present study does not make use of the more ontological claims about metaphor that describe cognition itself as having some basic metaphorical form that is structured around embodied experience (Benyon 2006, chapter 4). The more "phenomenological" or pragmatic versions of such theories offer a useful framework for action.

We gave an example above in relation to the "way of doing" approach that stresses the *constructive* nature of metaphors and blends. To enlarge upon that point: when one is "in the world", the manner in which elements "make sense" to human comprehension is clearly defined. That is to say if we claim something about the space we inhabit or an "object" within that space this claim is backed up in the system of shared meaning. There is no necessity to provide some kind of physical data about the structure of the various schema: inter-subjective construction of space includes a knowledge of those schema. If I make use of a metaphor to extend and "describe" this shared world, such a description brings with it an element of "organizing" the world.

One of the criticisms leveled at CBT is that the concept of "mental spaces" is not clearly defined (Câmara Pereira 2007, p. 67). This is a problem if one wants to formalize the components that one is making use of. It has also been noted that in relation to creativity CBT is "…vague and less prone to formalization with crucial aspects of creative thought" (Martins et al. 2015, p. 167). These criticisms do not deter us from making use of the some of the concepts of CBT. The reality of creative thinking is that there is certainly some kind of blending working within the process. However there is no necessity to understand every "mental space" as something that can become a blend. For example, can we call the bodily training that a musician does in conjunction with a metronome a "blend"? It is surely the case that one is working daily to integrate one's bodily gesture with a principle of organization (metronomic timing). This type of integration however is not a simple case of blending two mental spaces – it is a cultural logic that involves principles and models

of organization based in rationalized musical practices. Thus we can see by extension that working ideas into musical form is more complex than simply announcing a desire or intention to do so and reducing the structures to "mental spaces".

Fauconnier's work *Mappings in thought and language* (1997) deals with some of the methodological finer points that appear when we start to talk about cross-domain mappings and conceptual integration or blending. Important for him are an emphasis upon negotiated meaning, rich background knowledge, on-line meaning construction (p. 8). These constructs allow him to approach the cognitive linguistics that he is dealing with in a way that is "experiential" in a coherent sense. He provides a method in this work that points to the importance of studying the "pragmatics" and situational context of language use (p. 7). This way of working does not extend the practice of dealing with language as an autonomous structure. The "strong version of autonomy of linguistic form happens to be wrong for natural language" (p. 6).

In more general terms the importance of "theory" for creation is related to the artistic appropriation of metaphor theory from Aristotle to Black and beyond. Artists make use of theories in order to enhance and hone the creative process. Discourse about the making process allows new ideas to come to light, and it also allows one to clarify an approach in order to concentrate upon it. Clement Greenberg the critic and theorist of the avant-garde can be read as defining a trajectory as much as describing one. Thus the question: Are Greenberg's writings a blueprint for creation or a description of a "state of affairs"? With Adorno one could ask the same question in relation to the emphasis upon Schönberg in opposition to Stravinsky. The importance of Greenberg's theories is not only located in their descriptive power but also in the fact that these theories were internalized by artists.

Arts that blend different media can profit from a reading of philosophical and theoretical writing concerned with the process of blending itself. Creative blends can be structured intuitively or they can be formed with reference to CBT and MT. In any

case the theory of blending itself, the manner in which the "bridging" component of cross-disciplinary practices are structured, will be theorized in artistic research (such as the present study) regardless. This may take place on an internally generated plane or it can (also) look towards CBT. The present research is informed by an understanding of some aspects CBT and MT. Of particular relevance is the work of musicologists that use these theories to describe musical form and meaning (briefly described above). Such descriptions allow a more complete picture of how blending occurs in relation to music from a different perspective. This changed perspective fosters further creative possibilities. In any case the present study accepts that to blend music and philosophical text one must understand and theorize the bridging mechanism itself.

2.3 Analysis of the state of the art

2.3.1 Analysis

The state of the art as it is presented above reveals a wealth of work in the area that is relevant to the present study. On a close inspection however it becomes obvious that the previous work does not offer anything that deals with the material in the same way that the present project does. Certainly there are philosophical components in relation to musical compositions, and improvised guitar in relation to synthesized soundscapes, but no art can be seen to contain in-depth philosophical components in connection to instrumental music. This must remain to be shown at this point in the study, however it is evident from the state of the art that an in-depth description of the manner in which philosophical text forms itself as music (or even as compositional system) has been formulated very rarely.[6].

In section 2.1.1 Liszt is briefly described and some interpretations offered. The idea in that section is focused on the accentuation of the "mediated" content in music. The specifically aesthetic evaluation of such mediation is bound to remain mostly subjective, some subjective evaluations of this sort were offered.   Beardsley's descriptions of Liszt point to a similar evaluation (section 2.1.1).

The expansion of the textual component is an emphasis on what already existed within musical production. Perception is never "immediate" in any absolute sense (Dahlhaus 1982, p. 73). The emergence from contemplation into reflection, which occurs in any audience, is based on an understanding of historical discourse, either explicitly or as part of the culture within which one is located (Dahlhaus 1982, p. 73). The development of concepts can "enrich" aesthetic contemplation (p. 73), and in the

---

[6] Schaeffer and Xenakis both provide this kind of formulation, indeed Schaeffer can be seen to be working with Husserl's text to try and break through into a new musical system. However the perceived target of that work and the end result are quite different to the present research goals.

present study this dialectic between reflection and contemplation is a starting point. The emphasis upon a text in relation to the composition is a possible "next step", exemplified in the development of program music. A network of multi-media objects, a dynamic interplay between media and between participants (performers or audience), creates art-forms that transcend "expression" paradigms. These ideas are not alien to the lineage of artists presented in this chapter.

Program music can be defined against "absolute" music – at least superficially. Wagner and the "New German School" saw that music that was completely autonomous must give way to a more socially responsive and articulate form (Bonds 2014, p. 138). This kind of thinking leads to the *Gesamtkunstwerk*. If that form of expression begins to take on some quite "religious" overtones, it is nevertheless important to the continuing development one encounters in the 20th Century. The development of the "discursive" and philosophical aspects of praxis in the avant-garde and experimental tradition are built on the transcendence of "self-sufficient" works of art.

The program music of the 19th century was certainly textual but the *surface* of the musical work was still "self-sufficient" (Dahlhaus 1987). The fact that Schumann was "uncertain" (p. 320) about whether or not a text accounted for the musical form points to an internal tension in the material. The surface of the art-form was still, ostensibly, the most important component in the Romantic composition and Schumann often changed – or erased - the titles and the programs to his pieces (Lipmann 1964).

The balance of power shifted in the 20th Century in the work of artists such as Cage or Schaeffer. In Cage's work the "surface" of the artwork is hidden, the meaning can no longer be read off the object alone. Duchamp, working in another set of media, also exemplifies a more networked form of practice. Schaeffer's work, though not involved with philosophical *metaphor* as such, is very much involved with a form of

cognition that includes music and phenomenology. It is in this spirit that he referred to his book (*traites*) as a "thinking machine" (Kane 2014, p. 17). Schaeffer's work makes use of phenomenology in order to produce new ways of listening, and following on from that, new ways of making (Kane 2014). The process of working between music and philosophy is developed more completely in comparison to other composers, at least in terms of the concept "listening", in Schaeffer's work. Both Cage and Schaeffer also demonstrate an interest in the philosophical idea forming itself around the compositional system (rather than the philosophical text being realized as metaphor).

In any case we can see both types of work as involving strategies of discourse and praxis that hide and reveal in equal measure musical form and content. The content is never present as an absolute, works contain various different modes and mixes. Behind the sensuous surface of a work there can be: (1) the extra-musical component; (2) the style of composition; (3) the psychological profile of the composer.

Even the self-sufficiency of a Schumann composition or a work by Beethoven is such that the meaning cannot be defined in any objective sense. Such works are organized and re-organized by music-theoretical analysis; definitive readings are not forthcoming. Yet there is indubitably a "completeness" to the form of a Schumann composition (or more generally of Romantic works) that requires no text. This is a difference of *mode*, of *focus*, and *scale* in relation to the place of philosophy compared to Avant-Garde practice.

Wellmer talks about the necessity for art to speak outside of its sphere (Wellmer 2007, p. 213). The bringing of the philosophical into the domain of the artwork is prefigured in such descriptions and it speaks of a different set of emphases for the modern era. The art-work must somehow allow ideas to emerge from its domain, and this is taken as a central concern in the present study.

The *transformative* dimension of the present study takes place in terms of making a philosophical dialog part of the artwork. Transformation of the internal components of the thought process, and in practical terms, breaking down the barriers between "philosophy" and "music" as distinct spheres. Organizing blends within artworks becomes part of a transparent process in which dialogs are fostered, a process that resists reification. The works include a relational field in one or more critical dimensions – this relational field stamps key elements in the artwork as inter-subjective and part of a communicative rationality.

The section on Romanticism and Schumann highlights the importance of the fact that there can exist a tension between textual elements and the other contexts of creation within the same work. Indeed one of the most relevant aspects of program music in relation to the present study is the fact that it can be theorized as a "non-exhaustive" aspect of creation. The analysis of Schumann also gives us a kind of "habitus" within which musical metaphor is understood by the network or inner circle.

Following on from this we can posit that music is a fluid form – it can be utilized by many different metaphors concurrently. The present research makes use of this fluidity even while emphasizing a philosophical principle of music composition. Our definition of music in the present context: *Music is a temporal art of sound. Music can be organized compositionally with various textual (extra-musical) elements. The organization of music through text, rationalized emotion, scientific metaphors etc. is not captured through a static presentation. Music can organize itself around multiple metaphors and principles on various scales. A piece of music may move from metaphor to metaphor, or principle to principle, even as it moves from bar to bar.*

We can perceive that the temporal aspect of music is very important to our definition. The static ideal of a music that is or is not "something" is not one that is stressed here. Instead we are looking at a fluid temporal process that can be organized according to different principles at one and the same time. That said, the principles that we are

highlighting and developing in the present research are philosophical. This is not to say that emotion and affect or that motion processes etc. are not part of the productions and artifacts. Rather, important structural elements of the music are organized according to philosophical metaphor.

The present study is a dialogue between music and philosophy, and is related to both program music and the work of the avant-garde as described in this chapter. The manner in which the textual strategies described above are employed, and the manner in which these strategies are realized as musical form (or art), differ from the strategies of the present research in a number of definable ways. The first and perhaps most obvious difference is that the present research is seeking to implement a series of models that will demonstrate working practices that clearly organize the various components by category. This is the "codification" of an existing tacit practice. Thus we will not be defining the practice as being about this or that in a general, unfocused way, rather we will be able to delineate more precisely and at what scale the connections are made.

The present study produces models of practice, models that are engaged with artifacts that have a relational component. This relational component is one that is grounded in a past "code" or "horizon" of music production. It is not an arbitrary code and thus it is one that requires a dialog with the past lineage or language of music. We are attempting to reveal a process that makes use of an established lexicon (though a close interpretation / hermeneutic procedure) and elaborates upon this as a dialog. The dialog can include others or it can be an internal dialog. The philosophy becomes a part of an artifact, and the formalized metaphors are embedded in the work. This creates a process of cognition in which music and thought are constructed as artifact. It is not a semiology that produces meaning in the same way a signifying language does. It is a negotiated space that includes one or more participants.

In terms of the framework itself it is not to be read as one more paradigm or definitive style. There cannot be a "new" style or definitive style, and thus no battle of styles emerging from this research. Styles are part of the philosophical foundation that can always be brought into the artwork itself. No style is foundational in the sense of a model that must be adhered to rigidly. The models in the present research re-organize the way of working according to an internal logic, a logic that can shift and change according to requirements.

2.3.2 Innovation and original contribution

This chapter provides the foundation for the work undertaken in the research. There are many points of contact between earlier practices and the current research. That said, there are also areas in which research can hope to make progress. By identifying and highlighting important facets of past practice one can discern clearly the outlines of that practice. A viewpoint onto the already developed areas of practice facilitates new possibilities in practice. In the present study some "gaps" in the earlier working modes were identified. These can be described briefly here.

The knowledge "gaps" that we can identify are mostly arrayed around the codification of the practices. The practices may have tacit procedures in place for working with philosophy in relation to musical and artistic practice but the corresponding explication is not fully developed. Working models that offer a way into the practice, with detailed descriptions and analyses of how components relate conceptually are lacking. What is required is a codification of the earlier language forms in order that new more sophisticated languages can be built.

We revealed the research questions in the introduction to the study but we can repeat them here.

Research question 1: How can the research extend and elaborate upon the lineage of the creative arts in relation to music composition and philosophical text?

Research question 2: What are the processes that go into making artifacts that blend music and philosophy? In what manner can these processes be analyzed and further developed?

Research question 3: What is the relationship between art objects and philosophy?

A brief analysis of the questions is offered here. Research question 1 will be answered through outcomes that provide a more fully developed "language" of *philosophical music* to be formed. The contribution to knowledge is formed around the development and extension of a clearly defined lineage of practice. Such a goal includes practices that are structured as a *thought process* and can be read as "form of cognition". It also includes the use of metaphor to create symbolic "sound structures".

Research question 2 will provide results in relation to the discussion of the production of the artifacts of the present study. The actual "real-world" practice of working on the artifacts will not be a schematic "extension" of earlier modes. Rather the artifacts and the creative process will provide nuanced and detailed information concerning the creation of such artifacts. Other researchers coming from similar contexts will be able to make sense of and utilize this information. The shareable content will be formed around (1) the construction of discursive tools, *and;* (2) the model-based "way of doing" type of knowledge. The notion "discursive tools" signifies here the idea that through analysis and explication of the practice a formalized language or code can be generated. The production of a formalized language allows thought, dialog and theory to be sharpened and refined in relation to previously tacit processes. As noted in the introduction the "reporting" on the processes of creation will take in all of the

following practices: compositional methods, notation, engineering, programming notes [Max/MSP, SuperCollider] and theorizing.

Research question 3 is to be understood from the perspective of an *active* engagement with the twin poles of *music* and *philosophy*. The goal is a constructivist and practical answer to the question of the ultimate relationship between music / art and philosophy. The relationship is shown to be one that can be formulated in quite precise ways when talking about creative practice. The discussion and explication of this relationship, in clear and concrete terms, generates knowledge about the focus of each thought-form or text. The use of the philosophical text, the "thought-form", can have a different meaning depending on how the relationship to practice is discursively apprehended and set out. Through the construction of plausible connections (between the poles) the relationship between music and philosophy is *apprehended* even as it is *built*.

Chapter 3 - Methodology

This chapter focuses upon the methods of research employed by the present study. Included are discussions on the theory of method, the ordering of the research into phases and the research process as a reflective practice. Section 3.1 and its sub-sections offer a general introduction to artistic-research as "reflective". This includes the particular theory of method applied in the present study. It will be shown that the theory of method applied here diverges in some ways from reflective design practice, even while retaining some key concepts and ideas from that practice. The customized approach to the research process is highlighted in section 3.1.3 (*design processes and music*). Section 3.2 (and sub-sections) introduces and explicates the concept of the "framework" and its role in the study. Section 3.3 deals with the actual research process itself, namely the methods and strategies utilized by the present study.

3.1 On method

The method of research in creative fields (such as music composition) is tied to the process of generating aesthetic artifacts. The generation of aesthetic objects and artifacts (compositions, paintings, visual art) is primarily practice-based. The concept "practice-based" is to be understood here as referring to a mode of activity that is grounded in a non-reducible praxis. Linda Candy notes: "…originality and contribution to knowledge may be demonstrated through artifacts created during the research process such as artworks, musical compositions, performances and interactive new media installations. A full understanding of the textual significance of the research can only be obtained with direct reference to the artifacts in whatever form they take...it is also difficult, if not impossible, to understand its significance without direct experience of the artifact itself" (Candy 2011, p. 36). In order to generate such artifacts, and to extract significant research outcomes from such, a

method that accommodates working outside standardized conceptual frameworks is called for.

In working in a creative field one is often working with a conceptual framework that is not the same for every practitioner. In the artistic-research context the researcher must define the parameters within which one is functioning and then evaluate and reflect upon the outcomes based on this definition. This is quite different than working within a scientific paradigm (see Kuhn 1970). In artistic research the artist does not take for granted a series of problems and definitions in the way that "normal" scientific research does (Edmonds & Candy 2011, p. 126).

3.1.1 The reflective practitioner and "projection"

What methods are used by artists to achieve their goals? Stephen Scrivener points out that artists do not merely follow a theoretical blueprint that can be "realized" as a piece of art (Scrivener 2011, p. 71). The artist is not attempting to find a way through difficulties - technical or mechanical - that will result in the achievement of an aim that is clearly outlined. Instead the end goal may be hidden from the artist, and the "unexpected" outcome that is revealed can then become the focus of analysis (p. 71).

The outcomes are often of a nature that was not predicted by the artist. Art is perceived to be something that cannot be planned out completely in advance (Scrivener 2011). Indeed many artists feel that it is problematic to work in a way that curtails their free creative inspiration. To create knowledge within the research context one must have a way of bridging the gap between research and creativity.

One can of course reflect upon the outcomes that appear within a free creativity. This mode of reflecting upon the creative outcome is designated usually as "reflective practice" (Schön 1985). Scrivener adds another aspect to the basic formula: the concept of "projective reflection". Projective reflective practice is differentiated from

96

reflective practice in that the latter practice is theory driven whereas the former "sets aside" prior knowledge and understanding (Scrivener 2011, p. 71). The goal of such a practice is to willfully disrupt everyday modes of activity for the purpose of producing the unexpected (p. 70). Scrivener describes these modes of working with reference to Donald Schön's theories concerning design practice (Schön 1985).

Scrivener emphasizes not only that it is this searching for what *one does not know* that is important, but also the manner in which one approaches this search. The searching is not to be understood as a kind of practice that will overcome all obstacles with reference to acquired knowledge and experience (Scrivener 2011, p. 70). That type of practice is represented as having clear goals in mind and will only occasionally find a "situation that perplexes" (p. 70). This is an essentially "reactive" practice, and is designated "reflective practice" (after Schön). The "projective reflective practitioner" is a person that sets out to "willfully disrupt their habits to see what happens" (p. 70). This mode of working allows for the new to surface not accidentally, or casually as it were, but with intention. Such practice pushes into new areas and "problematizes" the everyday mode of working for the purposes of "generating the unexpected" (p. 70).

Scrivener further explicates the exploratory (projective) model with a discussion of Plato's *Meno* (also discussed in Schön). Plato shows (or suggests) that much knowledge is a kind of "recollection" (anamnesis) of things that are within the mind but covered over or forgotten. The important point (for our purposes) is not the recollection of obvious knowledge but rather the searching for that which one does not have clearly within view. This can be related to the concept of "tacit" knowledge (Scrivener 2011, p. 71). Tacit knowledge of "making" is not always discursively present for the artist. This kind of tacit understanding sometimes requires more thought and (discursive) reflection, when for example a creative outcome cannot be realized to the artist's satisfaction.

On this model the research artist explicates tacit understanding present in practice in order to build upon that understanding and create new knowledge. Theorizing about tacit procedures and explicating tacit procedures can produce enhanced comprehension of what is at stake in a work or a working practice. Tacit procedures for composing with philosophical concepts and metaphor can be unpacked and shared as new knowledge. The use of a series of models (produced in the research) will allow other practitioners and researchers to make use of the outcomes.[7]

With the preceding discussion in mind the present project can be situated in a space that is slightly removed from the dominant cultural understanding of how music is created and which elements are deemed important. The concept of artifacts made of three components (music composition, visual or program narrative and extended thought form) was the access point to a disruption of working practices as the researcher / artist experienced it. The goal of the present research centered upon the development of this formal arrangement in a way that extended the artist's personal practice and, also, developed the type of knowledge / practice analyzed in the state of the art (Chapter 2).

The projection of new ways of working onto one's standard understanding requires a formal content that goes beyond the merely intuitive. That is to say, if we wish to produce and share "knowledge" then projective practice must be formed in relation to discursive components. Certainly the idea of "projection" is very seductive but such ideas only take the research so far; research outcomes that are discursively coherent are also required. That is not to say that the theory needs to be fully formed from the beginning, it is precisely the forming of a theory from within a practice that pushes the research forward. With that said let it be noted that (in the present study) the basic structure of the artifacts was in place from the very beginning, but that the more

---

[7] The "tacit" can be understood as both relating to the artist's own practice and also the engagement with the interpretation of past practices as a "revealing of" underlying tacit modes of operation.

detailed and systematic components (the basis of the working models) were worked out more slowly.

A process of reflection upon outcomes and practical iteration guides the research. In interpreting the artifacts the artist first finds points of contact between the music and the philosophy (within the artifacts) that appear without an *over-determined* guiding plot. The initial guiding framework must allow for connections to appear through a projective practice, these are connections that the artist must be open to discovering and revealing. These points of contact then provide new perspectives that lead to the re-formulation of the artifact (a circle of interpretation and iteration is created). At this point – at the re-formulation of the artifact – there is also another effect. The artist can hone in on the points at which s/he observes relationships and connections between the music and text. This "honing in" allows one to begin new works with a clear intention to emphasize the contact points; this pushes the general framework out of an intuitive mode and towards a more systematized mode. The process of interpretation provides the artist with an insight into tacit understandings that occur within the artifacts (and the working process). Many composers are described as having "behind the scenes" philosophical intentions and programs (e.g. Beethoven, see Adorno 1998). The elucidation of these tacit understandings is the moving from the "unknown to the known" (Smith & Dean 2009, p. 28) – or more precisely the tacitly known to the known.

The basic method of this study is based upon foundations laid by earlier artists. In the state of the art section I analyzed some of the more relevant practices and theories of practice. There is a strong lineage of artists that work with philosophy and text in relation to instrumental music - a model of working such as the one that is here supplied is an extension of this lineage. The analysis undertaken in the state of the art section of this study points to some areas which have remained undeveloped and which offer interesting and fruitful directions to artists and composers. One of the main gaps in the knowledge is related to the lack of an integrated system for working

between music and philosophical text (chapter 2). The present study provides models that account for all the systematic needs of the working process. This is not to say that we are providing a seamless process that need be merely plugged in and made use of. Rather the system is one that provides a series of models that allow other users to trace the steps of the researcher and, in so doing, continue or build upon the research.

3.1.2 Theory of method

The concept of "projection" figures heavily in the preceding section and the rationale there is one of leading research and study through the creation of new and unexpected outcomes. This process could be understood as going beyond the type of practice that merely implements a theory or idea in a design or artifact, and is (at least partly) an attempt to elaborate on Schön's theories of reflective practice.

The method of working embodied in "projection" involves various tacit practices as well as the implementation of rich background knowledge and skillsets as an integral part of the creative process (Schön 1983; Scrivener 2011). Such a process however is only the first step in a complete methodology. Important to PhD research is the demonstrable content of the research and its communicability (Gray & Malins 2004, pp. 12-21). This point problematizes the epistemological status of the creative "projections" described above. Such a practice is only one *step* in the development of knowledge that is required to be shareable and communicable.

Reflecting on the nature of artifacts that one creates allows one to move towards communicable knowledge. It is the experience of the artist that becomes paramount in organizing the type of knowledge that will emerge from reflecting upon these artifacts. This emphasis upon the experience of the researcher is sometimes described in the literature in terms of the "participant observer" (Malins et al. 1995, p. 9).

The observation of the self through an engagement with creative practice; what kind of knowledge is generated by this perspective? Estelle Barrett addresses this question:

The innovative and critical potential of practice-based research lies in its capacity to generate personally situated knowledge and new ways of modeling and externalizing such knowledge while at the same time, revealing philosophical, social and cultural contexts for the critical intervention and application of knowledge outcomes (Barrett 2007, p. 2).

"Personally situated knowledge" and the "externalization" of such, is to be understood in this context as a type of tacit knowledge that through the research process can become explicit.

How are *reflective practices*, referred to above, put into play and what are the outcomes that one can expect from such practices? This question is one that is likely to have many different answers depending upon the focus of the research. In the present case the answer to the first part of the question is that the reflection will take multiple forms – the method of creating a dialog between music and philosophy is not to be structured from merely one perspective. The second part of the question concerns the outcomes of the reflective practices. The outcomes of the present study will be organized around the development of working *models*. Such models will allow others to continue the research and, as an extension of this, to take the first steps towards working in this manner.

The "design studio" model that Schön developed, and his notion of the *ladder of reflection* that relates to this model (Schön 1985, p. 80), are important to the understanding of the present study's models. The working models (as an outcome of the present research) are not to be understood as a static set of rules that allow one simply to re-produce the creative process. Rather the models are a type of developing

habitus, which includes a framework, that other researchers or artists can enter into and make use of. Briefly put the models of practice are a kind of narrative of process that gives insight into the actual "making" process. This is slightly different than the conceptual framework of the practice – the conceptual framework is conceived of as a "starting point". The framework offers an overview of the kind of problems that are to be generated and solved by the practice. The distinction between "model" and "framework" as they are applied in the present context will be discussed in detail in section 3.2.

The research will also be structured according to its connectivity to established communities (academic and artistic) and also the ability to interact with other artistic frameworks. Barrett (quoted above) points to a type of research in which the knowledge, although "personally situated", will open up into other contexts for elaboration. In the present context this can be directly connected to the discursive elements of the works – the philosophical text that is included as a component of the work promotes discussion about the content of such texts, both in relation to the connection to the music and more generally.

In relation to the research itself we can posit that there is the process of creation that is explicated in the "models of practice", but there is also the interpretation of the artifacts themselves. Therefore the research will include a dialog with the evolving situation, and also an analysis of the works themselves when "finished".

In the present study, and indeed for much practice-based research, the process of creation and the artifact itself are equally important. We are distinguishing here between *process* and *artifact*. Critical engagement with the completed artifact is important from the point of view of assessing the success of an application or a process. In the present context the iteration from artifact to artifact includes the evaluation of internal artistic criteria. Looking forward to the actual creative process in the present study we can identify such assessments. In the analysis of artifact CTK

various "finished" versions were created and put aside – these versions though aesthetically satisfying were not satisfying the internal criteria of the work. What was demanded by the internal criteria were "less" satisfying on a superficial (sensuous) level, yet "successful" on another level. This second kind of success can be described as the demonstrable responsiveness of the work to its internal criteria. This is one level of the interpretation of the artifact, and there is another.

The second type of interpretation must be conducted on the level of a possible iterative logic that can be identified in the piece. The question becomes: Does the piece have something to say to the development of the research? In the interpretation of artifact TG3 the researcher identified a section of music that could be further developed. To state it briefly, a structure was identified that could be *emphasized* and used as the basis for a further more actualized practice. In the present context "actualized" refers to the more mindful connection between music and philosophy. The iterative loop between practice and text are brought to the fore in such research: the researcher actively searches for components that are worthy of isolation and development. These worthy components become the basis of further works.

A further type of evaluation is located in the opening of the artifact onto new aesthetic "contexts" – and can include (for example) a discussion on the composer's perception of whether a new tuning system creates a different ambience than equal temperament. This kind of evaluation is one that requires points of contact in the artifact for comparison and assessment from external positions. It can also include dialog with other artists and researchers to establish and develop robust frames of reference.

Finally, the idea that the artifact is at the center of a series of relations and intersecting forces opens the field of inquiry to more than the working practice itself. Smith and Dean hold that the research moves "rhizomatically" and one can take hold of any present element within that research field and elaborate upon it (Smith & Dean 2009, p. 21). This mode of working allows for knowledge to be generated in relation to the

object itself. That is to say, the articulation of working practices is not the sole outcome of the research, rather the object can itself be the core component in a network that produces knowledge.

Carole Gray (Gray 2007, p. 5) citing Sullivan, observes that it is essential to move beyond the studio context to more "mediated forms". It is worth quoting Sullivan in full at this point:

Theories serve as important points of reference in research as they embrace conceptual systems, explanatory structures, methodologies, and practical pursuits that offer insights into issues that shape fields of inquiry. For art practice to be considered research, artist-theorists need to engage directly with theoretical concerns that can be investigated in studio contexts as well as through other mediated forms and methods (Sullivan 2005, p. 98).

From the point of view of the present research this connection to "mediated forms" is perceived as a worthy goal for artistic research. "Mediated forms" is to be understood here as relating to "domains of inquiry" outside of the specific theoretical concerns of the practice.

However it is also understood that the artifacts themselves and the particular experience of *making* that they exemplify are the true gauges of relevance. That is to say that there are surely aesthetic, philosophical and critical thought processes that become important to the making process as it develops, but that these external components are analyzed and revealed only (or *mostly*) within this relationship.

3.1.3 Design processes and music

Another point of contact relevant to the present study is the "design process". The theorization of the design process (Schön 1983, 1985; Lawson 1997) is important to

the present research (and perhaps to artistic research in general). The reflection-on-practice and reflection-in-practice methods of inquiry (Schön 1983) are central to the study. We can point to the very fact of artifact creation itself, and the reflection on that process and object, as being a "method". The artifact is part of an iterative process that seeks to go beyond an initial projection and is understood to be an open-ended practice in which new additions to initial ideas are formulated. Artifact creation is part of a generalized "developmental logic" in relation to method.

Some artists that engage with artistic research formulate their methodologies in terms of design methods (for example Costello 2009). Lawson's model of the 5 different phases of the design process are utilized by some researchers (see Costello 2009, p. 15). The 5 phases as described by Lawson are "formulating", "moving", "representing", "evaluating" and "reflecting" (Lawson 1997, p. 287).

Lawson's "model" of design – and this is the term he utilizes to describe the collection of skills and methods he organizes in chapter 16 (Lawson 1997) – is one that owes a debt to the model of working offered by Schön in *The reflective practitioner* (Schön 1983). Schön's position also has a series of phases that are connected to the ideal of the "reflective practioner" (Schön 1983). As we shall see these ways of working within design processes are helpful in discussing research in the arts. There are however important points of divergence especially when one is working with music and temporal arts. At best a critical implementation of such categories is required by the present research.

The application of design "models" or frameworks to music composition and artifact creation based in multimedia practices is not entirely problem free. There are various considerations that must be broached and worked through. For example the temporal aspect of music changes the face of the "object" that is being designed. One does not necessarily look for one *solution* to a design problem that the music then embodies.

A piece of music, and artifacts that make use of music, are structured in the temporal domain. Temporality is a component of the material structure of music composition. This material fact has various implications in relation to the structure of music research. We can set out a few of these implications in relation to Lawson's model of design (outlined above). Firstly, it is obvious that the formulation of a problem will be quite different between designing a house and a piece of music. Designing a house may require the designer to make use of various "frames" with which to re-frame, or re-align, the problem (Lawson 1997; Schön 1983). One imagines however that even if the designer made use of multiple frames, the end result would be a single design. One would not have one solution giving way to another solution (a house that mutates with the seasons perhaps….). In actual fact one can imagine such a design solution – whether such a solution is practical however is another question. In music however the contrary state of affairs is encountered. One might easily structure one section of a piece of music according to one idea and another according to another idea. "Idea" here is to be understood as a structural process or method of working. One might object at this point that artists are more likely to stick with one design solution in any case, even if the option to engage with multiple solutions is present. However the nature of artifacts is such that many different forces and elements intersect within them, and in a time-based artifact the expression of different (contrasting) components often occurs over time (one giving way to another or a blending of these components). Reflecting on my own practice as an artist I can attest to the fact that the stated "meaning" of a work is sometimes only the tip of a very sophisticated and complex iceberg.

On the side of the performer and the composer the motion of a work through different stages and different emotional intonations is accepted. This can be shown through the simple, but nevertheless effective, device of changing from a major to a minor key. One does not usually have a drifting from one *style* to another – but there is no reason that this cannot be implemented. In actual fact such a drifting between styles is part of what some call the "post-modern" (Manuel 1995). Also relevant here is the

criticism that Stravinsky encountered for being "neo-classical" in the sense that his work drifted from one style to the next (like a pastiche) (Hyde 2003, p. 135).

It is perhaps impossible to come up with a set of simple categories for the process of creating a piece of music or a music-based artifact. The design model however does offer a very useful entry point into discussing how one might structure, or at least talk about, such models and processes. Schön quite emphatically steers clear of a reductive description of the process and instead opts for putting an emphasis upon the design studio and reflective methods that are based in dialog and emergent interactive logic (the "ladder of reflection") (Schön 1985).

Schön includes a discussion of a master class in violin in his writings (Schön 1985, pp. 79-82). The discussion there points to the manner in which different musical contexts and different performances invoke different ways of interacting between master and student. Different elements from within the context of the performance are recognized as *standing out* and in need of development.

Another point of contact is the "ladder of reflection". The "ladder of reflection," as it is described by Schön, is understood to be about the process of "reflective conversation" with the "materials of the design situation" (p. 76). In terms of musical structures this *material* will include temporal elements, and the *reflective conversation* may touch down in different ways at different locations within an unfolding piece. This particular aspect of the research will be addressed more completely in relation to specific artifacts (chapters 4-6).

An important difference between art and design is the fact that they emerge from different worlds in respect to evaluation and overall goals. Artworks (including music) are not judged solely on criteria based on the satisfaction of the "client". This point frees the artwork from some of the constraints of external assessment. This at least superficially. On closer inspection artworks must also, often, conform to various

societal norms. That is not to say that pure, and negative, artworks cannot exist but that history classifies and sorts art into various categories. This includes classifying works as "successful" and "unsuccessful". It is posited here that an artwork with a solid internal logic can be assessed as "successful" purely on its own terms.

In terms of research the artwork must produce results that are accepted by the academic community. Yet the negative and uncompromising aspect of art remains important to many practitioners. Borgdorff notes:

Art often takes an antithetical stance toward the existing world, and it delivers the unsolicited and the unexpected. That is its very strength. At the same time, engagement and reflexivity are inseparably bound up with the production of art - not in the form of demand and supply, but in the conveyance of a 'narrative' in the materiality of the medium which can be understood as a commentary on what we have here and now and an opening to the 'other', the unknown (Borgdorff 2009, p. 14).

Borgdorff's quote above points to the fact that art can open a path towards new ways of seeing the world. The "antithetical" stance of the artist gives a certain freedom to that artist, a freedom that is not judged solely on whether it produces "successful" aesthetic artifacts. The "narrative in the materiality of the medium" can be understood as a window onto a kind of *otherness*. Artistic research must allow space for this "strength" – the success of a design or the aesthetic success of a work must be weighed against the work as an uncompromising gesture. Design constraints concerning "user satisfaction" or "aesthetic success" are balanced by the internal logic of the artist as researcher.

The present research emphasizes a narrative of process that includes many and diverse components, within various media. It is conceived as a *habitus*, a way of working and dwelling within otherness. It is not enough to simply sketch in a framework that shows a general and abstracted version of the process (the process of creating a dialog

between music and philosophy). A practitioner must work with the narrative step by step – in the same way that one learns a musical instrument. This is discussed in more detail in the "research process" (section 3.3.3).

3.1.4 Multi-method approach

The multi-method approach is important to the present study for a number of reasons. It is accepted in some disciplines (for example the social sciences) that adhering to only one method can lead to problems (Brewer & Hunter 2006, p. 2). Brewer and Hunter (pp. 16-17) note that individual methodologies (in the social sciences) have flaws but that the flaws are not identical. Combining methods allows one to compensate for flaws and limitations by emphasizing strengths. The fundamental strategy of the multi-method approach is to "attack a research problem with an arsenal of methods that have non-overlapping weaknesses in addition to their complementary strengths" (p. 17).

The multi-method approach suggests the tactic of "triangulation" (p. 17). The concept of triangulation is one in which various methods are used and arrayed around the problem or object. Looking at an object from different viewpoints allows one to build up a picture that more accurately represents that object (p. 17).

Denzin and Lincoln note:

Triangulation is the display of multiple, refracted realities simultaneously. Each of the metaphors "works" to create simultaneity rather than the sequential or linear. Readers and audiences are then invited to explore competing visions of the context, to become immersed in and merge with new realities to comprehend (Denzin & Lincoln 2011, p. 5).

This approach, described by Brewer and Hunter and Denzin and Lincoln in relation to the social sciences, can also be useful in practice-based research (Gray and Malins 2004; Stewart 2000). It is likely that there will be multiple "solutions" to particular research problems in the arts (for a discussion on "pluralism" see Kjorup 2011). In the present context, for example, we can identify *at least* three routes to working between music and philosophy: (1) the analysis of earlier practices through case studies and contextual review; (2) an analysis and utilization of metaphor and "blending" based theories, i.e., Conceptual Blending Theory (CBT); (3) the reflection on the creative process itself (which remains the most important method). The first two ways of approaching the problem are useful in understanding and expanding the practice in ways that are non-intuitive. In this context "non-intuitive" refers to the fact that as a practicing artist one does not always formalize the language of "blending" between domains. The research context is an opportunity to gather different perspectives on the practice, both from the case-studies and also from the formalized language of CBT.

The interpretation of data that one encounters in artistic research sometimes requires a quite different approach than the social sciences. Indeed we cannot really call reflecting on artistic practice "data" in the traditional sense at all. The observer is not detached from the observation; s/he is an integral part of the reflective practices and observations. Research problems in practice-based (artistic) research are not interpretations of data that one acquires from e.g. "crime statistics" (the example given in Brewer and Hunter). Rather the research will focus on various different historical, theoretical and practice-based structures.

Three approaches to the research were identified above and it is worth reiterating them. Firstly an analysis of earlier ways of approaching the problem is undertaken (earlier ways of working between music and philosophy). Then, in the present study, we look at the more theory driven approach that CBT exemplifies. Finally we must also have a strategy in place for an ongoing series of interpretations of the process of

creation and the artifacts. These interpretations lead us to new iterations and a refinement of the earlier procedures.

These three strategies are not isolated from one another – the artistic researcher can cross-reference between the different forms. For example, the researcher can note the connections between CBT and earlier artistic procedures, or (2) s/he can connect blending theory to a more intuitive creative activity. Other methods can be introduced into the mix. In the present case we have added interviews that attempt to establish the coherence of the metaphors and mechanisms that are being utilized. These same interviews can open up dialog (both evaluative and collaborative) in relation to the artifacts. This process of attacking the problem from multiple directions builds up a coherent set of analyses that allow trustworthy models to be produced.

3.2 Framework

This section outlines the framework of the research practice in relation to making artifacts. The research itself is organized around "making" and as such offers also a *framework* as research outcome. In order to "make" the artist begins with some kind of general theory or practical orientation: a framework. Section 3.2 defines "framework" in a general sense. It also discusses the theory of the *framework* in relation to the *paradigm*. In section 3.2.3 an introduction to the conceptual framework that informs the present study is outlined.

A framework cannot be simply defined as a constant that will make sense for every possible creative process. It is a point at which one begins and it has some basic, very general components. The framework is to be understood as mutable – individual artifacts will define criteria and re-organize the framework. The framework is nevertheless important to establishing a theoretical domain within which to work.

Noted above is the fact that the framework establishes a domain within which to work. Further: It also allows conversation to take place. It establishes a vocabulary and syntax that other practitioners or researchers can understand and interact with (Edmonds 2011). Edmonds points out that a development of a language of making is a significant part of practice (p. 228). The visual artist also develops "…a language of form…a language of shape and color" (p. 228).

The sound artist must also develop a language and framework that other practitioners can interact with. In the present case the work is multimedia – philosophical text and music are the material of the research. The present study requires an understanding of two disciplines in relation to the working process. Certainly inter-disciplinary research frameworks are by their very nature less approachable than frameworks emerging from a single discipline. However, the interpretation of past practice does, in the present case, point to a strong lineage of artists and artifacts that can form a functional base.

In section 3.2.2 a list of the general attributes of the study's framework is given. Point 2 of the framework describes the construction of a *language* in relation to past practice. The word "language" signifies in this context a vocabulary of making that can be understood and utilized by other artists. The framework itself, as a whole, is also a language in a further sense. It is a language that makes use of past historical ideas and compositional theory uniting these elements with new purposes and goals.

3.2.1 Paradigm versus framework

Linda Candy and Ernest Edmonds point to the importance of "practitioner frameworks" in practice-based research (Edmonds & Candy 2011, p. 126). The framework is something that needs to be constructed anew for every practitioner and is part of that which needs to be understood if one is to evaluate a particular artwork. "A shared understanding of context may not be assumed even among experts" (p.

126). A framework is something that is integral to the research process but it is not to be mistaken for a complete scientific paradigm.

Practitioner frameworks are defined by those who invent them – however there are some general structures that are shared between practitioners (for example "interactive design goals" (Edmonds & Candy 2011)). One devises a framework partly through an analysis of background / context. A framework, in this context-based version, is to be perceived as a perspective upon earlier modes of practice that facilitate a new practice. The framework in this sense can be understood as, and we will analyze this statement below, the establishing of an *individualized* paradigm.

Graeme Sullivan (Sullivan 2004, p. 34) argues that the artistic researcher needs to construct new paradigms, and also that these same researchers need to be knowledgeable about the "methods of inquiry" in the sciences. His position is (at least in part) that one must understand the structure of the scientific paradigm in order to understand the structure of artistic research. Artistic research cannot blindly accept or reject scientific methods and the paradigms that inform them (p. 34). Insight is informed by perspective as much as by precision (p. 34), and the methods of the (visual) arts must be compared to the methods of scientific inquiry. This comparison is perceived to be one that allows a certain meta-description of method in general, leading to the creation of different but complementary paths. The same is true of social science methods of inquiry (p. 34). One cannot make use of social science paradigms *per se* but these methods offer interesting and useful points of contact. There are many points of convergence and divergence between artistic and social science methods of inquiry which can be observed and used to construct a complementary system. This points also to the fact that "frameworks" that are practice-based may have embedded positivist / realist components.

It is worth looking at one aspect of Thomas Kuhn's description of paradigms at this juncture. Kuhn's description of the difference between artistic knowledge and

scientific knowledge is enlightening. Kuhn observes that physical optics in the time before Newton was characterized by the lack of one accepted paradigm. He notes that each writer in the field "…felt forced to build his field anew from its foundations" (Kuhn 1970, p. 13). Kuhn also directly ties this earlier pattern of working to the creative fields of the modern era (p. 13). However Kuhn also perceives the earlier sciences of optics as being "competing" schools (p. 12). The artistic framework, although it must build a process without access to one overarching paradigm, is more like a structure that is understood to be a modular component within an evolving practice-based research universe.

The coherence of the series of designations that characterize research in relation to methodology and overall structural impetus requires a brief discussion. The designations: *framework*, *paradigm* and *model*. All of these words are, to a certain extent, to be understood through the context that they are introduced in and the way they are put to work. That said, there are still ambiguities that must be cleared up if one is to maintain the necessary rigor in relation to the communicability of research outcomes. In what follows a description of the present process in relation to "framework" will afford a view of the relevant aspects of these relationships.

Smith and Dean point to the "rhizomatic" nature of the research process in the arts. Any point within the process is open to iteration, and this means by extension that the research framework or paradigm is continually expanding itself through a constructive dialog (Smith & Dean 2009, p. 28). There is no point that is external to this process as long as that point is one that is related to the internal logic of the framework (p. 28).

The construction of a framework within which an artist works is accepted as a pre-requisite to artistic research. Artistic practice in itself (divorced from research objectives) may have tacit frameworks in place (Edmonds & Candy 2011, p. 126). These are usually made explicit in practice-based research. Perhaps the framework is

best defined as a *provisionally established structure that is subject to development.* Edmonds and Candy describe the general structure of these frameworks:

All research is conducted within a context of convention and tradition. Within a well established focused field, such as Number Theory in mathematics, that context is so well understood that it is common to treat an understanding of it as tacitly understood by all involved. In such case, there is no perceived need to describe the framework within which the work is conducted except in texts aimed at the lay public. In the case of practice-based research, however, there is significant variation between practitioners and, in general, the maturity of the field is such that a shared understanding of context may not be assumed even amongst experts. The existence of practitioner frameworks for practice-based research is, therefore, an important issue to discuss and be explicit about (Edmonds & Candy 2011, p. 126).

It can be perceived from the content of this quote that a framework is very much like a paradigm. A scientific framework is that set of underlying principles, or "assumed context", that allows people to work without re-stating and re-formulating this context from problem to problem. The artistic framework however must be built up from less than a complete context, there must be a negotiation that clears the path and lights the way. This is not to say that there are no very general paradigmatic constructs in place, the debate on practice-based research is itself the development of such constructs, but that the non-abstract and richly qualitative nature of the work requires a formulation of the perspectives and components as key principles.

Sullivan also utilizes "framework" in a way that is similar to Edmonds and Candy (Sullivan 2004, p. 101). He stresses the importance of not offering a "method, theory or model" (p. 101). He is highlighting the more open-ended and fluid nature of the type of research that artistic research embodies. Lawson, on the other hand, specifically calls his position a "model". This may in part be a difference in approaches connected to field (design practice and art practice). Sullivan's concept of

"framework" has many of the hallmarks of a type of paradigm, and as we noted above, he takes this connection to the idea of scientific paradigm seriously. A "framework" for Sullivan would seem to embody a practical way of working that allows connections to be fostered and developed from within the "attractor" of the object and the creative process (Caplan 2012, p. 4). However the specifics of the process are not laid out as a set of rules or guidelines: the connection of the artifact to domains of inquiry (characterized in relation to Habermas's formulation of "critical, hermeneutic and empirical" domains of knowledge) is the general focus (Sullivan 2004). The (artistic) object is like a focal point or interface through which various repertoires (skill sets), ideas, collaborative logics and connections to the domains of inquiry are present in varying amounts. This allows the researcher to use the object (as a structure or a process) in order to create new connections and elaborate on various ideas as they relate to this focal point.

Margaret Masterman points to the existence of many definitions of the word paradigm within Kuhn's work itself (Masterman 1970, p. 59). She does however acknowledge the utility and explanatory power of the word (p. 59). For artistic research we assert here that the concept "paradigm" is of the utmost importance, whether it be designated linguistically by "paradigm" or other variations of the word.

If we require more evidence that this concept is essential to methodological considerations in artistic research then consider that the very models of design process and method put forward by Schön and others (e.g. Herbert Simon and John Gero) are also to be designated, with some reservations which we detail below, as *paradigms* (Ridder 2007; Dorst 2003). Schön can be read in this manner as establishing the "reflective-practice paradigm" or (more generally) a "design paradigm" (Ridder 2007, p. 55; Dorst 2003, p. 138).

Understanding how the problems of the practice-based thesis are solved is one that involves a set of methods, and further a *framework* within which these methods are

organized. The framework must be coherent within itself and it must make sense across other research approaches.

A less comprehensive approach to defining a framework locates it as a kind of "conceptual framework" (Edmonds 2011). To be useful a conceptual framework must establish a "language" and it must allow other practitioners, researchers or artists to engage with that language. The framework allows other researchers to: (1) follow the reasoning that it embodies; and (2) incorporate that framework into reflective conversation or practice.

A specific research outcome is the development of the framework itself. The framework is not a static structure that remains as a constant within the research. It can be organized and re-organized according to the criteria of making. Furthermore the framework can evolve to a point in which new problems and definitions appear within its boundaries.

As noted, a framework is not considered to be as inflexibly rooted as a paradigm; a framework should have the quality of connectivity built into it. Depending on the definition of "framework", any particular framework could theoretically fit into a super-framework, a super-framework (or perspective) that allows multiple frameworks to be applied to the same work or process. There is no necessity in artistic frameworks to conform to a scientific definition of "paradigm".

Whether a researcher includes the research methodology within a framework is an open question. Certainly the establishment of a "conceptual framework" can be simply a matter of a series of definitions and clarified perspectives (on practice) that foster communication and creative practice. Alternatively, the framework as a kind of "paradigm" might include more complex methodological and epistemological elements.

Regardless of a categorical definition a framework must be able to "do work" within the practice and research. The framework must be internally coherent and it must conform to an internal logic that can be demonstrated and understood by other researchers in the field. In order to make sense to other researchers the framework must conform to various modes of application that allow access and development from external positions. The ultimately pragmatic and inter-subjective foundations of artistic frameworks allows (re)alignments to different, external, frameworks even while logical consistency is maintained.

An example is warranted here in relation to artistic frameworks. A framework based upon the application of motion processes to spectral content in electronic music (for example see Smalley 1997) and a framework based on classical diatonic harmony are not *necessarily* mutually exclusive. One can easily envisage a compositional process in which an exercise in classical harmony slowly mutates into a work based on motion processes or spectral processes. There is no objectively "correct" paradigm which one need conform to in creative practice and artifact creation. The evaluation of such an exercise would require a discussion of the *meaning* of moving between frameworks and the constructive logic that informed the work.

3.2.2 Artist frameworks

In this subsection a brief survey of some relevant artist frameworks and the connections and divergences that can be discerned. The list is not comprehensive and the section does not offer detailed analyses. Rather it is an external perspective on the work of other artists. Such a perspective can highlight conceptual convergences and also show areas that one's research does not make use of (or are under-developed in one's own research). Communication between artist frameworks, and the fostering of such, is a crucial part of research-oriented art and music praxis.

Pierre Schaeffer:

Schaeffer was a French composer that stressed the importance of cross-disciplinary work. Schaeffer was influenced by phenomenology and the epoché (Schaeffer 1977; Kane 2014). Through practicing a version of the Husserlian epoché he organized what he called "reduced listening" (Schaeffer 1977). Influential on a number of fronts for this development and his idea of "acousmatic music" (Kane 2014). Many artists relate their work to the acousmatic music framework, even if often they move towards "motion processes" or statistical ideas. In some ways Schaeffer's work can be related to Greenbergian notions of a "pure" art-form. In Schaeffer's case of course it was a "purified" soundscape.

Iannis Xenakis:

In general Xenakis's conceptual framework was a type of "formalized" music with mathematical foundations (Xenakis 1992). Xenakis used a combination of music, architecture and philosophy in his work *L'egende d'eer* (Xenakis [1977-78] 1995). In that work he connected his compositional and architectural ideas to a philosophical idea from Plato. Modelling "grains of matter and rays of photons" Xenakis's *L'egende d'eer* (Xenakis [1977-78] 1995) made use of "le Diatope" (a pavilion) in Paris, especially designed by the composer for the piece. It is a 45 minute tape piece that makes use of 7 speakers and the unique pavilion space. Similar to the Philip's pavilion but also with new elements. Aesthetically sensuous and complex the work made a great impression on audiences, including various composers. Xenakis combines architectural design, multi-channel realization of audio, metaphors of "shooting stars" and "the music of the spheres" (from Plato's *The legend of er*), light arrays and lasers (Patteson 2010). Xenakis's conceptual framework is, in general, one that is grounded in a formalization of the music making process. The acoustic quanta of Gabor replace the Fourier transform as the best model for representing various kinds of musical data. However the more philosophical and speculative remains alive in Xenakis as a reading of *Formalized music* will show (Xenakis 1992).

Curtis Roads:

Roads is interested in granular synthesis as a technique for composing (Microsound). His conceptual framework is located in a mathematical description of sound (heavily influenced by Gabor) but acknowledges the heuristic of actual practice and the "limitations of formalism" (Roads 2012, p. 20). An important aspect of Roads' framework is his interest in the different "timescales" (Roads 2004). The control over the techniques to produce sophisticated realizations of different timescales is an element of his work. This includes research into the best solutions for performances that make use of granular synthesis. Another relevant component of Roads' framework, related to the concept of timescale, is the idea of the multi-scale approach to composition (Roads 2014).

Denis Smalley:

Following on from Schaeffer and Xenakis but with a new focus. Interested in "spectro-morphology" and the shaping of the musical gesture in space (Smalley 1997). Also critical to his practice is the manipulation of spectral content according to analyses of various motion processes and spatial representations. His work is not purely modeling however, the human gesture is considered a primary component that balances the more abstract acoustic representations of data and computer-based performance. Thus he envisages a play between human gesture and the "gesture" of the machine (Smalley 1997). Smalley gives a list of "types" of spectro-morphology and spatial morphology. In some ways this list is like an electro-acoustic language or grammar: movement towards, movement away, etc. Emphasis also upon *motion processes* (see next entry).

Alessandro Cipriani and Maurizio Giri:

Discussed together here in relation to their teaching method (contained within *Electronic music and sound design* (2010)). This work contains a framework of practice that can be related to the present study. This framework directly points to the importance of the gestalt grouping of perception as a compositional language

(Cipriani & Giri 2013, p. 506). The "little bang" concept in which a listener groups two events within perception based on "event" and "tail" is described in a section on electro-acoustic composition and scoring (pp. 506-507). They provide a list of different gestalt structures (symmetry, good continuation, proximity, common fate etc. (Cipriani & Giri 2013, p. 507)). These are offered as an ontological reading based in praxis, not a representation of the "facts" of consciousness. They also point to the importance of "motion processes" as a compositional framework within modern electronic music. Many of their examples utilizing Max/MSP are structured around "motion processes", with some time given also to generative music, granulation, and beat slicing

Trevor Wishart:

Wishart points to the manner in which an audience can come to understand metaphor in music through utilizing ideas which make sense as "metaphorical primitives" (Wishart 2007, p. 55). Such primitives will be understood by all who hear them and any transformations or morphological changes that occur will take place within a synchronized horizon. Thus Wishart can talk of "sound images" that change into one another and form soundscapes that have some "meaning" outside of a simple play of tones. There is no absolute precision but "…they do form the basis of a meeting ground between musical thinking and a discourse around using sound images as concrete metaphor" (p. 53). Using sound images (aural images) of a bird as a metaphor for flight and then utilizing this metaphor in relation to spoken word ("listen to reason" in the piece *Red Bird*) we can create meaningful configurations (p. 54).

3.2.3 Conceptual framework of the present study

1. The present practice seeks to establish a dialog between music and philosophical text. This dialog will take the form of a blending between domains. Blending between different fields and media is a common artistic practice (from Mussorgsky to Kandinsky to R. Strauss (see Pereira & Cardoso 2002, p. 2; Zbikowsky 2002)).

Creating a dynamic form that theorizes the blending process is a step towards making explicit what is tacitly present in many practices. This is one of the underlying rationales of the present study. The dialog will move in both directions through a process of "visualization". The user "visualizes" how a musical idea can become a musical form and how musical forms might be connected to philosophical thought processes.

Two historical practices are relevant to the present framework: (A) *Program music.* Program music is a type of practice in which an external text becomes an principal aspect of the compositional process and the reception process. The purely formal compositional strategies of motif development are replaced with a more mediated form of expression. Compositional strategies in such work include relating the kinetic qualities of a text to the kinetic qualities of musical expression (see Beardsley 1958, p. 349), and; (B) *Avant-garde practice.* Avant-garde artists integrate philosophical text into the fabric of the creative process. Avant-garde practice produces artifacts that require appreciation on more than one level. The textual component of the avant-garde work is not merely a supplement to the perceived "surface" of the work, it is an essential aspect.

2. The *language* of the dialog between music and philosophy is structured in terms of an analysis of past practices that are deemed relevant. The analysis of past practice is an interpretation of those practices in order to reveal a coherent perspective that will serve as a basis for elaboration. The language makes use of the "symphonic poem" and avant-garde artistic discourse. These are very different types of practice but both emphasize the mediated component within art and music.

3. The concept of "habitus" is made use of in order to explicate the manner in which other practitioners and researchers can make use of the practice. The mediated component of a symphonic poem or an avant-garde "found object" prefigures a complete habitus in which an artist can work between concept and material in a

sophisticated manner. The notion e.g. that the artist is "expressing" emotion to a passive audience is not a guiding principle of the habitus. Certainly traditional modes of expression can also be accommodated within the working practice. It is however the *habitus* within which ideas in relation to musical form are worked upon that is central. The habitus also includes communication between participants (outside of *audience* and *artist* designations) as a significant dimension.

4. The framework makes use of metaphor and conceptual blending theory as a bridging mechanism between music and philosophical text. Conceptual blending offers new ways of looking at the connections between the media.

5. The framework includes various modes of expression / realization. Computation is utilized through coding and GUI creation. The development of philosophical thought processes in music includes the process of coding and interface design. Also utilized are traditional instruments (electric guitar / acoustic guitar) to incorporate the gesture of the body into the artifacts.

The *models of practice* described in chapters 4-7 give detailed narratives of artifact creation within the basic framework. Each of the models will allow the re-organization of the basic conceptual framework. The framework evolves and changes with the research. The models themselves can be understood, from a more extended perspective, as building upon the framework. Some components from the models will become essential to a modified framework as research outcome.

3.2.4 Epistemological reflections

Alexander Baumgarten's aesthetic theories have recently begun to attract attention in relation to practice-based research (see Borgdorff 2011; Slager 2004, p. 12; Sullivan 2005, p. 45). The reason for this interest is based on a reading of his work that points to the importance of a kind of rationality that is "analogous" to reason, but is not

reason itself. This is, for Baumgarten (1714-1762), the "art of beautiful thinking" (Baumgarten [1750] 2007). This is a type of thinking that structures the world according to the local and singular nature of that world. One can understand the attraction to Baumgarten within the practice-based research field. The stress upon a "perceptual knowledge" that is different from (and analogously related to) reason strikes a chord within artistic circles.

Sullivan's discussion of "essentialism" in *Art practice as research* is also relevant here (Sullivan 2005, pp. 44-46). Sullivan highlights the problems with essentialist viewpoints that do not factor in "context" and "situation" (p. 46). Sullivan goes further into a type of historical reading of meaning that emerges from perception-based forms of art. The example given is Greenberg's analysis of Jackson Pollock's painting. To "understand" Pollock one must first understand the language that he is speaking. The "language" of the Cubists is taken up, according to Greenberg, by Pollock et al. and re-organized. This is of course to a certain extent an essentialist position yet it points to the importance of understanding an expression within a context. To understand (an artistic or musical gesture) is to be able to comprehend the language of expression that has been passed down and, then, taken up.

These points are directly related to a practice-based epistemology. The type of knowledge that one can expect to generate from a study such as the present one is knowledge that is organized from within a perceptual base and speaks that language. Such a base is both historical, in the manner in which Sullivan describes it, and also contextual in other fundamental respects. There is of course no single objectively "correct" reading of a work, no complete understanding of what the perceptual "language" is that finds expression within the works of Pollock (or any other artist). However in terms of artistic *practice* one can take up a perspective on earlier working modes and formulate a prototypical "language" in relation to those modes.

Borgdorff's formulation: *Art practice – both the art object and the creative process – embodies situated, tacit knowledge that can be revealed and articulated by means of experimentation and interpretation* (Borgdorff 2006, p. 18).

This seems to clearly state one important facet of the epistemology in relation to artistic research. It does not however capture the entire epistemological structure of the present study (Borgdorff in fact supplements the formulation with an extended discussion of various modes of knowledge, including perceptual knowledge and Merleau-Ponty's theories of embodiment). The type of knowledge that is generated here will be related to practice defined as a series of interpreted contexts that provide meaning on various levels.

Often an artist will not know exactly how the "language" of creation is represented within his/her practice. The tacit understanding of the artist *reacts* to different formal representations and cultural ideas. Practice-based research codifies and develops tacit ideas, and it brings tacit methods forward into the artistic discourse.

The "studio" based form of knowledge will accompany the interpretation of tacit methods. This is to be understood as making use of a *sequence* of interpretations, or, to put it another way, a series of working models that must be applied. Such a "sequence of interpretations" constructs a working habitus that one becomes familiar with through a *putting into practice.* To return to the metaphor of a perceptual "language" described above: one must acquire a language before one can make a coherent utterance. Thus the research can be read as defining a *language* based on earlier expressive forms and passing that language on to the next practitioner. In working this way the artist not only develops a personal practice but also provides an entry point for other researchers and practitioners.

Epistemologically the focus is on the dynamic relationship between *techne* and *episteme* (for a discussion on this distinction see Borgdorff 2006, p. 13). Certainly art

practice is connected to *techne,* and the manner in which one can have a skill (practical and non-discursive). Yet it is the discursive interpretation and the discursive intervention that allow new directions in practice to be formulated. The theory of knowledge that guides the present study fosters the dynamic interplay between tacit and discursive structures. The outcomes will also conform to this basic schema. To understand the research the reader will be required to reference the artifacts themselves, making sense of the different discursive formulations through an engagement with the artifacts.

A quote from Baumgarten is relevant at this point:

§7 *Man mag einwenden: 5) Die Verwirrung ist die Mutter des Irrtums. Ich antworte: a) Aber sie ist die unerläßliche Bedingung zur Auffindung der Wahrheit, weil die Natur keinen Sprung macht aus der Dunkelheit in die Deutlichkit. Aus der Nacht führt die Morgenröte zum Mittag.* (Baumgarten [1750] 2007).

Baumgarten is here pointing to the fact that even the most clear and distinct ideas of rational truth were once also "confused" sense perceptions. This by itself would be unremarkable. However Baumgarten takes a further step and notes that the "confusion" of the senses can be "perfected" (Baumgarten 2007). The perfection of poetic form e.g. is not a rational process but neither is it irrational.

The perfection of sense perception is a technique that can be implemented. For Baumgarten sense representations are not passive, there is a cognitive faculty that organizes such representations (Baumgarten 2007). Perception is an active mode of knowing the world and not merely food for the higher cognitive faculty of reason. Tone Roald describes Baumgarten's idea of perception as something that can be "perfected" (Roald 2015, p. 28). He writes: "One can perfect this mode of knowing the world through the arts…(A)esthetics should concern itself with delineating the rules for this perfected perception" (pp. 28-29).

Baumgarten holds also that great art can reveal a perfect sensory knowledge, it is a "sensate discourse" (Roald 2015, p. 28). This idea rescues poetics from the "irrational" and makes possible a type of clarity in relation to the senses. Poetics is the perfection of sense perceptions in representation (p. 28). In the present context one cannot offer a complete discussion of this kind of theory of knowledge. Baumgarten's discussion is wide-ranging and this introduction to it is necessarily two dimensional. However if one observes the elements of practice-based research itself, the kind of structures and knowledge configurations therein, there are definite parallels worth highlighting.

The creative element in practice-based research changes the focus and structure of research categories in comparison to the categories of the physical sciences. If the researcher were just interpreting phenomena then the "logic of perception" would simply be something that one should take note of insofar as there are ways that perception can alter the empirical world (changing or distorting the facts). However there exists also a kind of perceptual logic that is not captured through purely objective means – and this can include the culturally specific organization of sense data. In such cases one would require an interpretative methodology in order to see and acknowledge different perspectives. Helmholtz continuing a tradition of "psycho-acoustics" identified strongly with the perception-based elements in the analysis of tone, pointing to the fact that the two worlds (acoustics and psycho-acoustics) are not exclusive (Helmholtz 1954). There is naturally a different emphasis in respect to the status of the knowledge generated between (1) acoustics (as physics), (2) psycho-acoustics and (3) artistic research. With artistic research the "Logic of Perception" is something that can be fostered and organized rather than merely explicated. This is related to the art of "beautiful thinking" that is *analogous* to reason (Baumgarten 2007).

A concrete example from the present research is warranted at this point. In the creation of an artifact or musical piece the artist can claim that he or she organized a work in relation to the "logic of perception" and, further, created something "exciting and new". This is merely an aesthetic judgment, but it also can be significant and indicate an actual experience (on the part of the artist or an audience).

However through reflection and creative iteration one can also point to more *measurable* advances in technique. In such cases the work is understood to be effective and has led the research to a certain place identified in relation to the conceptual framework. We can also say that when interpreting this new work the emergent logic that is present is not judged merely esthesically (i.e. from a reception-based aesthetic). It is in fact a logic that can be pointed to explicitly outside the aesthetics of an audience. A "result" such as this can be read as: (1) defining a set of criteria that are coherent within the developing material *language*, and; (2) creating an artifact that adequately satisfies these criteria.

Artifact CT (see chapter 6) uses philosophical metaphor to structure a series of creative processes. The manner in which the process of creation unfolds is organized through a series of reactions to the artifact's developing form. The focus is upon revealing a form or gestalt that is not necessarily tied to (or reliant upon) a positive aesthetic judgment. The kind of concrete "results" one would expect in such an artifact will be sketched in below. Briefly put: to effect the listener's perception in such a way that the overall gestalt of the piece (in relation to its harmonic content) is changed – this is a return for the research. An artist cannot argue that this is "successful" or "not successful" aesthetically, rather the point is to construct a form that shifts the listener's grasp of the "meaning" of the work in a concrete manner. To "play" in the space between the comprehension of (1) the harmonic logic of a work and (2) complete formlessness, is to delay comprehension of the harmonic logic even while retaining its outline. A more detailed analysis of artifact CT is offered in chapter 6 of this study.

In terms of the epistemology of the present research a couple of final observations are warranted. The knowledge generated in the experiment sketched in above is knowledge of "making". Philosophical metaphor is used to create an intervention that *shapes* the music. However this intervention is not the final point of the process. The shaping of form leads to a changing of *gestalten* within the work. The perceptual logic that governs the piece in relation to diatonic harmony is played against one in which abstract forms are paramount. The knowledge of making within a specific conceptual framework becomes also a more intimate psycho-acoustic (aesthetically governed) process.

In many ways the type of knowledge that is generated here is based on a "perceptual language". Yet it includes theory and philosophy as components in the artifacts and also within the making process. The research is "idiographic" in the sense that it is about one (individual) way into a creative process, yet it allows other practitioners to make contact with those processes in a meaningful way (see Kjorup 2011, p. 29; Griffiths 2011, pp. 181-182). The similarities between frameworks and practices opens the way to discourse and interaction between practitioners.

3.3   Research methods

A brief introduction to the actual methods of inquiry is appropriate at this point. The state of the art (Chapter 2) is presented as an analysis of earlier ways of working that are perceived as essential to the present study. The very fact of a connection between music and philosophy is itself an important "ground zero". Showing such connections and then pointing to the different methods that have been employed to realize them pre-figures the development of a method (or a group of methods). A brief overview of the methods of approach in the present study is offered below and is set out in a table (table 1).

Table 1: Overview of research methods

Artifact creation (process of creation and interpretation of finished works).	Case studies / contextual analyses.	Application (re-purposing) of specialized fields to the research problem (example: Conceptual Blending Theory / CBT).
Performance /compositional practice. Electro-acoustic music and improvised guitar. Reflection-in-action, reflection-on-action.	Use of earlier practice and solutions in forming strategies for solving the research problems.	Use of "conceptual integration networks" for explanatory power.
Documentation / analysis of application of processes to instrument management (stylistic / improvisational logic / harmonic structuring).	Forming prototypes out of analysis of earlier modes of working.	Use of formalized terminology in relation to blending processes.
Use of computer software to design the applications to implement the philosophical metaphors as music.	Analysis of earlier practice in order to identify research gaps.	Re-tooling of basic CBT tools in order to meet specific practice-based requirements.
Philosophical writing and thought processes in relation to key areas in relation to organizational frameworks ("paradigms" in a specialized sense). Application of theory.	The identification of past solutions that could be enhanced, modified or completed.	
"Toolbox" application of processes / Scale and focus of metaphorical (bridging) mechanisms	Establishing a "language" in relation to the field (codification).	

The 3 methods of approach (and the internal components) taken together allow the research problems to be organized according to a complete logic of method. The process of artifact creation could be questioned in this context: is the creative process itself a method? As noted in the introduction the present study is interested in contributing to the knowledge of "making". This aligns the process of creation with the research process proper.

Some of the particulars of the methods outlined above will be formulated as part of the analysis of the artifacts themselves. In the present study some generalized discussion on method occurs in the methodology chapter, and elaborations on this general discussion are taken up in relation to an analysis of particular artifacts. The heuristic nature of some of the working practices does not sit well within closed abstract descriptions. The construction and utilization of systematic procedures of composition are formed in relation to real-world application and complexity. In real terms the research outcomes are founded in a type of studio-based knowledge. Bolt calls this kind of knowledge "praxical" (Bolt 2004). This epistemology is ultimately one that is grounded in a *logic* of perception (see section 3.2.4).

The ongoing and evolving nature of a research methodology is termed by some the "emergent methodology" (Gray & Malins 2004, p. 72). We could also call this a *process* (more generally) or a *developing* methodology. In the present context "process" is a good fit, and "developing methodology" is also used. This will reserve "emergent" for elements in the structure of the artifact. The word "process" is also utilized in relation to "creative process" and "compositional process". It is usually obvious from the context how these designations are being used.

As noted, the literature on research methods in the creative arts points to the importance of "emergent methodologies" (Gray & Malins 2004, p. 72; Rolling Jr. 2010, p. 110). Gray and Malins hold that the "research strategy grows and unfolds from the practitioner's interaction with the research question and context" (p. 72).

This "unfolding" strategy is an essential component of the present study. The development of the research from a loosely theorized "projection" into a focused development and analysis of practice is central. The evolving meaning of the artifacts, the iterative movement from one state to the next (in terms of process), the reflection-in-practice: all of these are documented as a developing methodology. The idea of "revising" the history of process to create a contained, discrete, solution is not part of the present study's working mode. The history of creative "moves" and the theorization of such is an essential component in the working process, and ultimately the research outcomes. The narrative of process becomes the working models – the models allow other researchers and practitioners to interface with the conveyed *language* of making.

In this study the concept of an "emergent methodology" has been replaced by that of a "developing methodology" or simply "process". The basic premise is the same. The artifacts are part of a developing understanding, a logic of practice, that unfolds over time and within a particular approach to practice-based research. The approach or strategy is one in which the researcher moves between artifact creation, analysis, evaluation and iteration in order to continually develop this logic of method.

From the brief discussion here it can be deduced that the methods of research will reveal pragmatically aligned outcomes. There is no claim in relation to these outcomes that they are "objective" or the only possible perspective on the problems that they "solve". The construction of a coherent perspective that is based on established creative processes (in relation to music and philosophy) provides a plausible set of problems to research. The end result of this "constructivist" process are research outcomes in the form of new procedures. The general focus is one that is heuristic and which seeks to organize computation, compositional activity and creative activity in a coherent but ultimately negotiated manner. This is also true in relation to the epistemological status and grounding of the knowledge. It is the status

of knowledge as a "right to be sure" in Ayer's sense that underpins the strategies of artistic-research (Ayer cited in Candy 2006, p. 5).

The idea that one systematic abstraction, or even a series of such abstractions, could reveal compositional and creative process in relation to the problems addressed by the present research is not realistic. This is not to say that systematic procedure is irrelevant: on the contrary, systematic abstractions (utilized to define and manipulate practice) are important to the study as a whole. Such abstract working processes are, however, always understood to be heuristically aligned to perception and practice-based processes. The composer Philipe Manoury describes the role of algorithm and system within composition as he perceives it, a description that has relevance to the present methodology:

...what should be the role of algorithm within the totality of a work? The attempts at total axiomatization of musical discourse have been rich in lessons in this regard: they betray the role of the system in what we have imagined, and above all the void which exists between this and what we had hoped for (Manoury 1984, p. 153).

The "a priori" approaches to creation surely have a place in the overall scheme of electro-acoustic music. However it is the flexible and heuristic ways of working that seem to be most successful (Roads 2012; Manoury 1984). The concept of "putting a theory into practice" does not seem to capture the more dynamic and iterative nature of the process of electro-acoustic composition or, more generally, artistic practice.

3.3.1 Research phases

The present research is formulated and developed around a series of artifacts that are divided into three main groups. The groups are designated "phases" in recognition of the different research phases each group developed from. The concept of a phase is useful in the present context for a variety of reasons. In this subsection an

introduction to the main phases of the research and the importance of reading the artifacts in relation to these phases is offered.

Figure 3: phase 1: the collage approach. Initial ideas. Phase 2: the iteration based upon interpretation that is informed by contextual review and revised theoretical understandings. Phase 3: refined methods that foster research into the problem via various perspectives.

Artifact names and abbreviations:

Phase 1:

Artifact: *Transforming gestures (parts 1-3).* Artifact TG1, TG2, TG3.

Artifact: *Stopping the world.* Artifact STW.

Artifact: *Fragmenting reality.* Artifact FR.

Phase 2:

Artifact: *Wasp and orchid.* Artifact WO.

Artifact: *Spectrality.* Artifact SPEC.

Phase 3:

Artifact: *The philosophical concept of beauty.* Artifact OB.

Artifact: *The constellation theory of knowledge.* Artifact CT.

Supplementary Artifacts:

Artifact: *Glass bead.* Artifact GBD

Artifact: *Flight.* Artifact FL

Start Time	Feb 20 2012

Year	2012						2013						2014						2015						2016
Month	Jan	Mar	May	July	Sept	Nov	Jan	Mar	May	July	Sept	Nov	Jan	Mar	May	July	Sept	Nov	Jan	Mar	May	July	Sept	Nov	Jan
Phase One	Transforming Gestures Parts 1,2,3																								
	Text: Tolkein																								
		Stopping the World																							
		Text: Husserl / Castaneda																							
			Fragmenting Reality																						
			Text: Debord																						
			Dialectical Gesture																						
			Text: Various																						
Phase Two							Wasp and Orchid																		
							Text: Deleuze and Guattari																		
								Spectrality																
								Text: Derrida, Abraham and Torok																
Phase Three													Philosophical concept of beautiful												
													Text: Kant, Shaftesbury, Cassirer et al.												
																		Constellation theory of knowledge						
																		Text: Adorno, Proust, Bowie et al.						

Figure 3 Research phases

The phases are represented in figure 3, phases 1, 2 and 3. The most developed version of the practice is to be found in phase 3. However it is useful to give some time, in terms of analysis and evaluation, to all the phases. The development through the phases allows models (frameworks) to be constructed that will communicate with other research in the field. It is the logic of the development which allows a coherent (understandable) entry point to the work. The motion between the phases allows a narrative to be developed. The narrative of the artifacts allows a description of the important components in the research to emerge naturally. The bridge between various ideas and insights is located in the development through the creative process. The components that structure the framework cannot be articulated without reference to the artifacts and the process of development they bear within them.

It is with these points in mind that we can divide our analysis into sections as indicated in the timeline. The different phases of the research will be described in chapters 4-6. The narrative of process that is described within each of these chapters is to be understood as representing a "model of practice". This knowledge is like a "history" of the research in which the thought processes and iterative logic of the practice are articulated as a narrative. This narrative is formed around, and is made logically coherent, through its attachment to the artifacts and the making process.

Paul Caplan - describing Sullivan's position concerning the artifact within the artistic research process - observes that creative practice can be conceived of as an "attractor" (Caplan 2012, p. 4). The central attractor (the creative practice), in itself "multiple practices" (p. 4), acts to pull the complex system into a stable form. From this perspective we can perceive the "phases" (1-3) as a series that touches upon, and attracts, different expressions of knowledge. Without this central force of attraction the research would be disjointed, lacking a binding force. It is essential to such research that the practice connects the constellation of ideas and outcomes, replacing the paradigm of an all-encompassing descriptive system.

3.3.2 Evaluation

The criteria for the evaluation of this kind of research is generated by the artistic researcher / practitioner and also by the nature and context of the project. It is not entirely subject to positivistic criteria nor is it to be understood in terms of aesthetic success. The criteria by which we judge the results of any research must take into consideration the original research question, its aims and objectives, and be negotiated through critical self-assessment, dialogue with peers (acknowledging multiple perspectives), and taking into account the evolutionary nature of the research (Malins et al. 1995). In this section a brief introduction to "evaluation" in relation to research outcomes and artifacts produced by the research.

Andrew Brown and Andrew Sorenson (2009, pp. 153-165) describe some elements of music research that are relevant here. They hold that the importance of live coding and audience acknowledgment of performance is crucial to the overall research. The "reality check" of performance is taken to be just as necessary as the review of ideas through peer review processes (p. 158). In this we can see what amounts to a kind of tension, or even contradiction, between research and performance. The importance of aesthetic judgment from the practice-based researcher him or herself can perhaps be "sufficient" (p. 160). However the authors point to the fact that external aesthetic opinion keeps in check the potential for obsessing about political, theoretical or philosophical "threads" (p. 161). The "immediate feedback" (p. 161) of the performance allows the artists to gauge the audience's reaction to the perceptual content. The authors recognize that aesthetic judgment is an "imprecise measure" (p. 160). The divergence of aesthetic opinion means that the artist(s) must hold also to the internal logic that guides him / her (them).

Many popularist positions on evaluating art or music point to the fact that every judgment is "relative" (Dahlhaus 1982, p. 85). Dahlhaus dismisses this position in his *Aesthetics* (Dahlhaus 1982). He points out that it is precisely the entering into the

aesthetic fray, as it were, with a knowledge of the tools that are required for such makes an evaluation mean something (p. 86). Purely subjective evaluations which take place outside the historical dialectic of aesthetics must at least acknowledge this externality.

If one judges an artwork purely on the artistic logic that organizes it (internal logic) one might be able to judge something "successful" but still not be convinced personally of its worth (subjectively negative aesthetic appraisal). Another judgment added to this original judgment might focus upon the craft / technique within the work – perhaps finding it successful on this level. If, of course, this fluent technique conflicts with the internal logic of the work then one might find this problematic to the work as a whole. Picasso's drawings are often described as dispensing with traditional canons of illustrative competence in favor of an internal logic that re-organizes how one must approach them (see for example discussion in Penrose 1981, p. 307). Yet one cannot simply dispense with those canons and suddenly be Picasso's equal. Similarly Basquiat is described as having a "primitivistic" and "child-like" style on the one hand, and a sophisticated and "semantically complex" style on the other (Amand 2013).

The discourse of aesthetic judgment is the revelation of the judgment in its complete form. As evaluative dialogs unfold two different judgments might be made to speak to each other (Beardsley 1958, p. 482). The subjective appraisal "I don't like it" has no value in such dialogs and is indeed invalidated. The logic of a statement that does not attempt to come to grips with the various elements of evaluation in relation to the criteria and milieu of the work is two dimensional. Identifying how and where evaluations diverge and converge leads to a synthesis at a higher level (Beardsley 1958, pp. 470-489).

How does one evaluate the artifacts within the research context? One way is connected to the ideas we have briefly sketched in above. The aesthetic success of a

work must take account of various levels of approach and, also, aesthetics itself as a field. Another way is to assess how the works have re-organized the artist's practice – has the internal logic that guides the practice, this includes the status of music or art in themselves (ontology), been altered and enriched? This is certainly an element within the continuing development of the process, the artist evaluating each exemplar and discovering something beyond purely sensuous gratification therein. The evaluation must include the success on the level of "uncovering" a new perspective on the research questions. Does the work succeed on this level of pushing the research forward? Does the work change the manner in which one approaches the practice, and indeed the manner in which one understands the entire definition of music (or art)? If one can point to a clear re-definition in relation to fundamentals as experienced by the artist then one must judge the work, or a series of works, as a success. The objection to this line of reasoning is that the "success" of a work (or works) is based on a purely internal logic.

Some points of clarification seem warranted based on these introductory remarks. Evaluation is, in the context of the present research, not to be understood simply in terms of the aesthetic success of a particular work, its evaluation as "good" or "bad". That is not to say that - in the extended iterative process that the research is involved with – there are not evaluations of this kind. The artist must constantly make an assessment of a work in order to decide to continue a process (or to change its direction). Thus we have an analysis of the aesthetics of evolving works as an essential part of the process as a whole.

Certainly this *aesthetic success* sense of the concept "evaluation" becomes part of the models that the research produces. However we must point out further, and perhaps related senses of the word "evaluation" in the context of the research. Evaluation must firstly engage with the research goals themselves. In this it must be understood to assess the various goals of composition or artifact creation in terms of the criteria supplied. This is the "internal logic" of the process. Thus we might have a situation

in which one realizes various goals in terms of satisfying criteria, but in which an audience does not find aesthetic interest. One might say in this case that the internal logic of a piece is satisfied, whereas the aesthetic judgment of the work by an audience is not satisfied. There are numerous examples of this kind of tension in the history of art and music. Some music is taken to be "not music" when first heard (for example Stravinsky's *The rites of spring* or the work of Schaeffer (Nattiez 1990)). Nattiez describes this historical transformation from the "noise" category to the "music" category in his work *Music and discourse* (Nattiez 1990).

The successful construction of an internal artistic logic can be judged on various grounds. In the present research there are various elements which can be evaluated in terms of such an internal research logic. For example, turning now to the artifacts created during the research there are some obvious points of reference. In terms of an internal artistic logic the satisfaction of criteria related to the solving of compositional problems can be evaluated.

One such problem encountered in the research was the construction of complex chords within a composition. Exotic tunings and the use of complex chords can lead to "beating" within partials that might be deemed to contain "roughness" (Sethares 1992). Such a result can be approached through the design of an application that can tune out partials throughout the internal make-up of the chord. This was actually perceived as a problem within the present study and the "Harmonic synth" was designed to solve it (see chapter 5).

The purely internal (compositional) logic contained within this example can be extended into a more generalizable area. Examples of the *Harmonic synth* in action can be judged by other artists through interviews. Such a process is to be understood as a dialog based on externalizing the internal compositional logic. An example of a question (within the actual interview setting of the research) relates to a judgment made by the interviewees based on a particular audio example. The interviewees

were asked which of two examples of a recorded chord expressed the concept "controlled" more effectively? The answer, though "subjective", was useful in opening up the internal logic of the composer / artist to external forces and opinions. Such interviews can be read as creating a dialog which allows the researcher to externalize problems and solutions, and which can lead to new insights about those problems and solutions.

Another component of the *Harmonic synth* that can be evaluated in research terms is the manner in which the design of the GUI / application relates to compositional criteria. The *Harmonic synth* has, as a basic function related to the artifact WO, the ability to construct complex chords with control over the beating of partials and "roughness". The construction of chords itself requires a GUI that works within various constraints. The dials of the UI are constrained to allow the partial only a certain amplitude and no more. The user can turn partials up and down within certain defined boundaries, this allows a control over which partials are present without the possibility of re-defining the *fundamental*.

A "problem" of composition can emerge from an analysis of the lineage within which one works. The state of the art section in this thesis is to be understood in this context as the definition of a series of problems that the present study "solves". In actual fact the more modest outcome of creating a coherent utterance within a musical language is the starting point of the research. Significance in research depends on identifying research areas that are agreed upon by a community of peers as having one or more determining factors in common with an established tradition.

The other points of contact in evaluation are based on external components. Design criteria ("for" a purpose), aesthetic canons (form, unity etc.) and technical considerations. One must decide which of these external elements are relevant in relation to evaluating the works, and also the evaluation of success in terms of

research goals. Can there be an aesthetic success that is a failure in terms of the research? This we have answered already.

This section emphasizes a nuanced version of the concept "evaluation". Evaluations can be required to understand both the internal logic of the work (which can include the research objectives) and the injection into the discourse of aesthetic evaluation. On the research side the *conceptual framework* (and its connection to constructing a significant dialog) provides trustworthiness in terms of identifying problems and creating discourse. The trustworthiness of the research is related to the significance in regards an established context.

In relation to other frameworks understanding is also essential if one is to collaborate or do performances based upon a musical score. This highlights the importance also of the framework in relation to each piece *in addition* to a score.[8] The evaluation of a piece of music by the artist in relation to performances includes the framework of the work as a whole. The method of research must be described in reference to other frameworks or the score must include these elements within it that clarify how the work is to be understood as a whole

---

[8] An example from the literature is relevant here. An article on "Techne" in music (Manning 2006) describes a story told by Stockhausen - a story related to the re-working of his piece *Kontakte*. A group of practitioners re-worked the piece using a computer in 1972. Stockhausen described the work as a "farce" (p. 89). His reason is that they misunderstood the "micro-tempi" and just reproduced the basic sound objects of the notation (p. 89). The working of his internal logic (his framework for the piece) was not taken into account. The physical actions (using tape machines and spinning [physically] loudspeakers) that produced what might have been seen as "imprecision" were in fact the crucial components of the work; the computer was not able to reproduce these (in this case). It is essential to see that the artist's framework was not clearly delineated in the score – at least it was not understood by the Stockholm studio that re-worked the piece.

The criteria for trustworthiness in relation to the research: the criteria of a piece (artifact) must also be measured against the connection to other frameworks and other perspectives. For a discussion on the manner in which trustworthiness of research relates to the generalizable, and transferable, nature of the research see Gray and Malins (2004, p. 130). The authors argue that complete agreement is not required of other users, peers and readers in relation to the research: "We work towards shared approaches and being able to speak the same research language, whilst not necessarily being in complete agreement!" (p. 130).

.

3.3.3 The research process
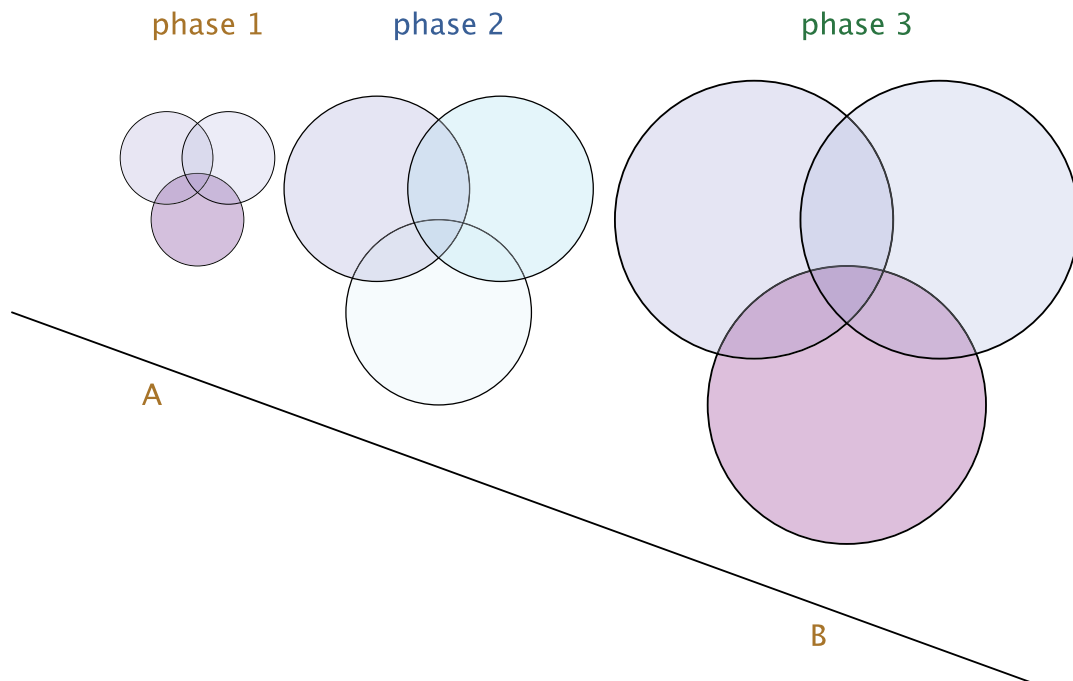
Figure 4 The three phases

In this section an introduction to the research method will be provided in relation to artifact production. The manner in which the artifacts are produced is one that embraces a development through various phases. These phases were introduced in section 3.3.1 but further elaboration of their role in the research is warranted. In the following chapters the analyses of process will be formed in relation to the 3 research phases.

In figure 4 the different phases (1,2 and 3) are depicted in relation to the course of the research (from "A" to "B"). Each of the circles represents a "model" and each of the groups represents a distinct phase. The three Venn diagrams show the development

of the models through the research (phase 1, 2 and 3), each phase requiring the previous phase, as steps in an evolving process.

Conceptual
Framework

Model 1   Model 2

Z1
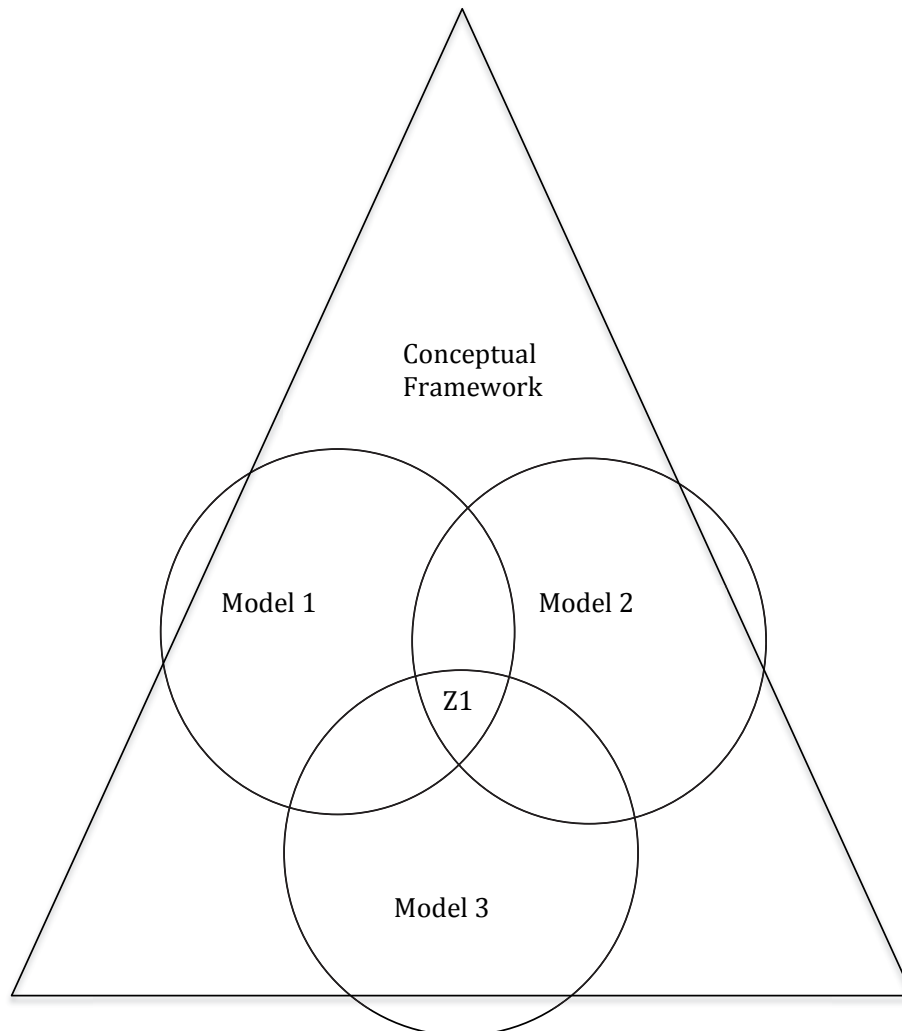
Model 3

Figure 5 Framework and models

In figure 5 the models (1, 2 and 3) are depicted in relation to the conceptual framework. It is clear from the diagram (figure 5) that the models are contained within the framework up to a point – there are however elements outside the framework with each model. The internal section "Z1" represents elements that can be generalized from the models as a useful summary of key practices.   These

diagrams introduce the structure of the research in a very general way. Each of the phases will have a specific character in relation to the process of making itself. This "character" will emerge throughout the narrative of process. The grounding of the development through the phases, the ground zero, is the research method depicted in figure 6 below.
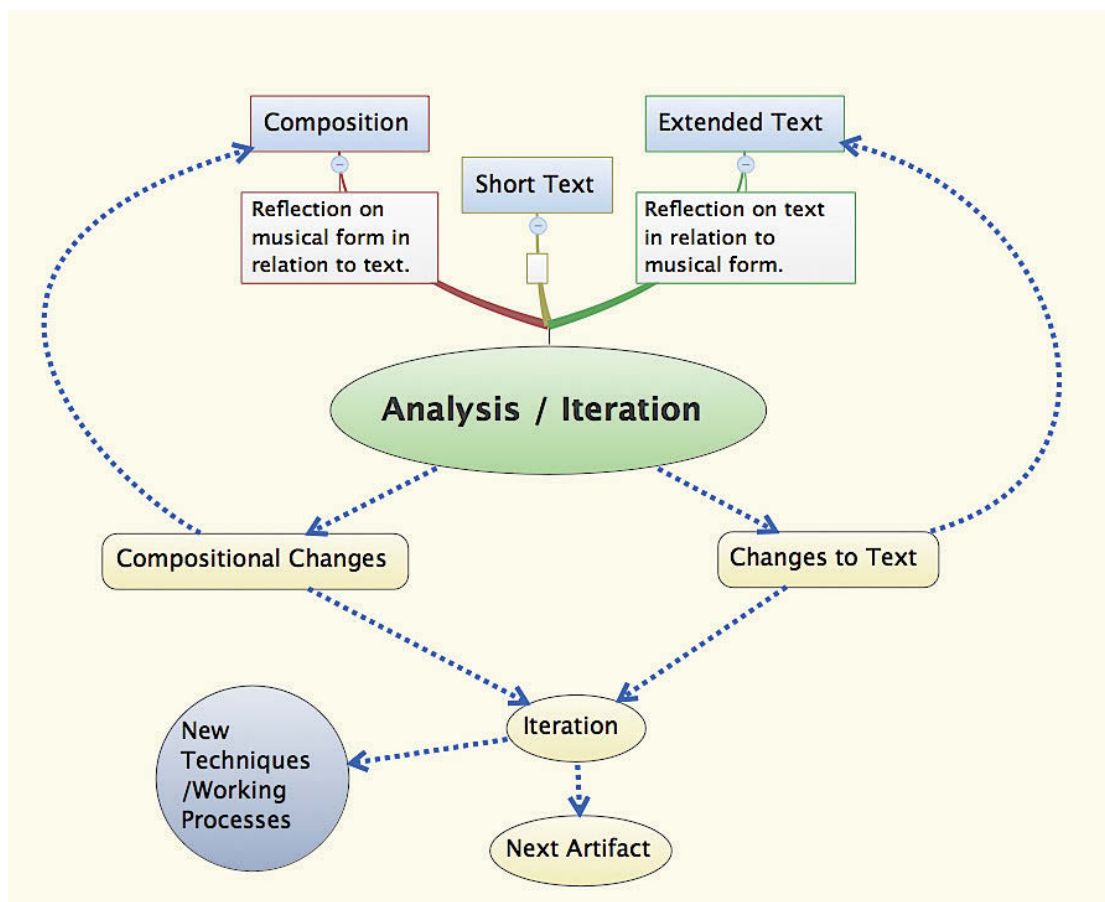
Figure 6 The research method

In figure 6 the square boxes under the areas of "composition" and "extended text" point to the reflection on the status of one aspect of the artifact in the light of another aspect. The "musical composition" must be reflected on in relation to ideas unveiled in relation to the "extended text" (and *vice versa*). In the terms of each individual artifact the actual meaning of this relationship will change. However it can be seen in the diagram that the dynamic and interactive relationship between the parts is integral

146

to the method. There are certainly blind spots in the basic method that figure 6 represents. How does one break from the cycle of interpretation and iteration? As the research progressed this basic method was refined and developed – the creation of new methods and processes (represented by the grey bubble in figure 6) led to refinements and more sophisticated explanations. The concrete application, explication and development of the method represented in this diagram is contained within the analysis of the artifacts themselves (chapters 4-7).

It is useful at this stage to re-iterate the manner in which the research methods are perceived to be addressing the research questions. The research method, as described above, is "multi-method". This characterization is one that points to a series of strategies that the researcher utilizes to illuminate the object of inquiry. In the present case the inquiry is centered on producing knowledge in relation to "making". Thus we perceive a particular emphasis is to be laid upon the method of creation, or *the narrative of process*. The narrative of process is one that develops over the course of the research, yet it is not merely information that once gained is of no further use. The narrative contained in this study is, metaphorically speaking, a pathway into the cross-disciplinary habitus. It can be written here that each narrative of process (in relation to a specific artifact) is in fact a working "model of practice".

In the preceding sections it was pointed out that the knowledge would be organized as relating to a "perceptual base" and as fundamentally practice-based. This concept is essential to an understanding of the kind of knowledge that is being generated here. It highlights also that in regards to the three main research methods described above (in section 3.3), it is "artifact creation and analysis" that is most vital.

Are artifact creation and the methods involved in artifact creation research methods? In the present case it is important to stress some of the bases and ground-rules that inform the methodology being applied here. A central epistemological component of the present study is the status of the knowledge generated as "practice-based". That is

to say, the knowledge is of a kind that is significant to other practicing artists. The outcomes are however not circumscribed in any absolute fashion: it is conceivable that the habitus, as it is envisioned, could be made use of by professional philosophers in collaboration with musicians. However the research is focused on the area of developing a particular type of practice. It will be noted that the practice involves theory: musical theory, creative support tools theory and metaphor theory (to name three instances). Surely there is more at stake here than the continuation of a perceptual language passed down from artist to artist. Indeed: the knowledge that is generated here can be understood as codifying and explicating the perceptual and intuitive components of a practice.

It is at this point that we stress the concept of *practitioner reflection* (Schön 1983). A brief introduction to Schön's theories was offered above in sections 3.1.1 and 3.1.3. His conception of the "design studio" was identified as crucial to the study. The design studio is an environment that allows a type of creative activity in which many elements of repertoire and tacit understanding are utilized. Yet the concept of "reflection" is fundamental: the tacit procedures are taken up and refined through analysis and evaluation. To reflect upon the process of making, while one is involved with making, generates discourse and, ultimately, research outcomes.

In the present case the research will provide answers to other artists and researchers in relation to an established research area. The "area" is taken to be *significant* (as research) in the sense that the state of the art reveals an area that is both *actual*, and, that can be *developed* further. It is therefore essential to understand the process of creating the artifacts, the various elements that go into the creative process, and the analysis of the artifacts in the light of the unfolding process.

The type of artwork that is being researched in the present study involves music and philosophical text. It makes use of music software programs and traditional musical instruments. It also constructs interfaces (GUIs) as part of the process. There is also

an emphasis on mapping different domains onto one another. This group of concerns - and the list is by no means exhaustive - shows that the process is complex. It is difficult to explain to another artist or researcher how one manages the different aspects, how they balance each other, and what the roles of each are definitively. The actual make-up of each artifact will shift in relation to various internal concerns. In order to address this the *models of practice*, each one formed as a narrative of process, will reveal the more detailed making process. The analysis of the artifacts can be understood as a kind of diary of process (narrative) that allow other practitioners to: (1) identify the language being spoken, and; (2) follow the procedures step by step. The interpretation and analysis of the artifacts (and the creative process) will demonstrate a mode of creation that is a contribution to the knowledge of making. In section 3.2.4 a more detailed description of "making" in the present context was offered. As noted above in relation to the research epistemology:

The "studio" based form of knowledge will accompany the interpretation of tacit forms. This is to be understood as a sequence of interpretations, or, to put it another way, a series of working models that must be applied. Such a "sequence of interpretations" constructs a working habitus that one becomes familiar with through a putting into practice (section 3.2.4).

The rationale for stressing preliminary or initial solutions to problems should be addressed. The research outcomes will not provide one final solution that is perceived to best exemplify working between music and philosophy. The research outcomes are embodied in the entire process of working between these poles. Even as the method and methodology evolves in the course of the research the individual steps are taken to be important for other practitioners. The habitus as a whole involves moving from one area to the next in a stepwise manner. In terms of other practice-based types of knowledge one can perceive a similar structure. There is no advantage to playing Bach's *Chaconne* without first learning a basic scale and how one produces a tone on

an instrument. It is in fact detrimental to a player's development to attempt only to play in the most sophisticated and advanced manner.

Some final deliberations on the "research method" itself are offered here. In the present study the method of *making* is related fundamentally to the method of *research*. The research is focused upon solving problems related to the making process. The questions and problems that are raised are fundamentally those related to this making process. The graphic offered in figure 6 shows how the artist approaches the "making" of the artifacts. Yet this is not incidental to the research itself: the knowledge that is generated will be precisely of this "idiographic" type. Figure 6 represents a fundamental component in the research method. A more detailed description of the genesis and ultimate meaning of the graphic in figure 6 is undertaken below.

Figure 6 above shows the first iteration of theory based on the initial artifact creation (*Transforming gestures* hereafter "TG"). The graphic points to some components that were perceived to be important in relation to this artifact. The detailed analysis of TG is taken up in the following section but a brief discussion is warranted here. The graphic in figure 6 was organized after the recording of the musical component in artifact TG. The interpretation of the artifact (the musical component) led to a thought process that generated the graphic. The striving for a more structured and transparent mode of working is apparent in the content of the graphic.

The initial step in the process was based on structuring the artifact in a particular way, namely with three levels or elements (figure 7). The three elements: musical composition, long philosophical text, short poetic text (as program).

Music composition	Philosophical text / synthesis	Short program text
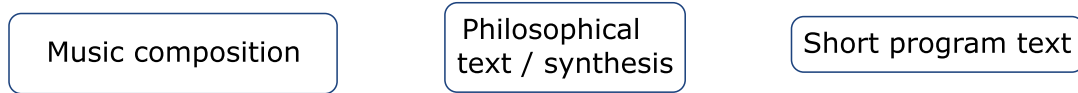
Figure 7 Structure of the artifacts

At this first stage the connection between the philosophical text and the musical composition was un-theorized. The process was approached as a kind of collage of the three elements. A great deal of thinking had already gone into the idea of the structure of the artifacts, but the theorizing and elaboration of how these parts would interact with each other was undecided. The background knowledge and *repertoire* of the artist was understood to be organizing the process as a whole. We can describe this process as a kind of projection of the type described in the introduction to this chapter. That said there were certainly earlier conceptual explications connected to the author's creative practice which give some strong indicators of the research outcomes in the present study.

The original blueprint for TG made use of a variety of historical precedents and some personal creative history to put together a "first creative gesture". The author researched the work of Duchamp in relation to the connection between art and text. Previous research – a Master's thesis in composition and music technology at EMU / Elder Conservatorium – was also instrumental in forming the initial blueprint. At this stage referring to the works realization and its initial theory construction as a "blueprint" is warranted. The work really did have a more static structural objective and the idea of a developing method was only just impressing itself upon the researcher as a present component.

The collage approach could only take the musical expression so far; the reliance on already established patterns and repertoire can, in some cases, be experienced as a problem in trying to break new ground. In this particular case the artist had already

spent a lot of time (as a practicing recording artist and as a researcher) working through music in a purely intuitive way, or working with conceptual ideas without changing the compositional process *consciously*.

In describing TG we must point out that the method does not describe how background knowledge is applied to various facets of the problem (the creative process as a whole). That is to say it is more important at this stage to assess in what way a research problem and a research idea was formed through an analysis of the piece. As Schön has pointed out the application of different background knowledge and skill sets, and the use of appreciative systems to inform one's decisions is not exhaustively characterized in a method (Schön 1983, p. 271). The research in the present context accepts that there are a variety of components in each artifact which are governed by processes external to the research *per se*. The research itself is concerned with those areas and structures that are specifically available as research objects. This can be understood as setting a scope for the research.

The reflection on the practice that is undertaken in chapters 4-6 describes a connection between tacit (intuitive) processes and the processes that are governed by theory – at least in the sense that theory and creative process will form and re-form each other in this realm. The existence of the intuitive and tacit components in the creative process and the attempt to reach through these and reveal through analysis worthwhile research goals is part of the working method. Analysis and interpretation are the most important aspects of honing a research goal at the initial stage. More generally, the goal of artifact interpretation is to find within the artifact a structure that makes sense as a process that can be elaborated upon and shared.

3.3.4 Interview technique and method

The present study is concerned with the construction of models of practice for artists and researchers. The models are not to be understood as *either* purely expression-

based *or* dynamic networks of interaction. The models and the framework allow re-organization of working practices in relation to specific artworks. However it is also certainly true that the dialogic component, the structure of *habitus,* is essential to the work. This idea requires that some time be given to opening both an *internal* dialog with philosophy and theory and also an *external* dialog with other practitioners. It is in relation to this external component that the interviews are to be understood.

The interviewees in the present case are five professional artists. The definition of "professional" here includes both "real-world" artists outside of academia and artists working within academia. Two of the artists were outside of academia and three of the artists were working inside of academia.

The interviews are organized in a semi-structured manner. A series of questions are posed to the interviewee and various possible answers can be given including more analysis-based answers. The questions that were prepared for the interviews are reproduced in appendix 2. The questions are a way of allowing the researcher and the interviewee to begin to speak about concepts that the researcher deems central. Whether these are "central" in any way outside of the research is related to how the results of the research emerge. Questions that are posed are to a certain extent entirely subjective, and relate to aesthetic and psychological judgments of the participant. An example of a question from the interview: *which of two sounds better represents the concept "complex"*? This is obviously a question without a right or wrong answer. A participant could theoretically ask: What is the definition of complex here? What component of the sound are you referring to? The envelope or spectral content? The participant is certainly allowed to question the rationale of the interview. Such a questioning will engage the participants (researcher and interviewee) in a dialog about the underpinnings of the research.

In working in this manner the interviews can be categorized as "unstructured interviews" (see Fontana & Frey 2008, p. 133). There are some "structured"

components to the interview, the questions that are given require some kind of answer, but the answer can be complex and need not stick slavishly to the format. The interviews are conceptualized as a type of dialog between peers in which the ideas of the researcher figure prominently. This dialog is understood to open a dimension of context, the shared context of artistic practitioners, and to develop these connections. The study as a whole seeks to construct models that will be understood by other practitioners, and the interview / dialog format allows this goal to be developed in its natural context.

The information taken from the interviews is of a type that can enhance the understanding of the artifact making-process of the study. The interviewees evaluate according to various links between the domains of music, text and visual cues offered in the interview. The answers given and the discussions fostered lead to useful insights about the process of working between music and other domains.

Chapter 4 - Phase 1

This chapter provides the analysis of the artifacts from phase 1 of the research (see section 3.3.1 for a description of the phases of the research). An important element of the analysis is the isolation and emphasis of structures that would be favorable to a "philosophical music". As noted in the outline of the process in relation to the phases of the research the earlier works theorized a connection *between* the components (the media) but also implemented a collage approach in regards their genesis. The works themselves are multi-media artifacts with two textual components and one musical component. The components were worked upon together (as part of an evolving whole). However in phase 1 there was no attempt to define a metaphorical bridge or specify any networks of integration. This mode of working is a stepping stone – the interpretation of the music in the light of the philosophical text that accompanied it was perceived as the way in which one could further the research goals. The interpretation of the artifacts was necessarily a focused one – I was looking for particular forms / shapes / structures that might offer insight into further elaboration.

4.1 Artifact TG

4.1.1 Introduction to the analysis

The artifact that is *Transforming Gestures* has three parts (see figure 7 above in section 3.7). Each is connected to a text based upon an interpretation of Tolkein's *Silmarillion* (hereafter *Sil*). While this is by no means a philosophical text it has some philosophical ideas that allowed the composer to construct a useful thought-form in relation to music. In order to contextualize the use of the text I will consider briefly the status of such literary texts in relation to philosophy. This will allow us to make clear what kind of elements we might expect to find in the artifact that would be relevant to the project as a whole.

The distinction between literature and philosophy is one that has been defined in various manners by Philosophers and writers alike. Blanchot puts it simply: "(T)o write is to philosophize" (Blanchot 1993, p. 4). For the purposes of this study the use of "philosophy" is guided by various ideas that are set out in section 1.4. To approach an understanding of the philosophical component one must relate that component to a "prototypical" practice.

Developing a practice that is adaptable to practice-based research requires a valid starting point. The starting point for the present research was the identification of a *prototypical* form of practice. This prototype is conceived of as a construction (description) that will serve as the basis for an elaboration. The contextual review of chapter 2 establishes a dialog with past practice that reveals potential prototypes through critical interpretation and analysis.

In the following section the focus is upon the development of the artifact as a method of inquiry. The developing logic of the method (we could also say the *research process* or *research strategy*) is communicated through an engagement with the creative process and the interpretation and analysis of the produced artifacts.

A brief introduction to how the Tolkein text is approached is warranted here. Gadamer notes that we can never really understand a text without *caring* about it (see Harland 1999, p. 208). The idea that one cares about the text and is interested in it comes parceled with a necessity to "discover an application to our own concerns, to realize how the meaning can mean for us" (p. 208). Thus we enter into a dialogue with a text that makes a connection – between the text and our interpretation. This connection need not uncover the true intention of the author, but we must remain open to a dialogue (p. 209). The "illumination" of both past and present (also original and interpretation) will appear in this dialogue as a "fusion of horizons" (p. 209).

It is with these considerations in mind that we can approach the use of *Sil* in the present context. The particular reading that is put forward in the artifact's textual component is not to be understood as definitive in any absolute sense. It is to be understood as a dialogue with the Tolkein text. The philosophical "weight" of the interpretation is understood here to be one that is entwined with the ideas as they are elaborated within a writing – writing is considered to be the point of entry for a thought process. Such a process beginning as it does in literature need not be confined to the literary – it can become, through an illuminating dialogue, philosophical.

4.1.2 Artifact TG3

As I have briefly indicated the earlier works of the present study were multi-media collages of three elements (text, short text, music). The guiding idea of the research was to work upon these parts concurrently and then engage in an interpretation of the parts. Link to piece:

https://sites.google.com/view/documenta-scott-simon/research-papers/music-files

The importance of the Tolkein text to *Transforming Gestures* (hereafter *artifact TG* [1-3]) was its narrative description of music as a kind of internal DNA to an imagined world. The story as Tolkein tells it is, to all and intents and purposes, a myth of creation (Chance 2004). I will briefly describe the interpretation constructed around the text – the thought form is available as part of the appendix (appendix 1). The thought-form concerns a particular reading of *Sil* that emphasizes a "battle" of songs. This was coupled with a description of a *possible* world in which the DNA of that world was formed through an original "ur-music". At this stage there was no attempt to consciously create a "blend". Instead a *searching*, projective, activity was engaged in.

The artifact TG has a musical component that served as the starting point for the process of interpretation. The type of information being sought was something that would make sense of a reading of *Sil* in musical terms. A type of morphological or motivic structure that would appear and, once recognized, be the first step in creating a dialogue between music and text. Such a step would require this iterative process that recognized and made use of a structure in artifact TG.

The recording of the piece was accomplished in 3 parts. The first 2 parts may (subjectively speaking) have some interesting components in terms of musical quality but they suggested nothing to the artist in terms of resonant form or morphology. It is in the third part of the work (TG3) that a potentially useful metaphorical realization was identified. More precisely, a structure was perceived that could potentially be isolated and emphasized as an important semiotic building block. In what follows below a description of the preliminary analysis through to the description of the "metaphorical realization" is offered.

Figure 8 TG3 Part 1

The guitar part to TG3 is mostly improvised; it makes use of notation as a guide to a more freeform realization. The first 16 bars of the notated guide is included here as figure 8. The piece as a whole can be understood thematically as two distinct movements of a simple harmonic theme in E minor that changes key in the third section to D (see notation).

In the recorded version the first movement of TG3 goes through until 1:15 on the recording and is largely an elaboration of the ideas notated until bar 16 in figure 8. There is another chord form that is not notated above – some improvisatory license was taken in the recording of the work. The second movement (starting at 1:16) is an improvisation based on the themes represented in figure 9. The notation is a

transcription of the main themes – the recording itself was improvised without notation.

The first movement of TG3 can be described as strictly rhythmic – it does not stray far from metric divisions. The rhythms are articulated with electronic drums and are quite unforgivingly structured in 4/4. The guitar work here is – I would describe it as – constrained. There are some motivic developments apparent in the chordal movement (quite limited: there are some arpeggios that are the same as those notated in figure 8 – bar 1 and bar 3) but the scale work and arpeggios are not free and lyrical (as played).

The second movement of TG3 is opposed to the first in feeling and execution. The piece remains in D but the modulating bass tones move beyond the low E (present everywhere in the first elaboration) and encompass other degrees of the scale. This change is accompanied by a freeing up of the guitar playing: the word lyrical would not be appropriate - it seems to be better described as *fluid*. "Fluid" connotes here a loosening of the guitar's rhythm even while the drums and percussion remain metrically tight. This *fluidity* is of musical interest on two levels: (1) as a contrast to the earlier playing; (2) as a contrast to the strictness of the percussion. There are also some electronic tones that appear once every 8 bars, providing a point of listening reference as it were (or *punctuation*).

It is the interest generated by the guitar's fluidity in relation to the percussion that I would like to focus upon (point 2 above). To my mind the guitar playing begins to take on a kind of organic flow that is still musically viable even as it loses a strict metric timing. The effect is – and this is an appraisal based upon potentialities – one that speaks of the possibility of "shaping" an organic sound in space around a strict metric rhythm. The guitar work seemed to speak on this level: a variety of organic shapes sculpted in space where previously there had only been notes arranged along a line.
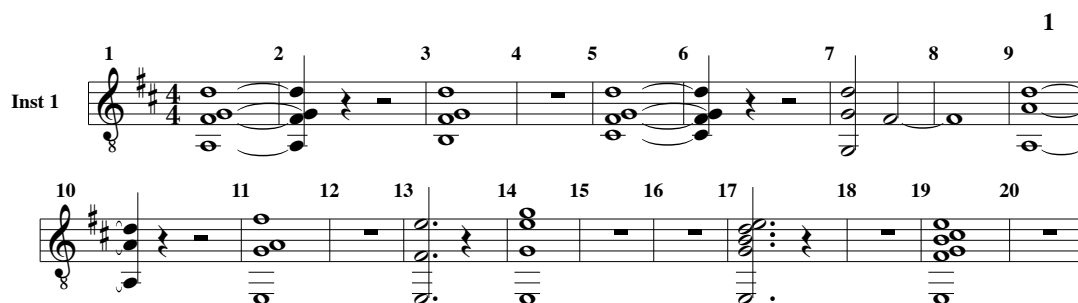
Figure 9 TG3 Part 2

This organic "shaped quality" in the music suggested an interpretation based upon the interplay of that quality and the textual component of the piece. The purely collage structure of the work (the three components of the artifact) was already at this stage perceived to be limiting the potential of a music based on philosophy.

The diary entry for 14 / 7 / 2013 concerning the writing, recording and first reflection of TG states: *the form of second movement part 3:   the guitar mimics organic elements…the work does not merely allow nature to be heard, but takes on a form that is similar. The text is missing an important element – the music reminds one of this element and also enhances it.*

This entry can be interpreted in terms of a first step towards a more dynamic reflective mode of working. The idea that the music reminds one of an "important element" that is missing from the original thought process points towards a developing logic (emergent content) of the philosophical thought-form.   This reflection on the elements of the work points towards an attempt by the artist to construct connections between the music and the text. Also: the guitar playing is organized by an "external" component (it "mimics" organic elements). The general tendency here is to find (or foster) an enhanced dynamic between philosophical text *and* musical content. The kind of connections that were being perceived here related precisely to the perceived "organization" of the guitar work: the guitar work was

perceived to reflect a tendency of the musical form to "change" the meaning of the text. Thus, the diary note points to a "missing" element in the interpretation of the text. In the thought-form music is described as an expression that can change the perception one has of the surrounding world. The "pure" song of the Noldor emphasizes the sound of distant waterfalls and the murmuring of the sea (see Score in appendix 1). However this "one way" equation seemed at odds with the guitar work – the identification of an organic and sculpted form within the guitar work seemed to speak of a return from the world into the gesture itself.

Figure 6 in section 3.3.3 is useful here. At the top of the diagram it is obvious that the reflection moves in both directions: the top boxes "composition" and "extended text" feed down into the "analysis / iteration" bubble. From there one returns to the top via "compositional changes" and "changes to text", now however one is working between the two elements dynamically.

An earlier diary entry points to a performance at CCS seminar in November of 2012. Figure 10 shows a still from the visual program of the performance. The performance was interpreted purely on aesthetic terms in the diary entries of that time. At this stage the reflection upon the work was based on subjective appraisals of various components, and also some notes concerning the technical realization. A note from the diary states: *Performance showed incorrect rhythm at part 3. Rhythm too complicated for main theme – answer: delay removed. Sound amplitudes: needs to be addressed. Someone riding faders would be optimum.*

Figure 10 Still from interactive visual to performance of TG

It is clearly stated that some changes were necessary, in particular to the Rhythm of TG3. A later note points out that the rhythm of the work (in the percussion) was still problematic. Note from 10-11 December 2012: *drums had to be re-done but it took a long time to see they were not quite right. Went with "metronome" beat.*

The "metronome beat", so described, is important to works that came later in particular *Constellation theory* (artifact CT) (a work that made use of the interpretation of TG). It is interesting to see that the "metronome beat" was not organized at this stage as anything relating to philosophical metaphor. The note points to a purely aesthetic consideration on the artist's part. Also important to these phase 1 performances was the realization that the program text should be integrated into the visuals. This first performance provided a program text on printed sheet.

In any case, the interpretations eventually started to focus upon developing a lexicon from the performances and compositional practice. The most important reading of TG part 3 concerned a perceived "shaping" process (in relation to the organic world). The idea that one could organize the gesture according to a shape, and that this shape could be made *significant* through a relationship to a metronomic beat: this was the decisive component for the later composition of *Constellation theory of knowledge* (artifact CT). Further analysis of *Constellation* is left to chapter 6.

The "shaping process" as it is described, is a type of process in which *expression* is not taken to originate solely in the self. An interpretation of the playing style that structured this process was one in which a *relaxation* (in relation to metric rhythm) was experienced by the artist. The notation points to a change based around a shifting harmonic structure. Looking at figure 9 it is the motion A, B, C, G, A, E in the root note of the chords that shifts the sound. Compare this "bass" motion to the notation in figure 8: that section is static, almost a pedal-tone (as played), in relation to the low E. The first movement organizes itself very strictly to the beat, the second movement (figure 9) is a more relaxed improvisation. A certain looseness of style was applied, yet it was always juxtaposed with the metronomic beat. Arpeggiated chords were played, with the spreading of the chords organized in both directions (high to low / low to high). The point here was to create a more fluid style, a style that was less strict and not so metrically ordered. The interpretation of the section found that one particular sequence (2:12-2:25) took on a type of organic "shape". The subjective nature of this description notwithstanding this was perceived as an important entry point. Extrapolating from this perception a whole series of possible directions was mapped out.

The interpretation of the work, and the search for significant form(s), centers on the concepts of *identification* and *emphasis*. Initially subtle components (or phrases / passages) are *identified* in a piece as potential candidates for development. These identified structures are made stronger or *emphasized* (in future works or in plans for

future works). It might perhaps be noted (or an objection made) that an initial interpretation is overly subjective, or cannot be verified inter-subjectively. This is perfectly acceptable within the process as a whole; the identification need not be demonstrable in any absolute manner. Further iterations develop the identified component in a more complete, and recognizable, manner. Thus the motion of the process is one in which subtleties of meaning can become the central component of a new articulation. With the "shaping" process that we are dealing with here the idea appears in a quite subtle form, awaiting interpretation and further emphasizing. The interpretation focuses on the appearance of an organic shape at around 2:12 in the recording. This shape was identified through an aesthetic listening as an "organic" structure with a plant-like morphology.

The idea of shape as a musical category is one that is identified by various composers and theorists (see Mahnkopf, Cox. & Schurig 2004). Some research has been done in terms of how performers, DJs and composers look at music in terms of its *shape* (Greasley & Prior 2013). The application of the term is of course somewhat ambiguous and the meaning can change from artist to artist. In the present context we are simply defining the notion in relation to a subjective experience that has quite specific contours which will be analyzed below.

Stephen Handel holds that there are three elements of perception: the raw "physical" features (duration pitch etc.), the abstract qualities of tones (like "warmth" etc.) and the ecological of indexical element (Handel 1989, p. 181).[9] At the "ecological" level of perception we actually hear the horse galloping or the violinist bowing. This kind of *intentional* (or *indexical*) hearing produces a category outside of the abstract qualities of the tones. For Handel it is the fact that the sounds "seem to be directly perceived as objects" (p. 181).

---

[9] Note Handel does not call it the "ecological" component he writes of "affordances" after Gibson.

A related, but slightly different, point is the focus of the ears upon the shaping content of a musical piece. Focusing the ears at this level in the music one can potentially identify shapes and structures. We hear elements *through* the music and "forget" the player (Clifton 1983). This forgetting of the player allows us to hear the music in terms of its evocative qualities. If a listener hears the outline of "organic plant life" in a musical passage it is surely a kind of hearing "through" the music. In such cases we are listening in a different way, and we are hearing beyond the gestural motion of the performer herself. This description points to the fact that the gestural expression of the artist does not exhaust the representational content of the music. This type of hearing is not based so purely in psychophysical structures, it is more related to phenomena as presented to consciousness and the structuring of meaning therein.

Messiaen blended birdsong into his works in a manner that is of relevance here. Present in his works are not only birdsong but also a kind of compositional process that attempts to capture the motion of the birds (Griffiths 2008). One commentator points to the structure of these musical forms as "almost onomatopoeic" (Griffith 2008, no page number) the manner in which they can bring to mind "..the majestic flight of the golden eagle carried on air currents" (Griffiths 2008, no page number). This type of blending – a blend perceived as a form within the musical gesture - is in step with the ideas of "shape" being elucidated here.

One important divergence of the present practice is the addition of a "metronomic" pulse to the shaping algorithm. This is the first step in a *compositional* praxis in which the shapes are juxtaposed and related to the mechanical beat. For the composer the shapes become more "interesting" when contrasted with some type of metronomic structure (specifically rhythm but also sometimes a strictly organized melody and harmony). This stress upon the metronomic pulse is an aesthetic decision informed by the author's past practice. An interest in tonal shapes juxtaposed with a kick drum was fostered through long standing practice as a techno artist.

One more relevant passage in relation to TG3 is reproduced here (from a workbook note (not dated c. 2012/13)).

Description of the dialectical movement of the music (out into the world [described by text] and then back into the music [picked up by interpretation]). Then a description of how this could be the basis of a component for forming the constellation metaphor.

The meaning of this, slightly cryptic, entry is the process of thinking from one artifact to the next – the possibilities of a new piece based on the "constellation metaphor". The note points to an idea about the direction of a shaping process in which an improvised component allows one to structure the shapes according to the performance time – within the unfolding time of the performance. The temporality of performance is particular to one particular zone of articulation – this allows a new shape (new shapes) to form through each improvisation.

The process of identifying and emphasizing a shaping process became the precursor to a new artifact. The complete analysis of artifact CT is the task of chapter 6. In the following section an analysis of the next artifact in phase 1.

4.2 Artifact FR

Fragmenting reality (hereafter artifact FR) is the next of the phase 1 works to be analyzed. This piece is structured according to the same general criteria as artifact TG. It has the same 3 tiers or elements (text, short text, composition). The philosophical starting point for this piece was Guy Debord's theories concerning the modern human's "separation" from the intensities of lived existence (Debord 1961a). I will briefly describe the ideas as they were utilized and then delve into a more complete interpretation of the musical element. A link to a recording of the musical component:

Included in the artifact FR is, naturally, the text that served as the thought-form for the piece. That thought-form offers a more complete description of the manner in which Debord's philosophy serves as the inspiration for this work. I will refer to the form in what follows and it is probably advisable to refer to the original for more detail (appendix 1).

Debord has a theory of "separation" which addresses itself to a type of alienation present in modern society. The movie that Debord made in 1961 *Critique of separation* is an avant-garde black and white film (Debord 1961a). It is a collage of images and found footage as well as some images of the philosopher and his friends. The critique Debord brings to his short movie is based upon a description of modern society as being cut off from its vital force, reliant instead upon a sort of virtual life (Debord 1961b). This virtual life is one that is maintained through the movie industry and media networks. The "adventure" of life has been replaced by a sort of identification process: the modern human lives through standardized and homogenized media heroes or figures. This *life at a distance* is the renunciation of all actual experience and intensity for a virtual representation of the same (Debord 1961b).

The notated process score for FR represents accurately the main harmonic components of the work (See figure 11). The piece is mainly produced around a harmonic progression with some improvised guitar work in one section. The progression itself has a particular logic; it was built not purely as chords but also around a simple melody – a form of voice leading. This melody does not appear outside of the chords, it is a integral harmonic component. The melody is harmonized with a simple modulation – also not apparent outside of the chords. From an outside perspective the form of the piece conforms to a simple counterpoint that has been harmonized. The working process however involved a blending of harmonic /

chordal work with the pre-composed melody (two voice counterpoint) in a dialectical or two-way compositional logic. One can upon examination of the score only perceive the very basic rhythm and the vertical structure of the chords. There is no clue as to the compositional logic that joins the chords one to the other in the form of the modulated melody. The process is one in which chords are put together without any pretension to voice leading, and then, in a second pass, a melody is structured. The melody emerges from the chords but passes out of reach – that is takes on a logic of its own (with various harmonizations peculiar to it). The chords need to be reformatted in the light of the new logic – the process cycles forward in this manner. A dialectical process of chord creation and voice leading.

Figure 11 Score to process *Fragmenting Reality*

One thing that is apparent immediately from the score is the staccato nature of the chord durations: the rhythm appears to be terse or even perhaps - when performed – giving the impression of a "cut off" or "broken off" sound. This score however is not complete and it is only here for guidance in terms of harmonic content.   What is missing from the score is a more sinuous and lyrical pad that underlies the staccato

piano chords. This pad, electronic in nature, has some interesting effects in relation to perception. Indeed it is in this relationship that I recognized a useful musical form.

Listening to the composition FR we can perceive that the piano chords / strings of the first section (bars 1-16) are quite staccato and that they are "completed" by a more legato electronic pad that accompanies, underlies, them. We state "completed" here to signify that the subjective appraisal of the work adds the two components together in a manner that allows a certain lyricism to appear. This can be understood in reference to the psychoacoustic principle of "closure", a word adopted from gestalt psychology (Parncutt 1989, p. 41). The effect is connected to the masking of the lower of two sounds within the sound spectrum. The original attack of a sound may taper off and become masked, or indeed fuse in perception, with the louder of the two sounds. In the present case, the staccato nature of the chords is smoothed out (from the listener's perspective) by the electronic pad. Closure is also sometimes used to explain the fusion of partials even when a fundamental is missing (p. 36). The phenomena of louder tones "masking" quieter ones may explain the perception of *completion* in the first 16 bars of the piece: the "release" component of the envelope of the piano is "masked" by the underlying pad.

If we interpret the music in the light of the philosophical key (derived from Debord) we might say that the piano signifies an *individual consciousness* and the electronic pad a *virtual or shared horizon*. The consciousness is unthinkingly "completed" by the shared social horizon and the space of the virtual within which it is located. Debord: "we live in ways that are out of our control" (Debord 1961a).

The second section from bar 17 takes the form of a lyrical (legato) interlude. The music widens into a smoother space and we take this to represent that the consciousness has now pushed out by itself - complete but in an egoistic sense. It is one-dimensional, complete, self-contained and lyrical. There is in this contained lyricism, however, a superficiality. From bar 33 (section 3; 1:00-1:10) we are thrown

back, once again, into a fragmentary (staccato) existence. In the recorded version "clipped" is probably a better adjective – further performances could accentuate this even more. A momentum carries the agent forward but the silence and the fragmentary nature of existence have returned. The consciousness now sets out alone, its brief lyrical interlude forgotten. There is also, however, a new strength here - the fragmentary nature of life is accepted and one pushes forward regardless. There is no help now from the electronic pad (symbolically: the virtual).

Yet when the electronic pad does return – as a brief "tone" now - at 2:03-2:22 it makes the whole piece sing. The return of the electronic element is marked by a slightly different acoustic structure, the envelope is different (shorter and more like a discrete "note") and it weaves in and out of the piano. The whole harmony is drawn into the virtual field - the composer / consciousness becomes lost in a shared space. This time, to return to the narrative, one is drawn in as an equal. What was thrown aside as "other" returns to provide deeper meaning for the whole. We can also posit here that one makes decisions: certain lineages or configurations do not create a negative withdrawal from intensity. To be "drawn into" a world can also allow a new opening or unfolding.

Let us make a few pertinent observations upon our interpretation thus far. The temporal aspect of the music provides us with a philosophical interpretation that is also temporal. The philosophy moves and shifts like a stream of becoming, the concepts changing their meaning in relation to changing contexts. This temporal motion in which the philosophy moves and changes adds a dimension to the Debord text as it had been formed for use. In this temporal motion of the text we can see an interesting but perhaps – in terms of a semiotic of music - overly subtle structuration. That is to say this type of interpretation is important in terms of a projection of the emerging process but must be anchored to something more substantial. Subtleties can be woven into our iterative process but firmly grounded mechanisms are more easily built upon.

At a first interpretation of the work the metaphorical structure, discussed above in relation to "closure", was identified as the primary focus. The opening section provided a clear and plausible metaphor realized within musical form. Emphasizing the components of this combination of musical form and metaphor was the next step.

With the metaphor located in the first section, the importance of building subtler more subsidiary mappings also became apparent. The interpretation of more subtle philosophical points and elaborations follow on from the more obvious interpretations. The temporal structures identified in this piece were written into the research diaries (research diary 2012/2013). The unfolding of the music, its narrative and temporal structure, changed the interpretation of the text to a more dynamic, temporally ordered one. The two way logic between music and text formed a new unfolding, narrative, structure. As noted in the introduction of this section interpretation of the obvious metaphorical dimension is important. However the artist must be receptive to subtler formative traits and forms also. The temporal motion of the piece and the return of the metaphor / form in the establishing of new meaning further into the work – the philosophical concept takes on a form more akin to a story than a "static" philosophical idea. The truth of one idea giving way to its re-formulation further into the work, a "contradiction" within the history of the idea.

The temporal nature of the dialogue in this piece put the research onto the path of the artifact OB (phase 3). Important to artifact OB were the notions of temporality and process. The idea that one could have a "sequence" of ideas represented in a sequence of musical passages is also flagged.

The next important milestone was the recognition of a type of common structure that was appearing in the interpretations. The research moved towards the creation of a series of semiotic codes or signs that could be realizes in algorithmic or programmed

forms. The building of applications (in Max/MSP and M4L) to capture philosophical metaphor and musical codes was taken as a logical development.

4.3 Artifact STW

This section describes the artifact *Stopping the world* (hereafter artifact STW). Artifact STW articulates a complexity in metaphors that was originally thought too subtle and too complex. The piece is structured around ideas in Castaneda and Husserl. The main focus is the concept "stopping the world" which can be described in terms of a literary allusion to Husserl's *epoché*. At this stage in the research the process was less involved with structuring a precise metaphor as musical diagram, this became more central to the research as it progressed. The main impetus at this point (phase 2) was to work with the text and music concurrently. The work was proceeding according to an iterative model in which the music and text were questioned as the works took shape. As noted in the method section 3.3 the interpretation of the musical form was done in the light of the accompanying text. One of the guiding principles of this interpretation is the identification of patterns or groupings that make sense in terms of textual metaphor. In this process the user can sometimes go through many variations and possibilities, attempting to find correspondences. A diary is used to make notes about possible candidates, both within the evolving work and also suggested by the work for future iterations. Some of the more obvious kinetic elements are found, sometimes, to be too simplistic. Other ideas strike one as being too complex or subtle to make real sense in terms of a semiotic or method of creation. However, it is also the case that subtleties can make sense of the research in a more sophisticated way, moving the connections away from being simply a "motion process" or "gestalt" structuring of music.

This work did not give an obvious outcome in terms of the research as a whole. There did not appear within the interpretative step an obvious or clear-cut structure that

could be utilized in the search for philosophical connections and isomorphic components. That said, more subtle and complex structures do exist within the piece and with the application of a keen eye (or ear) to the work various candidates for further elaboration do appear. These were deemed upon first encounter to be too abstract – they lacked a solid structural integrity that could be brought out as a compositional or shaping principle in relation to music. However as work upon the later pieces commenced (within the study) this artifact became significant for reasons that will be shown below in more detail.

The musical component of the artifact is divided into two related parts (binary form). The first part is an *establishment* of the compositional structure and the second part is a development. This simple binary form has a couple of nuances that make it distinctive. The harmonic structure of the two parts is identical. The structure of the first section is notated in figure 12. The second section mirrors this first section in notated content (in actual fact there is a repeat in both sections of the last 16 bars). The fact that the two sections of the work are harmonically identical does not tell the whole story however.

In terms of the realization of the work the harmonic content of the second (development) section is radically different. The differences can be summarized as follows: (1) the second section has the addition of a low bass part. The bass follows the root notes of the chords notated in figure 12; (2) the second section also has a filter applied to the chords as notated; (3) an improvised guitar line is played over the development section.

The filtering of the chords with a low pass filter has the effect of "turning down" the main harmonic structure – in connection with the added bass the harmonic structure is now *subsumed* or contained within the bass. This naturally leaves a lot of musical space. In the first section of the work this "space" was inhabited by the chords themselves, now however the bass and the chords are confined to a lower register.

Some of the harmonic content is still present in the filtered chords – the content is turned down but not off. With this space the work then is open for an improvised guitar line. This sits upon the harmonically rich sub-structure and works a new melodic articulation – an articulation which still references the earlier statement of the chords but adding new connections and devices.

An important fact about the chord structure of the piece is contained within its development. The chords were built up using a simple rising internal voice in the first 16 bars. The voice ascends from the low E of bar 1 through to the G of bar 13. It then makes use of a parallel ascension that began at bar 11 on the mid-range B moving to D# and E. These two points then converge in the leap up to F# and the end of that opening passage in bars 15-16 on C# / A#. These are not in the scale of G, however the motion of the voice leading components allow a brief resolution at this point. However it is a relatively weak cadence, it demands the next A minor inversion of bar 17. It moves forward from this bar restlessly seeking the "main" harmonic structure of bars 25-28. The E minor chord appears here, the inversion shifts the fifth (B) to a higher register. The inharmonic chord at bar 30 makes use of a sharpened 6th, and only makes sense broken down into an arpeggio. The chord is at most distantly related to the preceding sections. In the recorded piece this was left out, but in performance it might be used depending on the inclination of the performers.

Figure 12 Process Score STW

The idea of artifact STW is formed around the "epoché" and "stopping the world". The concepts reference a comportment towards the world based on a *changed* perspective. The thought form of STW (see appendix 1) describes the entry point into such a comportment. Central to the concept is that one can "bracket" elements of the world and work within this less noisy environment. Schaeffer made extensive use of Husserl's *epoché* in relation to a "reduced listening" (Schaeffer 1977; Kane 2014). It is worth noting that the application of the philosophical ideas, in the present research, is organized in a quite different manner. A comparison of the two approaches point to the mainly "symbolic" use of the concept in the present case, against an intervention on the level of perception by Schaeffer.

177

The metaphor of "bracketing" or "stopping the world" is organized around a symbolization of consciousness in terms of a full chord progression (first section of STW bars 1-52). The reduction of the natural conscious attitude is symbolically represented through the use of filters. These are applied to the chords, a process that ushers in the second section of the piece. The work here "brackets" the complexity of a chord progression (which uses various voice leading techniques and is thus quite busy in itself) by filtering the higher frequencies out.

STW is a symmetrical structure that lays out a complex chord progression in the first section and then filters this progression and adds a bass in the second section (also some new stray harmonics and harp notes are added above the filtered chords). The use of a metaphorical "bracketing" allows space for the free improvisation above the filtered structure. Harmonically less complex the filtered structure affords space for a new element. The new element is an improvised guitar line. This line represented the new *thought process* articulated outside of the natural orientation of consciousness.

4.4 Research development

This section is devoted to reflecting on the artifacts theoretically, both from within the making process and also from the perspective of analyzing the finished artifacts. This process necessarily updates and supplements the models of practice, and is an essential component of the models. The models of practice should be read both as a narrative of process and also as group of general attributes that are extracted from the narrative. In the diagram from chapter 3 (figure 5) the models of practice are represented as having an overlapping center that indicates a component that is common to all of the models. This "Z1" of the diagram is a sign that there are components that emerge from the practice as it proceeds and which can be made use of in a more general way.

Fundamental to this generalization process is the fact that a strict chronology will sometimes be sacrificed. In the following sub-sections this departure is apparent. The importance of the general insights outweighs the identification of individual aspects in a strict timeframe. In any case the timeframe *phase 1* is indicative of a broad synchronicity, the ideas and theoretical developments discussed in the following section were emerging from the artifact interpretations. If some phase 2 insights clarified and refined the ideas that is to be expected in terms of the generalization process. Where possible the text indicates where phase 2 components or insights are made use of.

4.4.1 Theoretical reflections phase 1

One of the important factors to emerge from the interpretations of the early works was the recognition of the importance of a *bridging mechanism*. The dialogue between music and philosophical text can happen intuitively or it can be connected to a mechanism of some type. Metaphor is often related structurally to mechanisms or

principles of organization. In the case e.g. of *generative art* we can see the metaphor of evolutionary biology as being an important part of the overall process. Such metaphors are useful in constructing bridges from one type of knowledge to another. Metaphor allows one to organize or re-distribute knowledge in ways that are useful to the expansion of one or both of the participating fields. It is by no means clear how and in what capacity such mechanisms function across disciplines. In this section I will point to the genesis of some bridging mechanisms in relation to the phase 1. This will necessarily involve some explication of metaphorical logic and cross-domain mapping.

An important aspect of the present research is the evolution of the works themselves. A route from a type of intuitive based collage towards a more formal and integrated system. This "system" builds itself around ideas and practices that have some foundation in past working modes. The task at hand is to formalize a working practice that is perhaps already present tacitly in the compositional work of the past. Such a formalization modifies earlier perspectives and opens up new ways of moving forward.

Program music was analyzed in chapter 2 as being important to the present practice. Liszt was described (by Wagner) as having some kind of "ideal" text that was generated from an engagement with a literary text (see section 2.1.1). An "ideal" text of this type must in some way be metaphorical. If it were not metaphorical Wagner would be describing a proliferation of texts none more useful than the one before.

What was missing from some of the works in phase 1 is precisely this middle text. That said, artifact STW and artifact FR have links to a "lexicon" that serves as such a text. In phase 2 a formalized bridging mechanism that can serve as a starting point for musical expression is explored. Such a "starting point" involves moving beyond the purely autonomous expressive paradigm of music towards one in which a dialectic or dialogue is set in motion. A process such as this is not one that one can jump into

from a distance – one must set the various wheels in motion and then move deliberately towards the goal. An example of the multi-faceted and complex nature of the work can be described with reference to the various strategies that are required to move it forward. Let us briefly list these strategies here:

1. One must deal with the text in musical terms. This involves thinking between music and philosophy to find the points of contact. In our analysis of TG we pointed to an iterative result in regards the next composition artifact CT. Such an iterative result was not seamlessly accomplished. The identified musical form from TG had to be organized as a type that could be made to fit in connection to a new, altered, musical process. This involved thinking of philosophical texts in relation to breaking into their content with an eye to suit the new form.

It is not part of this research to deform the original texts in order to realize a metaphor. The process must also seek to organize the metaphorical structure in musical form in new ways in order that it make sense in relation to a text. Thus there is a three way process between music, text and metaphor: all must relate to each other meaningfully.

2. The text must be understood not as a vague inspiration but as something that maps directly to musical form. This means that there must be a further text, or thought process, that makes a mapping possible. This is a process of thinking through musical and textual ideas in terms of kinetic or visualized properties. It is also requires the identification of possible semiotic functions such as are contained within gestalt theory or motion processes in electronic music. An example of this would be a list of possible functions that make sense as musical form and as textual idea. Such a list was written in the research diary. Diary excerpt: "negative polarity", "fragmentation", "inversion", "virtualization".

3. The metaphors of the text must give rise to a thinking of music in "grammatical" terms. This thinking will include an experimentation involving different possible expressions – syntactical or as whole phrases – formed through music synthesis or music programming. It could be imagined that one might work without this step – purely within a traditional compositional domain – but for the present research we are making use of the metaphor as a full realization in regards music and sound: every level of the composition (from harmonic partial and spectral content through to intervallic and overall structure) must be accommodated (or at least potentially accommodated) by the principles and metaphors of organization. This coordinates with a research goal that endeavors to create models that are broadly applicable.

The immediate effect of the interpretation of the early works was to open up the kind of experimentation described in point 3. The work involved the recognition of musical forms that could be emphasized in further iterations and a corresponding search for similar forms through an experimentation utilizing synthesis programming. Examples of this were a series of experiments carried out in Max / MSP that sought to extend the insights gained through the shaping metaphor of TG and the virtualization metaphor of FR. These experiments sought to find ways that algorithms or processes could both reproduce the original insight and also (possibly) elaborate upon this insight. Thus there were various processes that dealt with creating a working "shaping" patch (after the "shaping" metaphor gleaned from TG). Other processes were implemented that attempted to model "negative polarity", "fragmentation", "inversion", "virtualization" (as noted above). These attempts came to fruition in the modeling of a "shaping" algorithm and a corresponding "fragmentation" algorithm. With this approach a complete series of processes was generated producing the tools necessary for working upon artifact CT.

The insight into the temporal structure of FR led me towards the development of a "background" level principle. It seemed that FR showed a simple "virtualization" metaphor on one level and another more subtle background structure, a type of

unfolding narrative, on another level. This background structure could be described as a kind of narrative that pointed towards the possibility of different levels working concurrently. This led to the idea of a series of processes (within a musical expression) as reflecting an unfolding philosophical concept.

4.4.2 Research model development

In the analyses offered in this chapter various practices and processes are presented. The narrative as it is structured contains some elements which can be isolated and made part of a more systematic whole. This attention to a "whole" is essential to the models of practice. The diagram of the models (figure 5) shows a "Z1" component that represents elements that cut across the different models and are present in all. Assembling these "Z1" components is a step towards the more holistic form.

The concept of "visualization" was experienced as significant in the interpretation of the artifacts of phase 1. The concept was impressed upon the researcher through the making process itself. The reflection on the practice made it clear that what was happening in the blending process was indebted to a series of cognitive moves, one of the most important of which was *visualization*. This is no more nor less than the attempt to "see" a connection between the media in terms of some (visualized) object or vector.

Another prominent aspect of the research was an emphasis upon "metaphor" and "blended space". These concepts were introduced above in section 4.4.1. Important signifiers for the developing practice of phase 1 were: *Correspondence. Blended space. Visualization.* These become central to the narrative of phase 2 and are described in far greater detail in chapter 5. Here a brief discussion will introduce these ideas.

The use of CB theory as a way into elaborating on the practice gives us the first two expressions. The third "visualization" emerges from the self-observation of the artist in the midst of the process. This third notion can be likened to what Monroe Beardsley calls the matching of "kinetic qualities" between text and music. Writing about the manner in which *program music* can be said to represent a text Beardsley describes a matching of "kinetic qualities" (Beardsely 1958, p. 349). He writes: "…the episodes of a story have kinetic qualities that may be matched by the kinetic qualities of the music" (p. 349). This might indeed be a better way of describing what is going on between text and music than "visualization". However the word "visualization" is one that describes the working process more precisely as it is experienced by the artist / researcher (in the present context). The dynamic motion between music and text searches for mediating structures, and it often takes the form of picturing or visualizing structures. Such picturing does not always have a kinetic quality, it can sometimes be more object oriented. Certainly music is temporal and "kinetic quality" captures an essential category of relating music and text. However as an explanatory tool in relation to a practice "visualization" is closer to the lived process.

4.4.3 Scale and focus in relation to the creative process

Curtis Roads devotes considerable time in *The new aesthetic* (Roads 2015) to the question of organizing different timescales within a piece of music. The focus is upon the importance of theorizing this dimension of practice in relation to various categories within electro-acoustic composition.

The theorization of the different, and often, disparate levels within a composition is the subject of chapter "multiscale organization" (Roads 2015, p. 283). The idea that a composition might be reduced to one single idea that gives birth to all the other phenomena within the work is critically evaluated. Roads describes a series of "fluid morphologies" that represent how composition can make use of the control over

"streaming and cloud formation" (p. 312). An important element of Roads' compositional practice is the structuring of works according to multiple timescales (p. 313). The focus is on the breaking up of the composition into many units of time, and the compositional control that can be exerted in order to make these different scales work together. An earlier description of composition as being concerned with "partial systems" (Berio cited in Roads 2015) points to the importance of allowing systems to be ruptured and re-formed according to principles of difference. This in contrast to imposing a single system that determines all of the content.

In the present context the theorization of timescale takes a different, but not necessarily antagonistic, form. In the present study we are focusing upon the scale within works in relation to philosophical metaphor. Philosophical text allows visualizations to be constructed that describe how and in what way a particular process will be articulated. More precisely, this visualization must occur within a type of frame that sets limits on what is to be done, and how it is to be done. Thus we might focus upon an eight bar section in relation to solving a perceptual / compositional problem. Or, on the other hand, the philosophical metaphor might be utilized to govern the overall architectonic of the work and not the different themes and phrases or harmonic content.

D	Individual notes / local structures
C	Phrases / smaller patterns
B	Long sections / themes
A	Overall form
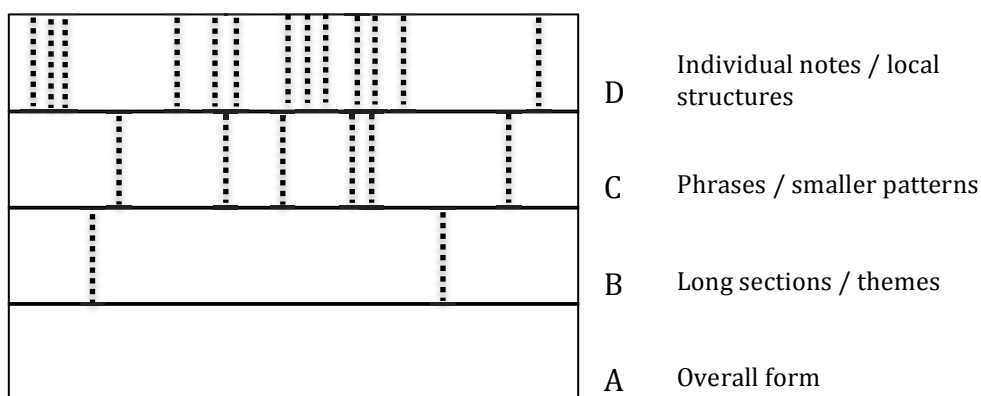
Figure 13 Scale of process

Looking at figure 13 we can see that the scale of the compositional processes can be larger or smaller in relation to the overall structure of the work. For example in the artifact OB the scale of the process is aimed at A (figure 13) meaning the overall structure.

The *focus* of the process however is another matter. Figure 14 sets out some of the elements that can be focused upon. Between the two figures one can plot the dimensions of any particular process. For example, one might say that in composition or artifact *x* the scale of the process will be 8 bars ("C" in figure 13) and the focus "spectral". There are limitations to this schema – it is sometimes not trivial to work out where or how one process ends and another begins. One would have to question whether the 8 bars in composition *x* (being worked upon) are part of the overall structure or not. Certainly the changes done to 8 bars (or 16 bars) will change the overall form / structure of the work in some manner.

Focus ┊ Intervallic   Harmonic / Melodic

┊ Timbral / Spectral

┊ Rhythmic

┊ Morphological

┊ Motion Process

┊ Spatial
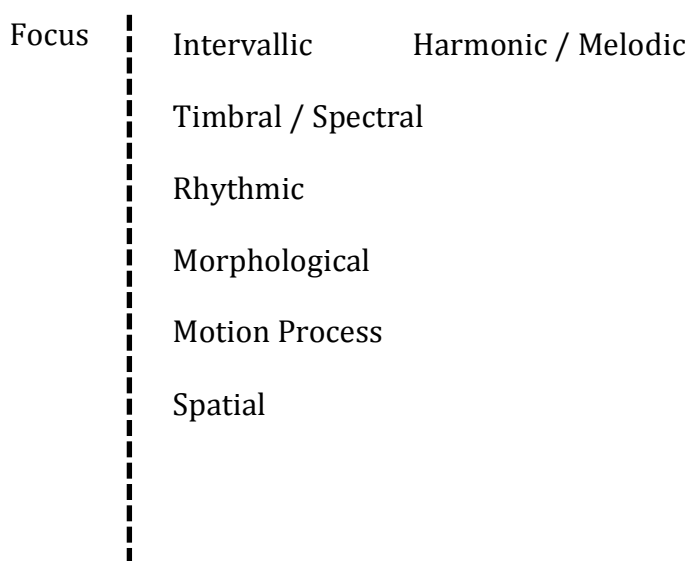
Figure 14 Focus of process

The question as to *what structure is* falls into the category of "musical structure types" (Beardsley 1958, p. 181). The A category in figure 13 can be read as a "structure type" (p. 181). Musical structure of another kind is built upon relations of tonality, melody, thematic relation (p. 181). These "structures" are different in kind to the structure type we are describing here. These observations point to the schematic, and ultimately, incomplete nature of such representations in relation to music. Nevertheless the use-value of such a schema is still affirmed. The vital caveat is that the schema must be embedded within the process of creating or analyzing an actual artifact. This allows the schema to breathe and take on meaning in conformity to a real-world structure. This is demonstrated in relation to artifact OB (chapter 6).

"Music" is not to be understood as a series of categories that are discretely formed and sealed off hermetically. Roads notes that the level that we have designated "phrases / smaller patterns" in figure 13 above, belongs to the "mesostructure" level (corresponding roughly to "notes" about 100 ms to 8 seconds or "phrases" lasting up to several minutes) (p. 305). Roads develops his framework around a freedom from metric convention and the reliance upon equal temperament (hereafter ET). In the present study ET is taken to be another structure that can be utilized or dispensed with, depending upon the effective processes the composer is making use of in any particular composition / artifact. Theoretically the use of ET can govern a particular element or section of a piece and, in another section, that system can be broken down into a more free-form structure. This has the advantage of moving between convention and more radical practices depending upon the criteria of the piece. This mode of working is a reflection of the epistemology that governs the thesis as a whole (see chapter 3).

The overall conception of the present study is taken to be a heuristic that allows the composer to work a practice in a manner that is comprehensible. A heuristic framework is one that allows one to make practical use of tools and procedures

without committing to one privileged "formal" perspective (see Manoury 1984; Roads 2012). In the context of the work here we can see that there is a tension between an "accurate" description of phenomena and a pragmatic use of tools in relation to content. This concern is one of epistemology. We can note here that questions of scale (shown in figure 13) are tied fundamentally to questions of temporal succession and the experience of that succession. It is by no means clear that one perceives in the same way for every event – we can focus our attention in different ways and with different results (Ihde 2007). This has implications for the manner in which events are understood, a "local" event becomes part of a "retention" and thus changes our perception of new events that follow (Husserl 1991). We will look at this in more detail in section phase 3 of the research. The idea of a context dependent articulation becomes important to the work of phase 3.

As noted above the notion of "scale and focus" is a schema within which one can work a more fluid (nuanced) practice. Even as one works on one scale other scales are touched and modified. To work (for example) within a spectral focus is also to change how the melodic content of a piece is perceived. These problems point to the fact that music is not something that can be reduced to an abstraction. However it is certain also that one *can* focus on timbre or spatialization in isolation, and that such a focus can be fruitful. The "focus" of works in which a blend between the thought-form and an *algorithmic* (or programmed process) takes place is also possible. This type of work is on another level again. A basic outline of this type of work has been developed already. In a paper titled *From philosophical meditation to compositional system: a working process* (Simon 2014) I applied the ideas from the research to computation itself.

In relation to composition there are no discrete packages that can be worked on in isolation. The use of philosophical metaphor to create a musical form does not exhaust the meaning of a work. There is room for a systematic "diagram" formed through text (as musical form) and a more expressive or repertoire-based gesture

within the same work. Indeed, there is no end to the sophistication of real-world artifacts that include musical form. These processes must, ultimately, be measured against perception and aesthetic understanding (of the artist and the audience).

In one way the idea surrounding a heuristic logic, such as the one described above in relation to scale and focus, is centered upon a belief that one cannot determine every level of a musical articulation. It is perhaps not desirable, from some perspectives, to try and give the illusion that one has covered everything in a work. Certainly aesthetics and subjective perception play an important role in our relationship to music and art, however an internal logic in which one structure is formed in a complex theorized manner and others in a more intuitive manner is also worth arguing for. This idea can be understood in relation to actual processes more easily and is examined in more detail in phase 3 of the present study. We can sketch in the outlines of the idea briefly here in relation to the artifact CT. The algorithms that were used to shape the chords into new forms for artifact CT did not include any criteria for the spectral content of the sound. That is to say preset piano and harpsichord samples were utilized in opposition to the composer's instinct to determine everything within the work. The focusing of the compositional criteria upon the *shaping process* led the composer to the conclusion that basic and "uninteresting" sounds would be sufficient.

The "focus" and "scale" categories described above can be useful in applying the models of practice in relation to different repertoires and skill sets. A framework or model that constructs only one possible mode of interacting with the material can be restricting in terms of accommodating different artists or composers. A model that theorizes the different aspects of practice in terms of a "focus" and "scale" opens the field to many different approaches. If for example a composer restricts his / her work to one dimension, for example work on spectral content, this can make it difficult to accommodate a free improvisation or a passage based in diatonic harmony (to name two possible compositional options). The categories suggested here can free the composer from a priori approaches and allow a thinking through multiple and

unrestricted permutations. Thus a user can begin a work such as artifact OB with a use of random atonal patterns and as it progresses make it a study of diatonic harmony. This logic is based (in the case of artifact OB) on the fact that the philosophical metaphor of "beauty as becoming" was understood to be *scaled* at the overall form (A) and the *focus* to be undecided (the "10 levels of organization"). The other formalized metaphor (in artifact OB) of the "non-sensuous aspect of the beautiful" forms itself around a "central theme" – the *focus* is primarily intervallic / harmonic and the *scale* of the metaphor is "A". Obviously there are conflicts of interest in relying too much upon such structural principles – their use-value is nevertheless affirmed. Artifact OB is described in more detail and analyzed in chapter 6.

Chapter 5 - Phase 2

In this chapter the artifacts of phase 2 will be analyzed (see timeline above). The two works in phase 2 are *Wasp and Orchid* and *Spectrality*. A link is provided to the works:

https://sites.google.com/view/documenta-scott-simon/research-papers/music-files

The connections that run through phases 1-3 will no doubt blur the lines between analyses. The concept of three distinct phases is useful but also ultimately artificial. The points at which the strictly defined categories break down show the inter-connectedness of the whole study. In chapter 4 it was made apparent that the earlier working process was entwined with the later processes.

The structure of the thesis is such that the entire study unfolds as a type of narrative. This is apparent even up to this point in the work. This structure accurately reflects where and how important landmarks and knowledge came to light. The core findings of the study are distributed through the different analyses.

In the following section the artifact *Wasp and Orchid* is analyzed (hereafter artifact WO). This artifact was an important landmark within the study for two reasons. Firstly, it brought to light various ideas concerning the shape of the philosophical text within the artifacts. The status of the "philosophy" and the meaning it takes in relation to the study as a whole is fleshed out in this phase. Secondly the shape of the method as "multi-method" was clearly articulated. The three methods of inquiry were delineated: (1) case-studies of earlier practice (2) artifact creation (interpretation / analysis) (3) a pragmatic re-purposing of Conceptual blending theory.

5.1 Artifact WO

In this section a brief tour of the foundations of artifact *Wasp and orchid* (artifact WO) will be undertaken. In order to elucidate the various foundational components in relation to artifact WO a process narrative will be provided. The narrative deals with the problems and solutions of the process in a manner that fleshes out, and clarifies, the process. The narrative will include a description of a "prototype" practice from which the research can take its bearings. This "prototype description" will allow the research to be contextualized in a manner that clarifies various internal research components. Phase 2 follows on from the earlier work and re-works the process at a higher level.

In the analysis of the artifacts of phase 1 various approaches were taken up in relation to "solving" the main research problem. However the basic mode of operation was one in which such a solution was being sought within a *projective* practice. The outlines of a more complete and systematic approach were being sought within this projection. This iterative approach in which one seeks to refine the framework of the practice is central to the research here. As noted in chapter 4 phase one offered some points that were deemed to be worthy of elaboration. There were also various new problems that accompanied the insights.

How can one even approach the concept of a *philosophical music*? It is surely the case that such a thing is a kind of logical absurdity. Music is a non-representational art and as such cannot signify an idea in any objective manner (see Schopenhauer 1958a, pp. 263-264; Scruton 1997, p. 138). Philosophers and theorists of music sometimes lament the fact that meaning is unavailable in any univocal form (Nattiez 1990, p. 17). Nevertheless the present study is interested in creating just such a *philosophical music*.

There are numerous examples of earlier compositional practices that offer a starting point for such endeavors. The present study has already analyzed some earlier compositional practices, practices that can serve as prototypes to new elaborations (see the State of the art chapter 2). Such prototypes further the conceptualization of the study and provide windows into earlier solutions. Interpreting earlier compositional practice within the light of the present research allows a clearly organized strategy for dealing with questions of definition to be implemented.

In section 1.5 of the present study an introduction to the "basic process" in relation to *Zarathustra* was described. This description contained the essential bases of the present practice, and a brief re-iteration of some of the main points is warranted. The central component of section 1.5 is the presentation of Strauss's work in *Zarathustra* as a *prototype* to further elaboration. An important focus of that section is Strauss's descriptive text, quoted and analyzed therein. Strauss offers a text that serves as the basis of his compositional practice (cited in Williamson 1993, p. 28). This text is concerned with an account of evolution that includes Nietzsche's *Übermensch* as the final goal of that evolution. In this account was located a "quite basic (but nevertheless interesting) description of mapping between evolution (conceived of as "upward" motion) and the musical content of *Sunrise*" (see section 1.5 present study).

The creation of a type of "thought form" in Strauss – a schema – that serves as a basis for musical expression is central to the practice here. Other important elements in the prototype include: (1) the "inspirational" use of Nietzsche's work. Strauss is not attempting to provide a definitive reading of Nietzsche's work, and; (2) the mapping of components from the text to the music. To put this another way a *blending* of the text with the music.

Chapter 2 of this study contains a description of the use of metaphor in Wagner's *Tristan* prelude, another important point of contact for this study. The very plausible nature of the metaphorical mappings described by Magee (2002, p. 381) are useful in

terms of a general theory of practice. The concept of musical "suspension" was described in section 2.1.2 as being related to Schopenhauer's idea of the "satisfaction of the will". Schopenhauer describes the suspension of a final resolution in music as relating to the delay of the satisfaction of the will. The longer one waits for resolution the stronger the desire for it. The longer one waits for resolution the greater the satisfaction (Schopenhauer 1958, pp. 455-456).

The two examples given here introduce a basic prototype in *Zarathustra* and some important concepts in "metaphor" and "mapping" / "blending". These ideas are analyzed in greater detail in the following sections.

5.1.1 Wasp and orchid: process and method

In researching the connection between instrumental music and philosophy one is confronted by an unavoidable question: what is the bridging mechanism that will create a connection between the two disciplines (media)? In basic terms the answer to this question is "metaphor". However metaphor alone does not seem to describe the process completely.

The metaphorical meanings of *consonance* and *dissonance* described by Schopenhauer and, ostensibly, utilized by Wagner could, theoretically, be mapped onto other meanings. The process of composing with philosophical programs must take into account the shifting of meaning within instrumental music, indeed the fact that meaning is often unavailable in any absolute sense. In relation to music the fact that the meaning of the philosophical metaphor is not present in any objective way within instrumental musical form is something that needs to be acknowledged.

We turn in this section to a specific example of a practical application of the mapping between musical form and philosophical text. This will allow a more complete

articulation of the forces that are present in such cross-domain mappings and stimulate discussion as to the significance of such practices.

The reflection on a concrete creative process will allow us to extend further the investigation into the concept of a *philosophical music.* In what follows there will be a pragmatic mixing of two methods of inquiry: the interpretation of the creative process and the re-purposing of CBT. The mixing of methods will give us the most coherent and nuanced version of the practice that we wish to elucidate.

The title of the artifact that we will analyze is *Wasp and orchid* (artifact WO)*.* The artifact is formed as a multi-media work of instrumental electronic music and philosophical text. The idea that was utilized was formed from an engagement with Deleuze and Guattari's *Thousand Plateaus* (Deleuze & Guattari 1987) (hereafter "TP"). In particular the work, in one passage, deals with the connection between the wasp and orchid (p. 10). This passage suggested itself as a good target for creating musical metaphor – it has a strong visual profile. The visual nature of the passage in TP allowed connections to be made clearly in relation to musical form.

The meaning of "wasp and orchid" for Deleuze and Guattari is complex. In regards this complexity we must note here that artifact creation of the type we are describing aspires to travel alongside the text (no more than this). The complete articulation of a "thought form" is required in such an engagement: one must articulate some type of synthesis (with one's own thought or another philosopher's thought) or reaction to the text that allows the artifact to be produced within a defined scope. The complete thought form for this piece is contained in the score to the work (appendix 1).

As a provisionary working model for *Wasp and orchid* we can note that on one level the idea relates to symbiotic relationships. However "symbiosis" signifies here more than two things entwined via nature's evolutionary laws. It is also by extension into the human domain, descriptive of a structure of becoming (including communications

through media and language) that creates connections and that can evolve as an interlinked form (network) within these connections. Deleuze and Guattari note that there is never a simple "addition" of two interacting organisms but an entirely new system: "Whenever there is transcoding, we can be sure there is not a simple addition, but the constitution of a new plane, as of a surplus value. A melodic or rhythmic plane, surplus value of passage or bridging" (Deleuze & Guattari cited in Houle & Vernon 2013, p. 58).

It might be noted at this point that our "thought-form" is not a complete philosophical articulation. It is merely the sketching in of an idea; at most it is the invitation to a more comprehensive dialog. If we return briefly to our prototype thought-form in *Zarathustra* we can contextualize our present thought-form. The prototype holds a description of "evolution" that allows a practice to be formed. The truth or falsity of the thought-form is not broached, indeed it is based entirely on a type of pragmatic epistemological foundation that sets quite obvious boundaries. Nobody could claim that the description of evolution, as articulated by Strauss, is a *truth* (there is for example no *Übermensch* in our evolutionary history). Yet within this kind of creative gesture we can accept a type of linguistic articulation that points to a possible world, a thought experiment that invites one into a discussion. The *Zarathustra* thought-form is not a *truth* it is a *schema*: it allows conversation and creative process to be initiated.

In the present context we are elaborating upon our basic prototype in a couple of significant ways. We are constructing the thought-form in a way that allows its logic to change in relation to the musical articulation. Thus the process in which we attempt to structure music according to our idea (our thought-form) is dynamic – there is no end-point in which we have fixed the truth of an idea (or fixed the schema in a final form). The unfolding of a type of working habitus in which conversation and philosophical dialog are related to musical form *is* the artwork. This way of working

relates fundamentally to the avant-garde working process in which a philosophical discourse becomes essential to the meaning of the work.

The work of bridging musical form and philosophical text is one that involves many points of contact that are not arrayed neatly in terms of meaning creation and reception. The process is one that must theorize various symbolic components and organize a type of reception that will make sense of the metaphors it utilizes. The basic premise here is not to form one more "expressive" mode but to allow meaning to be coherently generated. In order to work this process through we will make use of the *Conceptual integration network* (CIN). We will however use the CIN in a slightly modified form for reasons that will be detailed below.

The wasp and the orchid will be represented as objects (in a musical shape or form) that have individual and related parts. The task is to find a way to take our two "objects" and relate them to each other in a manner that represents "a symbiotic relationship" through musical form. The thinking through of how the relationship between the wasp and orchid can be realized through music will be *metaphorical* and the process whereby they are connected *conceptual blending*.

To realize the idea as musical form we will require a cross-domain map that diagrams the integration of the two media (text and music). The mapping in which we seek to integrate the two objects "wasp" and "orchid" with another network "musical form" is one that we can organize as a CIN graphic (see figure 15). Our CIN will be slightly modified from the standard CIN insofar as we are establishing a creative process.[10] The process being described is concerned with the creation of an artifact / composition and not an interpretation of an artifact / composition. This should not in itself be noteworthy except for the fact that we are not attempting to ground the metaphor in some univocal image-schema. As the diagram shows the grounding of

---

[10] Another example of making use of a CIN for creative purposes can be found in a paper by Kaliakatsos-Papakostas et al. (2014, p. 5).

the metaphors is a negotiation based in human discourse. A description of what *is the case* or *not the case* ontologically is not a research goal (at this level of the process). The facts of consciousness are, in the artistic process, a negotiation based in communication. This communication / dialog allows one to shape the artworks and musical forms in a manner that accords to negotiated boundaries and plausible metaphor. This will be discussed in more detail below.

Figure 15: Mapping between music and philosophy in artifact creation

Conceptual Integration Networks (CIN's) like the one offered in figure 15 are the development of Mark Turner and Gilles Fauconnier (Fauconnier & Turner 1998). Lawrence Zbikowski has utilized CIN's in relation to describing musical metaphors

and the realization of such in music composition in his work *Conceptualizing music: cognitive structure, theory and analysis* (Zbikowski 2002).

An important component of CIN's in general is the image schemata that inform the basic orientation of the diagram. Image schema theory (in relation to music conceptualization) is an attempt to ground musical metaphors such as "up" and "down" (for example) in actual bodily experience. This is important for finding a point of contact for the utilized metaphors (in a composition) that are not purely arbitrary (Zbikowski 2002, p. 68).

Zbikowski introduces image schema theory with a discussion of the VERTICALITY schema (p. 69). The verticality schema is understood by human beings in a basic and fundamental manner. It is not acquired through language, rather we understand verticality through an embodied logic that we acquire through experience. Zbikowski describes the schema as a "dynamic cognitive construct that functions somewhat like the abstract structure of an image and thereby connects together a vast range of different experiences that manifest the same recurring structure" (p. 68). He continues further down:

We grasp this structure repeatedly in thousands of perceptions and activities that we experience every day. Typical of these are the experiences of perceiving a tree, our felt sense of standing upright, the activity of climbing stairs, forming a mental image of a flagpole, and watching the level of the water rise in the bathtub (pp. 68-69).

The verticality schema is similar to what Lakoff and Johnson describe as a "prototypical" gestalt in which everyday activities that human beings engage in form a cognitive category (Lakoff & Johnson 1980, p. 71).

In the process that we are here concerned with there is no necessity to ground metaphorical elaborations in any absolute manner. Again this stems from the fact that

we are involved in a creative process that is not attempting to extract a definitive meaning from a composition. An important component of the diagram in figure 15 is the *inter-subjective component*. This component is a point of contact that establishes the manner in which the metaphors that will be utilized are plausible and have inter-subjective validity. A negotiation about what constitutes the world around us in inter-subjective terms will also include image schema that are grounded in this negotiation. Thus, for example, we can agree through discourse that "space" and "time" are essential elements of the "world" as it is constituted in consciousness. Furthermore we can interact with each other (one person to another) within a pragmatic cognizance of such categories. The same is true of concepts such as "object" and "substance", concepts which we can make use of in many different interactions on an everyday level.

For the modified CIN in figure 15 there is (in the input zone *philosophical space*) a conceptual category for "object", a category that, we contend, does not require any absolute grounding in terms of image-schemata. The presupposition here is that objects can exist and they can also interact with each other in fundamental ways. The existence of such "objects" can indeed be established inter-subjectively without difficulty. The ontological status of such claims is not queried, the claims being based on a relational discourse that is aligned pragmatically to the existence of such entities. The creative artifacts that we are here describing (the method of their creation) include this inter-subjective negotiation as part of the internal structure of the artifact itself. Establishing the coherence of such basic categories facilitates the next step in the process in which the two input spaces are presented. Before we describe this step however let us look briefly at the "generic" bubble at the top of diagram 15.

The bubble at the top of figure 15 represents the "generic space" of the blend. The generic space can be defined as the general concept that is formed as a "unifying" structure within which the other input spaces are located (Pereira & Cardoso 2002). This "generic space" could also include, in practice-based terms, the background

understanding of the artist and the aims / intentions of the creative process. At the very least in terms of our creative utilization we would need to add "background repertoire" as another input. It is apparent from such considerations as these that the graphic serves a purpose but is in no way a complete representation of the process

The next two input zones are "philosophical space" and "musical space". These describe the actual form of the structures that are to be blended. In *musical space* we have "controlled dissonance" and "super-imposed chords". These two components might in themselves be taken as arbitrary – the importance of the arrow in the middle of the CIN becomes apparent. One must think between the two zones and in so doing start to relate them. Before we can understand how or why "controlled dissonance" might make sense as a musical form in this context we must take account of the *philosophical space*. In that zone we see our idea of symbiotically related objects, objects that are both "autonomous" and "inter-connected". The principle of structuring between the two zones is one in which we must elucidate a musical form that offers a plausible translation of the textual component. "Plausibility" in relation to metaphor (and the relationship of music to philosophical form) is something that is established relationally in this method (our dialog bubble in figure 15). Music is not an objective language in any sense and if one wishes to create meaning - utilizing symbols that represent ideas - there must be a structure in place that will enable signification.

In the present context the metaphors required by the artifact were those that would allude to some sort of "natural" process. The input zone titled *musical space* refers to "controlled dissonance". The technique of "controlling" dissonance emerged from a grappling with the necessity to represent a relationship between two forces (wasp and orchid) as musical form. The idea of controlled dissonance appealed to the artist as a

plausible metaphor for the relationship.[11] The criteria for the representation were formed around the notion of a *smooth and fluid integration of different forces.*

A certain form of dissonance – the controlled clashing of chords –is to represent our symbiotic relationship. To elucidate this further we analyze the final zone in figure 2. The final zone is the *blended space* that connects us to the metaphorical form as "sounding form". The control over the dissonance of two super-imposed chords (provided through synthesis techniques described in detail below) gives us a controlled clash of chords. This "controlled clashing" was mobilized in the work as a representation of a symbiotic relationship: clashing and dissonance which are merely the result of two complex chords being played over each other produce artifacts and roughness that, in the present case, would not match the criteria for a smooth and fluid integration. The wasp and orchid are "objects" that have a component that integrates fluidly, but also, in the language of the guiding metaphor, they are *other. Otherness* was represented by the dissonance of the relationship between the chords. *Integration* was represented by the control of this dissonance. The process involved smoothing out perceptually objectionable artifacts so that the two chords could share the same space. The metaphor required a control over the individual harmonic partials in relation to each note within the complex chords – this control allowed a *playing* within the space of dissonance (within the space of *integration* and *otherness* metaphorically speaking).

Metaphorical form as "sounding form" describes our aim to integrate philosophical text into musical shape. This "integration" can only be understood as a strategy of creation. Importantly however "creation" takes on a meaning that includes a

---

[11] The complete process whereby one thinks between musical form and text cannot be represented easily in a diagram such as the CIN above. We can however make use of the diagram to elucidate the process and point out different aspects of it. It is perhaps worth stressing this point: the process as it is represented here differs from the compositional practice in its complete form. The description offered here allows a point of contact with the process, depicting the practice from one perspective.

discursive component as part of the artifact. Conversation in this process is focused upon the philosophical text and the metaphors that emerge from conversation / discourse. The artwork takes place in this domain – the forming of new ideas and philosophical / musical connections.

The main requirement at this stage of the process is to establish "correspondences". Such an establishing of correspondences must be based inside a practice that creates a zone within which both media can meet. It can be perceived that the practical application of the CIN to our problem cannot completely describe this correspondence. It certainly offers a viable way into the problem, but there remain elements that are resistant to the CIN schema. If we extend our CIN with another small graphic a more complete picture will be produced

It will be noted that we make use of the concept "visualization" in the diagram (figure 16). The diagram describes the process whereby we search each of the two domains for some mediating structure that will relate them – often the process is a kind of visualization. In the *Zarathustra* prototype one could find (visualize) "upward motion" in both text and musical form. That *visual* idea or picture is the correspondence between the two domains. What the present research adds to this process is the structure within the artifact. The emergent logic of the philosophical and musical components (see figure 17).
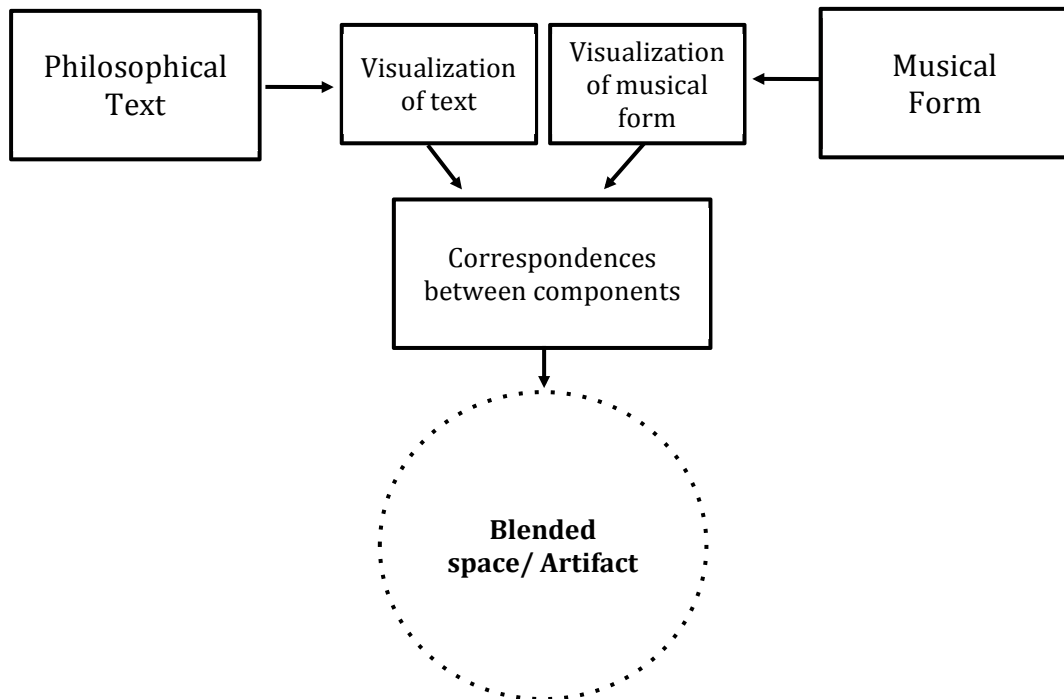
Figure 16 Diagram of process

In terms of the practice itself there are additional components that could be added to the diagrams of process (figures 16 and 17). One such component would be a "Development" section. This addition relates to the development of the internal logic of the work outside of (external to) the metaphorical foundation. The blended-space structure of a component of the music does not exhaustively characterize the artifact / composition. There are musical developments that relate purely to the logic of that medium – these are implemented according to whatever decisions are taken by the artist while working with the metaphor and the artifact.

204
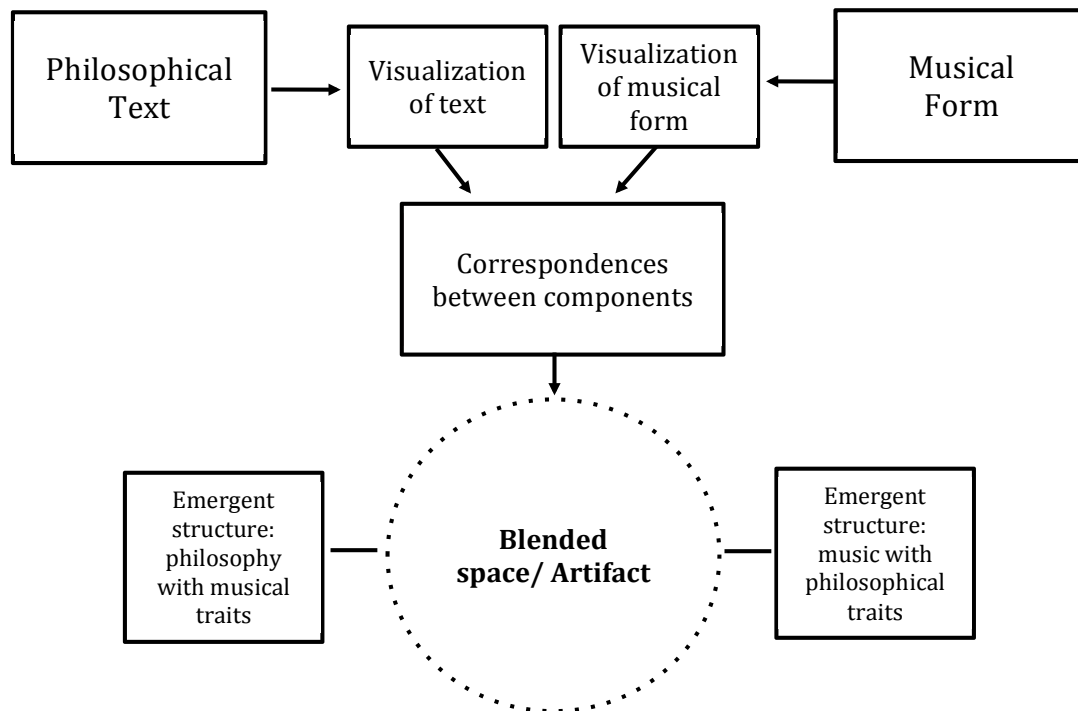
Figure 17 Modified diagram of process

The discussion on "scale" and "focus" in section 4.4.3 is supplemented here by the idea of *development. Scale* and *focus* of process are concepts that theorize the manner in which a metaphor or blend is applied to musical form: the designated scale and focus of the creative process pinpoint where and how the blends will be structured. It is representative of the present study's process that the artifact's content is not exhausted in the blended space. That is to say the blended space is one aspect of an artifact, it does not *explain* or *represent* the entire artifact. An early formulation of this point was offered in terms of the *basis of expression*: changing the foundation of an artifact will change the corresponding intuitive and repertoire-based expressive content that is built upon it (the "altered" foundation leads to altered expression). This is however only one way that "development" can be understood in this context. "Development" can best be characterized as the working with different aspects outside of the blended-space, i.e. the development of the logic of an artifact according

to its own evolving structure. This is discussed in more detail in chapter 6 in relation to phase 3.

One final point is relevant to this section. The present study is a process-oriented aesthetic that seeks to create a dialog between music and philosophical text. The dialog is based on a heuristic that emerges from communication and a relational component. Importantly, the establishment of bridging metaphors (between music and philosophy) takes place ultimately in a creative / compositional space. That said, the process is conceived to be one that allows a "thinking through" of ideas and a transformation of boundaries in subjective cognition. The process as a whole is perceived, ultimately, not as *simply* a way to make an artwork as an expression of the self but to involve oneself and others in a *form of cognition* that allows various conversations to be dwelt upon and integrated with musical form. Meaning will be objectively present in the musical form of such artifacts, residing in the dialog that molds the musical shapes.

It is essential point out that the "emergent" content on either side of the artifact in figure 17 is constituted in a different manner for each artifact. In artifact FR the philosophy took on a temporal, non-static, formulation in response to the musical expression. In the present piece the philosophical component "developed" alongside the musical structure and was not fully formed until the "end" of the process. The final insight into the use of the philosophical text required that the original text of Deleuze and Guattari, which is complex and multi-faceted, become formulated in a manner that was accessible to the artifact. This involved giving up any hope of definitive readings or "complete" formulations. The text became scaled to its use and was perceived to represent for the artifact a discrete "diagram" or "possible world". In any case as we shall see the working through of the thought-form involved returning to the ideas from various angles.

5.1.2 Compositional method

In this section we will look in more detail at a central aspect of the artifact, namely *controlled dissonance*. Once the participants (artist/s) establish (through dialog) how the philosophical metaphor will be realized as form, an algorithm or forming process must be produced. The trajectory of the making process is defined by the relational component of the artifact (the *inter-subjective* component of figure 15). In the present section applications (in this case using Max / MSP) will be programmed that allow the realization of the criteria already sketched in.

Important at this juncture is the unfolding of the metaphors in terms of compositional process. The theory that "controlled dissonance" will provide us with a useful way of realizing an idea as musical form must be practically implemented. The complexities of practical implementation confer on the artifact both a problem to be surmounted and a possibility for further elaboration.

The implementation of a theory of artifact creation – the integration of two or more principles or structures – reveals the shortcomings of any overly simplistic designs. If we focus here upon the processes involved, a more complete understanding of the theories will emerge, and also a better understanding of the often necessary re-structuring of theories within the light of practice.[12]

---

[12] It is worth noting that Fauconnier and Turner point to the complex nature of cross-domain mappings, a complexity that goes far beyond descriptions of one domain organized in the terms of another. The structure of such mappings in the real world is a type of integration that occurs on many levels and includes such cognitive features as: "integration networks, cobbling and sculpting, emergent structure, compression, overarching goals other than projection of inference" (Fauconnier & Turner 2008, pp. 64-65).

Central to the process of working between music and philosophical text is the dynamic relationship between the two poles. The artist encounters this relationship as one that is present naturally, but it is also a relationship that must be fostered.

One of the effects that the dynamic nature of the process reveals is the fact that the metaphors utilized must often, from a practice-based perspective, be elaborated further. One does not simply integrate one idea with another and come up with a finished artifact or composition. There are various considerations that must be taken into account. Two considerations that relate to the artifact under discussion are: what is the scale of the integration in relation to the artifact / composition? How does the artifact develop and refine itself in relation to the dialog between music and philosophy?

The first question is perhaps most easily answered. In a complete theory of the systematization of a *philosophical music* one must have categories of *scale* and *focus* as they relate to the overall working process. In regards to *scale* one can locate the process in terms of structuring the overall architectonic of the work or one can use the process as a tool to solve a thematic problem of e.g. 8 bars (or less / more). Thus the process has a particular *scale.* A philosophical metaphor is applied in a particular place with a particular target. The *focus* of the process can be intervallic, rhythmic, spectral, morphological etc. In the case of artifact WO the *scale* of the metaphor is confined to a punctuation that appears throughout the piece. The blended space component returns again and again but it is limited in scope. The *focus* of the process is organized around (1) an intervallic element, and also; (2) the spectral make-up and morphology of that element. Two chords are superimposed and the *Harmonic synth* is put to work on integrating the partials and creating internal spectral motion.

The second question is more difficult to answer and comes bundled with other related problems. The metaphor as it stands does not involve a very elaborate description of how a piece of music is going to be developed in utilizing it. To restate the metaphor

here: two super-imposed chords (with a control of the dissonant artifacts created) will signify integrated objects, metaphorically relating to a philosophical idea. This is fine as far as it goes but the perceptual structure of two chords statically blending does not have the required sophistication to be really useful as a compositional tool.

At this point one encounters the limit points of metaphor in the process. To overcome this type of limitation the basic metaphor(s) must be expanded into more sophisticated dialectical principles. In the present context there were two different avenues that presented themselves as being readily available. The most important elaboration came in relation to the metaphor itself – the wasp and orchid. In TP the linguistic metaphor is utilized in order to make interesting points about the nature of "territories" and the interplay of territories (Deleuze & Guattari 1987). However it is important to note that the use of the *wasp and orchid* as a principle is one that involves a real-world structure. Such a structure has a logic that is not exhausted in its philosophical utilization.

Controlled dissonance (as a working principle) was a starting point that could be expanded or nuanced with an emphasis upon the manner in which real world structures work together. Real world structures are rarely static. They move and shift with time; interactions between entities are complex and dynamic. Such interactions shift and change from moment to moment sometimes on many interwoven levels. Music also has this dynamic (temporal) complexity as one of its possible qualities. In order to develop the basic metaphor of *wasp and orchid* some more development of the principle of *controlled dissonance* was required.

A thought-process that works through the various correspondences of music to a dynamic interaction between entities (brought to consciousness as a concept) is the type of practical problem solving that one utilizes to enrich basic integration networks. The importance of correspondence cannot be overestimated in cross-domain mapping. It is also essential that the process move in both directions. Music

is not, in this practice, the target of a one-sided mapping activity: the complexities of music, its availability for registering and producing nuance, must also return to re-structure the source domain. Such a process extends the metaphor in a manner that allows new more sophisticated musical articulations and also, at the same time, unpacks and elaborates the metaphors and concepts that are being utilized.

In the present context the elaboration of the central metaphors led to a refining of the musical form required, and a corresponding refining of criteria in the algorithmic design. The correspondence between the two poles (musical form and text) received some newly articulated criteria such as "moving….complex….always changing": real-world elaborations emerging from our primary metaphor. With these additions the creative process began to take form. The final step in the process was related to understanding the ideas in purely musical form.

5.1.3 Controlled dissonance as effective compositional process

What is signified by the phrase *controlled dissonance* in purely musical terms? Answering this question will contextualize the discussion of compositional application design.

When two sound waves of differing frequencies (of a particular amplitude and pitch) are put into relation with each other they create *beats*. These beats can be mild or strong depending upon the distance apart of the pitch frequencies being played / triggered. Usually dissonance characterizes - perceptually speaking – an event more extreme than, for example, two sine waves 2 Hz apart. Two sine waves 2 Hz apart will cause a mild wave-like motion. This cannot be described as *dissonance*, yet we might see it as, perceptually speaking, moving towards "roughness". Roughness of partial interaction in complex waves (in the case of two or more interacting notes) is for some a measure of dissonance (for a discussion on this see Helmholtz 1954, p. 226). There are also numerous other considerations concerning dissonance, for example the tonal hierarchy that the subject has internalized and the concept of "fusion".

It is worth noting that "dissonance" is partially connected to the subjective experience of music, and what can seem to be dissonant in one context is consonant in another. Sethares analyzes dissonance in his paper *Relating tuning and timbre* (1992). He emphasizes the manner in which different timbres will result in slightly different elements being considered as dissonant or consonant. His *principle of local consonance* states that: "A timbre and a scale are said to be related if the timbre generates a dissonance curve whose local minima occur at scale positions" (Sethares 1992, p. 1). The analysis of instruments using dissonance curves can lead to the creation of different sets of scales and tunings that are related specifically to the timbre of the instrument. We can also - in the Western musical tradition - see

dissonance as representing an aspect of "instability" which must be resolved (Bharucha 1984).

In any case without trying to define dissonance in any absolute fashion we can concern ourselves aesthetically with the various artifacts and beatings (harmonic roughness) that contribute to complex harmonic interactions. These artifacts and effects can be controlled via sound designing techniques. With sound design one can take all the elements that go into a chord, for example, and manipulate and re-structure them. Thus when we have a note constructed from 24 partials which can all be individually altered and worked upon we are able to control how dissonance and artifacts such as beating manifest themselves. Wendy Carlos (1986, p. 37) looked closely at the manner in which the beating of partials within equal temperament leads to a type of musicality based upon quick tempos. The ideal of being able to control dissonance and tame rough partial interaction can be the job of a tuning system or of a control of the partials themselves. Once one has smoother interactions one can dwell upon notes to a greater degree and relax the tempo of a composition. Of course if the "roughness" of the beating of partials is a criterion of the artist's aesthetic then that can be emphasized.

Using computer synthesis techniques one can manipulate amplitude, phase, frequency and envelope all at the level of individual harmonics. This can lead one into areas in which a chord can be altered in order that it fit "smoothly" with another chord. "Smoothly" is of course a subjective appraisal so let us define it or at least unpack it. It is possible with careful listening to hear the clashing of partials within chords as beating - and sometimes even to hear in electronic chords complex artifacts that are connected to beating but which can be seen as undesirable in terms of the fidelity of a sound. Real instruments create very complex and continuously moving waveforms (in relation to phase) - electronic instruments tend to be more static. It is this tendency to be static which can lead to undesirable artifacts (in comparison to a "real" instrument). Waveforms move and change within real-world resonant bodies with a

logic that is complex and difficult to emulate with electronic instruments. That said it is possible to control many parameters in electronic music that are closed to traditional modes of working.

If the artist creates a waveform electronically and then controls various parameters at the level of partials (amplitude and phase) the results can be sophisticated and perceptually rich. Using (as an example) triggered notes with 24 partials we can put into practice a process that – while not emulating real-instrument resonance – can articulate sounds of the type that will correspond adequately to our metaphorical elaborations.

We can firstly control individual partial amplitude. Two notes with clashing partials can be homogenized and "smoothed". In the synthesis patch that is to represent the philosophical metaphor of the artifact (max/MSP patch - see fig. 18) 8 different notes were triggered together. The resultant interaction was then treated to a subjectively motivated adjusting of the partials in both the amplitude and phase domains. This configuration was then stored and another produced. This procedure then allowed one to move from chord to chord (as saved configurations) smoothly interpolating between one configuration and the next.
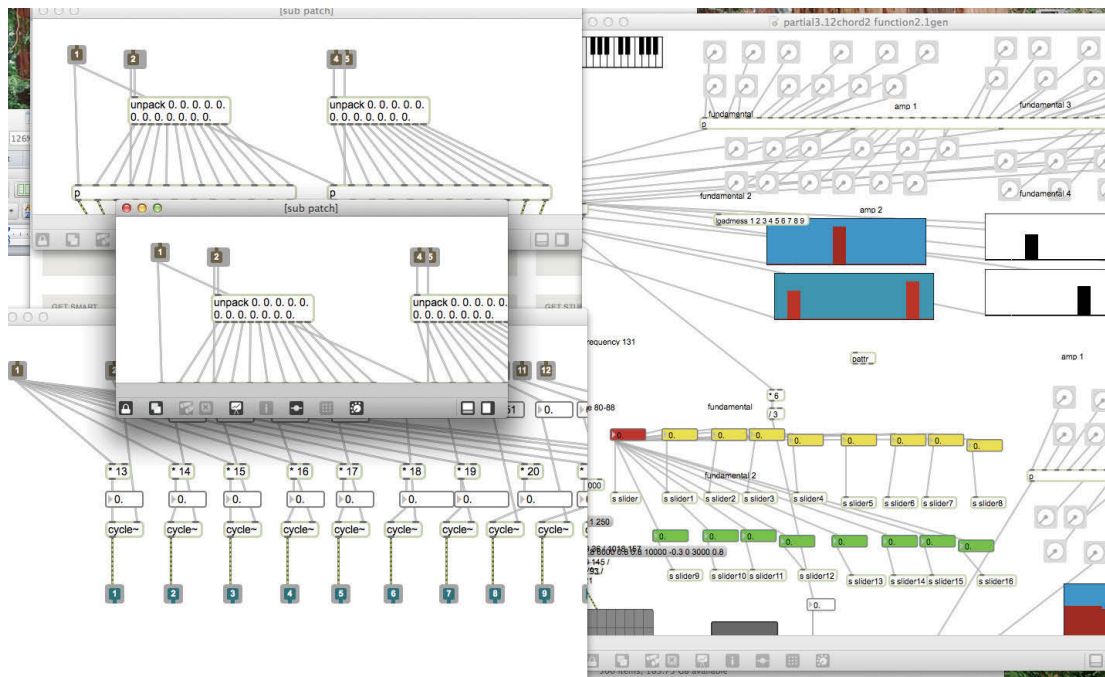
Figure 18: Harmonic synthesis

The patch allows the composer to change the phase of individual partials (in conjunction with amplitude control): a process which, perceptually speaking, contributes to the control of undesirable artifacts in large chord groups of 8 notes or more. Listening to the beats of large dissonant chords and moving amongst the partials and fundamentals making phase and amplitude changes one can arrive at relatively smooth and subjectively integrated sounds. Moving between different states - from one partial architecture to another - one can create an interesting soundscape that moves and changes. A process in which one fixes a set of harmonic partials and then moves this state through modulation into another fixed state creates dynamic soundscapes. This process is one that requires a smooth interpolation from one configuration to the next and is a form of "vector synthesis" (see Cipriani & Giri 2010, p. 220) .

The max patch does its work in a number of ways. Firstly the numerous partials are controlled via virtual dials which will not extend past the maximum amplitude

designated for each partial (with the overarching model being a Sawtooth waveform) - this makes it easy to turn down and turn up partials without amplitudes becoming too loud. Then each partial has a phase adjuster attached to it via virtual multi-sliders. In practice one can move amongst the partials of each note in large chordal groupings turning the amplitude and phase of those partials up and down.

The chords are built up by applying simple equations to a fundamental note. This does have the advantage (disadvantage) of making everything sound in just intonation (JI). In the first example *Chord 1* we can hear a chord played twice with different partial settings - the chords sound moderately different. Link: https://soundcloud.com/scott-simon-66/sets/controlled-dissonance

After building this patch some basic aesthetic tests were conducted. A "drone" chord was manipulated for 10 minutes, partials and phase elements were turned up and down with an ear towards the overall effect. In such an environment changes happen very slowly and the harmonic partial information is subtle (even as it changes). That said, it was apparent that you could get very smooth sounds from the patch moving from one spectral profile to the next. The focus at this point in proceedings was the upper frequency beating of the chord partials: they were, obviously, changing and moving as I manipulated the elements.

As noted above this partial manipulation is quite subtle in terms of effect. The effect did not contain the necessary elements to satisfy in any complete manner the stated criteria. However the focus upon the beating of the partials pointed to other possible avenues. Adding a gen~ delay to the patch allowed me to exploit the partial beating in a way that was more radical and more aesthetically prominent.
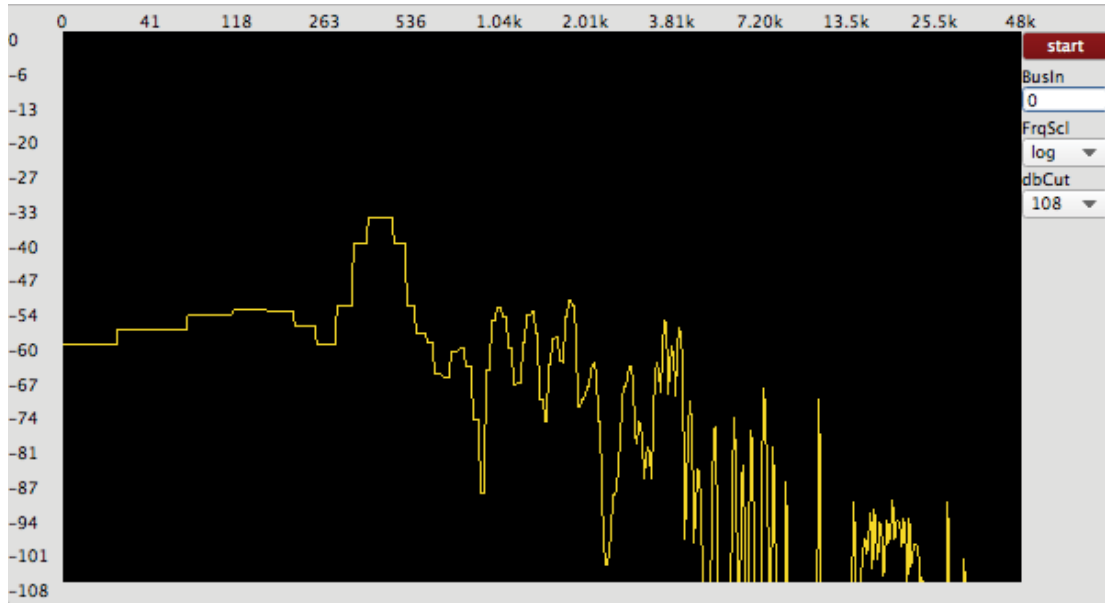
Figure 19 Spectrogram of "Genbit5".

With the feedback delay in place I was able to force the partial beating into sudden movements and jumps. The delay was set to resonate at certain frequencies (feedback), having the effect of emphasizing those frequencies. This has a knock-on effect insofar as the relationship that those frequencies have in regards the whole spectrum is also changed (the beats occur differently and with different intensities). The delay is set in terms of number of samples and then the delay operator creates a feedback loop which has the effect of enhancing a group of frequencies (see figure 19). As we shall see below the delay is being used here in a manner that creates sidebands around the basic audio input.

Looking at figure 19 there are a few points worth noting. The spike of energy at the point around 490 Hz results directly from the application of the Gen~ delay. The file that is represented here is *genbit5.aif.* Link to file is here: https://soundcloud.com/scott-simon-66/genbit5. Note that figure 19 is a representation of a file that contains a complex chord of 8 notes and the corresponding filter motion. Figure 20 below contains a spectrogram of one note.

The complex of notes that make up the example contain harmonic partial sculpting (with automated interpolation between states) and the application of the feedback delay. The delay is applied with a moving central frequency – the motion of this frequency pushes various frequencies into prominence as it moves from one delay stop to the next (via stops of 0.1 ms). In figure 19 we can perceive a spike at 490 Hz (approximately relating to a B note in the tempered scale). This note moves (as different partials become effected) in a glissando up to C and beyond. The actual effect is not confined to just one partial area and moves through various areas. In experiments conducted with the delay and *Harmonic synth*, the motion of the delay time (input through a controller) results in a changing of the overall tonal characteristics. This overall change occurs as the balance of the partials changes.

In the particular example of *genbit5.aif* a chord made of 8 notes (conceived originally as two different chords) is played and then modulated with the delay. The effect is one that pushes the entire complex (chord) into new relationships. The individual amplitude envelopes of partials, and zones of partials, are pushed up and down. Some of the resonant points become quite loud, taking on the form of a fundamental (perceptually). That is to say, the process changes the perception of the harmonic center, new (louder) notes take on the role of the fundamental.

The feedback delay is organized around the delaying of the input sample: (x(n)+x(n-a))*0.5. The variable "a" here is attached to a user input float. This is the beginning point of the signal which is then shifted into a circular buffer with a variable amount of feedback. The amount of delay time that one sets will set up different partial relationships for the whole waveform. The feedback delay is a standard implementation and it follows best practice for producing such an effect. With the shifting partial architecture of the *Harmonic synth* in combination with the delay, the overall effect is novel and subtle – creating in the finished piece motion processes that recall (for the artist) organic processes and interactions. The realization of the criteria

in respect of "controlled clashing" and the "smooth integration of opposing forces" was consciously perceived.
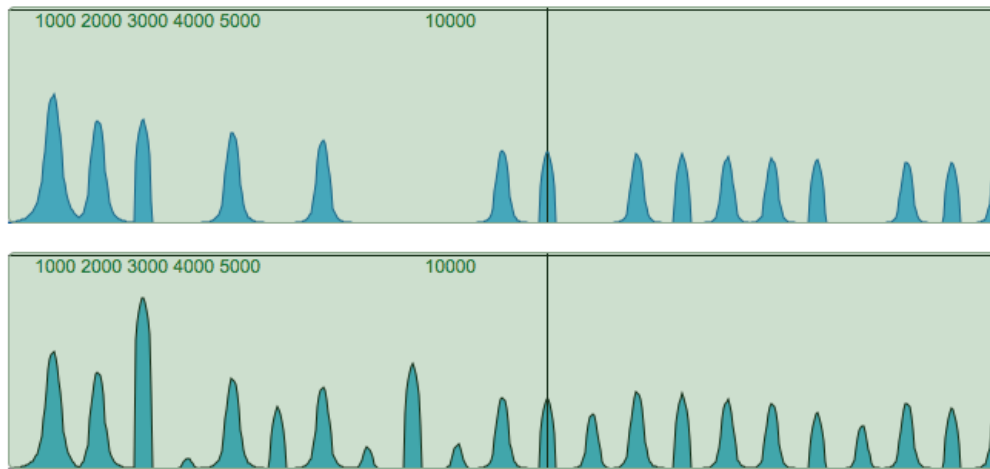
Figure 20 Spectrogram of filtered harmonic synthesis techniques

In figure 20 one note of 1000 Hz is presented. One can see that the partials change their relationships to each other in the second spectrogram – various sidebands and new emphases are created (the second graph is the feedback delay). In practice it is the excitation that comes from moving the number of samples to delay that creates the changing beating relationships and it takes the form of a kind of shifting high-pitched component added to the fundamental (fundamental is here 1000 Hz). Also of interest are the amplitude envelopes of the partials as the delay time is changed – the rise and fall of different partials makes the entire wave dynamic. Note that in this example we are using only one note (with 15 partials). In the composition itself the chords are made up of 8 notes (with the corresponding multiplication of partials). Figure 19 represents a complete chord. The center frequency of the delay (with feedback) moves according to the length of the delay (typically between 0.1 and 100 ms) and this shifts and disturbs the upper partial relationships of the chords. The resonant frequency moves amongst the already dynamic components changing their relationships.

In the example *Genfilter1* we can hear the resonant frequency moving within the chord and changing the balance of the beating partials. The manipulation of the partials in conjunction with the changing of the resonant frequencies creates dynamic and complex sounds.

Link: https://soundcloud.com/scott-simon-66/sets/controlled-dissonance

The two super-imposed chords are organized and manipulated according to the criteria of integrating objects, while the filter is imposed upon both re-aligning the already dynamic partial architecture. This has the effect of creating a kind of "third" element within the musical sound. The third component is like a distinct and individual structure that moves around on the surface of the blended chords (which are already exciting a partial beating between them). The observation, and creation, of such effects is, we contend, the benefit of working in the ways outlined here. Merely looking for interesting effect cannot sustain interest over long periods of time – at least in the present case.

The problem of working without the delay/filter is that if one triggers a chord and then turns down many of the partials there is a corresponding loss of energy and overall amplitude. One can of course compensate for this - and that was attempted. What I found in this process was that it took a long time for changes to be realized. That is to say the ear would register very subtle changes in the speed and frequencies of the upper partials beating over periods of 30 seconds to a minute. The outcome of working in this manner is a kind of subtle drone music that moves into new beatings and phase relationships over extended periods. I found that only pieces of ten minutes or more made sense - one could pick up the logic of the changes in that time frame.

With the Gen~ feedback / delay line things became more dynamic and energetic. Sound examples: *Gen:tuning1* and *Genfilter2*.

(link: https://soundcloud.com/scott-simon-66/sets/controlled-dissonance)

Having attuned myself to the ringing of partials in the earlier experiment I now could use the feedback frequency to push that partial ringing in ways that were immediately effective. The effect is still subtle but if one is attuned to the partial ringing in the upper registers of the chords one can create organic ripples that correspond to the criteria of the piece. Applying secondary envelopes over the top of the longer drones makes things a bit more musical. See: *Envelopegen1* (use link above). The use of smaller sections makes the sound more discrete but it also minimizes the ear's ability to pick out the beating of partials. This seems to be of secondary importance - the "edges" of the sound are complex and this makes the sound interesting (at least subjectively). Objectively one might point out that sounds that are formed out of natural resonant objects or configurations are usually not of the type that have static elements. The fact that one is concentrating upon moving and shifting the partials and their relationships will lead to sounds that have fewer static components. If one of the criterion of design includes the organic element in nature (as in the present case) then this procedure is useful in generating results. In the present case while not trying to emulate any real world sounds as such, I did have in mind the notion of a controlled clashing of chords as analogous to the way some organic processes function. This working within metaphorical connections as correspondence is central to this particular process of artifact creation.

The importance of motion within the partial structure of real-world sounds is noted in Risset and Wessel (1999). The individual partials of a brass instrument for example are shown to have quite discrete paths within the overall dynamic (Risset & Wessel 1999, p. 119). While we are not attempting to model an instrument here, the motion of partials and the excitation of various components give complex sounds that satisfy our stated aesthetic criteria.

5.1.4 Insight and result

The end result of the process is a series of juxtaposed 8 note (complex) chords that have been "tuned" in order that they are "controlled". The chords can include "unrelated" forms (a G13 and a Bb 9 for example) and are therefore quite dissonant without some sculpting of the partial architecture. Without such tuning / sculpting the dissonance of the 8 notes all playing together does not satisfy the aesthetic criteria. The "sculpting" of the notes that occurs in the application (Max patch) is then saved as a configuration. The saved configurations are utilized as "nodes" and one interpolates between those nodes. A resonant filter is also automated as a third "moving" component. The interpolation between states therefore includes three elements: (1) a moving between different spectral configurations; (2) an emphasis on different "notes" within the chords, and; (3) a resonant filter moving and engaging with the shifting spectrum.

The final step in the process was an "insight" into the connection of the sound and thought-form. We are pointing out here that the process was not instantaneous, all of the steps required a back and forth motion that teased out the connections. The end results (aesthetically speaking) are now firmly connected to the metaphor: the two "objects" inter-relating (super-imposed "controlled" chords) with motion of partials to symbolize a dynamic relationship. The resonant filter passing through the spectral zone emphasizing and highlighting whatever set of frequencies it touches down upon – it is a "third" entity moving amongst the chords. This third entity is related to the concept of a "surplus value or new plane". To quote Deleuze and Guattari again: "Whenever there is transcoding, we can be sure there is not a simple addition, but the constitution of a new plane, as of a surplus value" (Deleuze & Guattari 1987, p. 314).

Naturally our "insight" does not reveal the entire outcome of the process. Rather the outcome is to be understood in relation to the process itself – the moving between the

different poles of text and musical form and the working with Max/MSP as the computational part.

A. An initial reading of a Deleuze and Guattari concept is formed.

B. A way of working between the music and the initial thought-form is formed around a use of Max/MSP in the form of the *Harmonic synth* application.

C. Theoretical intervention in the process through the application of "conceptual integration network" diagram.

D. Various iterations of *Harmonic synth* in relation to interpretations of the "tonal structure" and relationship to the thought-form / metaphor. Iterations concerning the thought-form are also accommodated. The original metaphor is looked at from various perspectives.

E. The complexity of the original Deluze and Guattari component is rendered as a conceptual "diagram" in a form that will accommodate the quite modest musical form that is produced.

F. The change from emphasizing a "block of becoming" to an emphasis upon "surplus plane" emerges from a continuing relationship with the text that the process facilitates. However both readings make sense and can claim a stake in the sound formation.

The particular outcome of the analysis of this process is the bringing to light of the various elements. The utilization of the computational component that develops alongside the other elements is also significant for this stage in the research. The thought-form is only a "fragment" that appears as a "diagram". Yet it opens out onto other textual concepts and a series of such *conceptual diagrams* could also be

envisaged. The "thought-form" is furthermore guiding the different iterations of the *Harmonic synth* and it is a set of criteria based in philosophical ideas. The process as described is significant in relation to the development of the complete habitus (as one aspect), and it also points the way forward to the next artifacts. The next artifacts develop some of the fledgling components of artifact WO.

5.1.5 Harmonic synth

The development of the *Harmonic synth* progressed further from the point described above in 5.1.3. The complexity of the patch was becoming problematic, and besides the patch was too inefficient (CPU). The solution to this problem was contained in a kind of modular version of the synth. This modular version (see figure 23) allowed a user to instantiate only the amount of synths required, and also allowed the use of multi-threading (working between multiple patches).
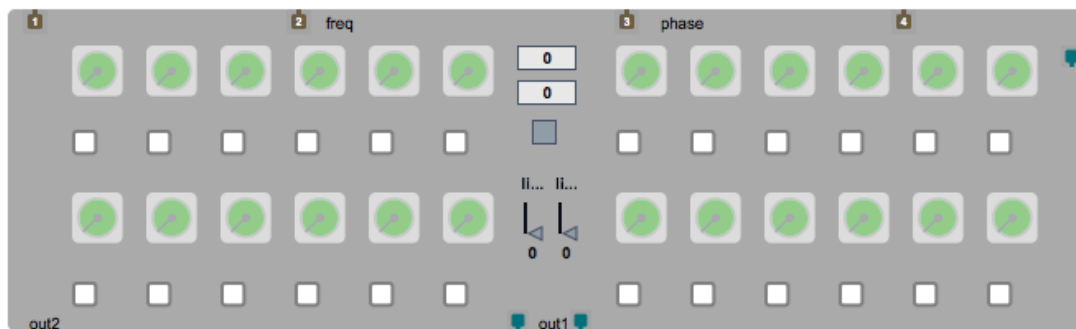
Figure 21 Harmonic synth
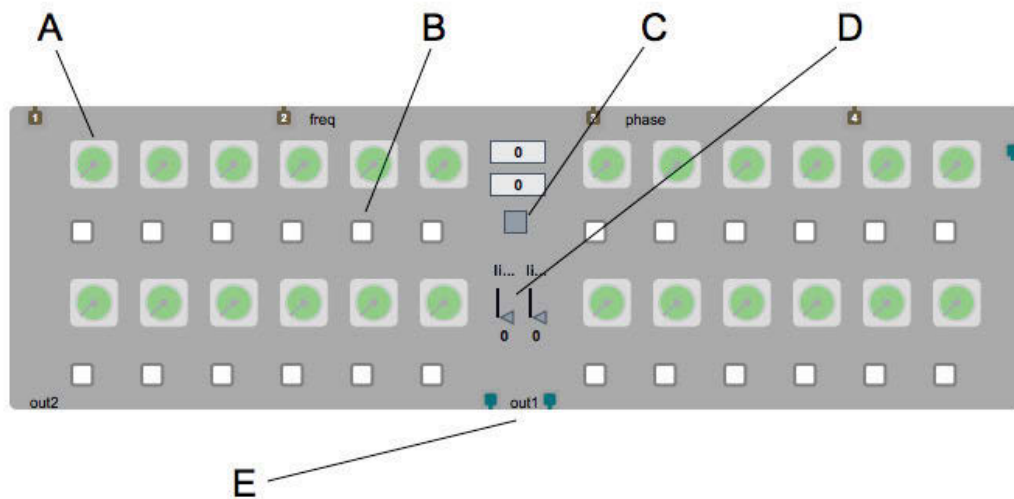
Figure 22 Functions of Harmonic synth

In Figure 22 there can be seen: (A) the dials that control the amplitude of each partial. There are 24 partials per note (each modular instance is one "note"); (B) the toggles that allow the on / off switching of a partial. This toggle when switched "in" releases the partial from being swept by an amplitude sweep; (C) this button when pressed sweeps the partials according to a variable speed. This speed is governed by the integers entered into the number boxes above the button. The lower number box gives the speed in milliseconds for the individual dials, while the upper number box is the speed in milliseconds that the sweep moves through all of the dials; (D) this is the overall amplitude of the left and right outlets; (E) outlet 1 of the synth.

As we see in a report by Hewett et al. the proper evaluation of creativity support systems, be they in music or any other domain, requires long and relatively complex processes. Such a study is outside the main focus of the research here, but an evaluation of the application in terms of use value is relevant. A quote from Hewett et al. on evaluating support systems is relevant here:

"(A) Creativity Support Tool should allow the user: to take an holistic view of the source data or raw material with which they work; to suspend judgment on any matter at any time and be able to return to that suspended state easily; to be able to make unplanned deviations; return to old ideas and goals, formulate, as well as solve, problems; and to re-formulate the problem space as their understanding of the domain or state of the problem changes" (Hewett et al. 2006, p. 14).

In terms of the *Harmonic synth* as a general tool for creativity a couple of evaluative observations are offered. The author made use of the synth while composing and creating various works. It seems that as a general purpose tool it fills in a gap: it is usually very difficult to work with complex chords (of 8, 9 or more notes) insofar as they become unruly and exhibit "roughness" due to partial beating (especially in exotic tuning systems). It becomes essential to have complete control of partials in such cases, the synth allows this. Another useful aspect of this tool is the fact that it

works with constraints. The different dials on the UI do not simply turn the partials up and down – they do so within the structural confines of a Sawtooth waveform. Thus it is impossible to create totally inharmonic sounds relative to the note itself. This "limitation" is essential in terms of the practical use of the Synth. If one worked without constraints in the present context it would be very difficult to construct chords which - although complex - also make sense within the boundaries of a diatonic chord. Eight note chords which include hundreds of partials of any possible amplitude simply make inharmonic sounds. In the present case the tension between diatonic harmony and more exotic tunings is something that is deemed important.

The synth also showed itself to be useful in terms of solving compositional problems in relation to the internal motion of partials. The sweep function of the synth allows one to construct a variable waveform. A waveform that is too static and repeats without variation is not "organic".

In terms of the sound that is achieved from the synth some descriptions have already been offered. Other experiments with the synth have also been done (see appendix 2). The synth allows: (1) the turning down of disagreeable artifacts in a manner that allows complex chords to be produced within the aesthetic criterion of "integrated" (artifact WO), and; (2) the structuring of sounds in terms of a tuning "context" (see appendix 2).

A screenshot graphic of a modular use of the synth is shown in figure 23. Such modular uses allow a utilization of the synth in a variety of creative contexts, in the present case the synth can be used, and has been used, to create various pieces. The development of the synth has also been taken across to a M4L (Max for live) device that has a different, but similar, role to play in terms of live performance. The importance of the M4L device is connected to the manner in which the performer can take the *Harmonic synth* and slot it into a DAW (Ableton Live). This was done in performance at C@C 2015.

Whether such a tool, a tool which is ultimately organized around providing support for a very specific research goal, is a tool that can find wider use and acceptance is an open question. The tool requires certain signal chains to work optimally, including the filter described above, and it is formulated according to quite specific needs. However it is the fact that it emerges from a particular kind of artistic praxis that makes of it something unique. The description of its role within the artifact making-process, its development through the different stages (through multiple artifacts) make it a concrete demonstration of some of the research ideas and goals. To show the connection to metaphor and idea, the development of the application in connection to such ideas, is to show a fundamental aspect of the practice itself in the wider research. In this sense such a device has a demonstrative value that makes clear a mode of working that is useful within the overall context of artistic praxis.
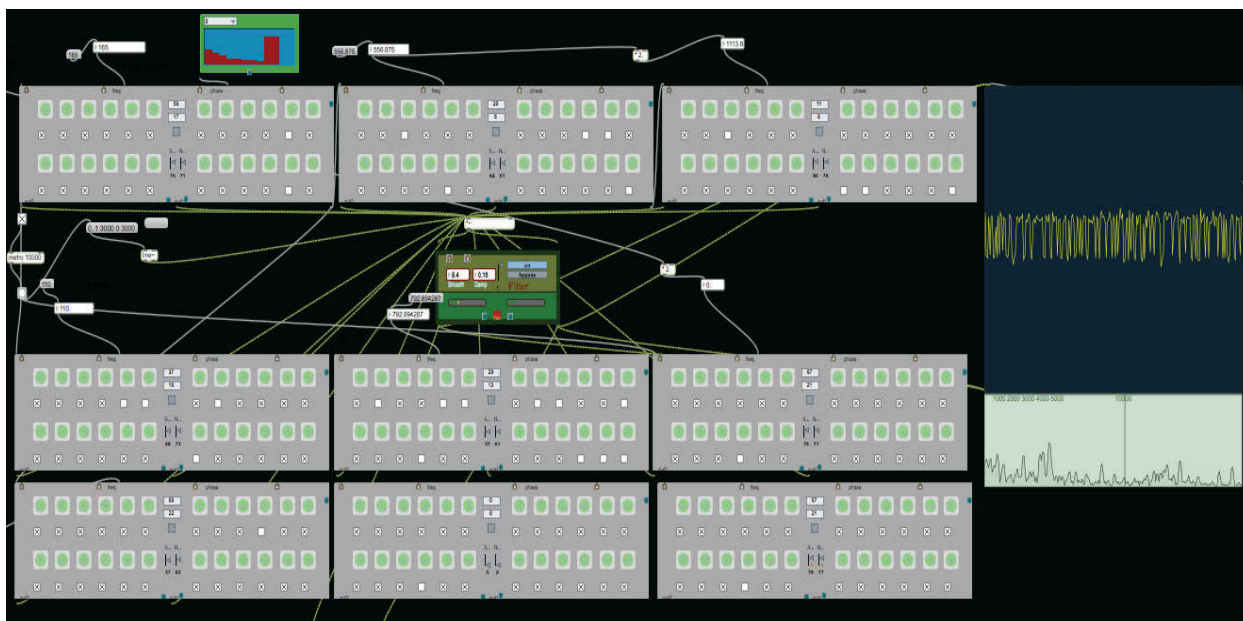
Figure 23 Harmonic synth modular

5.2 Artifact SPEC

Spectrality (hereafter artifact SPEC) is a piece that emerges from artifact WO. This signifies in this case that the computational processes and applications still retained some interest compositionally and spurred further investigation. The direction into the work was unique – the different Max / MSP applications were taken as the starting point here. Philosophy was something that would need to be applied "after the fact" of these creative applications. This could have been taken to be an elaboration of the earlier work, but instead the elaboration led to new thought processes and new philosophical metaphor.

Aesthetically speaking it is obvious that something very different is present in artifact SPEC. Yet upon closer consideration one can recognize elements from the earlier work (WO). The earlier use of dissonance and the blending of the chordal components has become the major focus of artifact SPEC. In artifact WO we perceive that the blended chords occur at various intervals as one structure amongst many, in artifact SPEC the blended chords of the *Harmonic synth* are the focus of the whole piece.

This renewed – and expanded - focus is to be expected from the working method that is being employed. The creation of the synth was something that required a long iterative process in which the aesthetic and the technical were worked in tandem. The process in relation to artifact WO has been described above (section 5.1). The long process of design and implementation lead one to see other possibilities in the aesthetic outcomes. In actual fact the pieces did not require the finished *Harmonic synth* to be realized – various different stages of design were made use of in different capacities. The technical component was worked out as the pieces evolved and each stage of design in relation to the synth had slightly different components (leading to unique and evolving tonal elements).

"Spectrality" as a concept is one that Derrida makes use of (see for example *The spectres of Marx* (Derrida 1993) and it is also tied to a type of psychology as embodied in Abraham and Torok's work (Abraham & Torok 1994). The thought form in its entirety is given in appendix 1. It is essential to stress the "provisional" and "incomplete" nature of the thought forms. The artist makes use of philosophy and theory as they "appear" in the making process. Certainly one of the tenets of the research is that a user will be brought back *again and again* to an idea or synthesis of ideas. A philosopher or philosophers will continue to dwell within the confines of the work – the "thought form" of the artifact can become a kind of notebook that the practitioner uses to expand the provisional engagement. This is the "habitus": the thinking between music and philosophical text. There is no end to the process as such, just as there is no definitive reading of a philosophy or philosopher(s) offered. Inspirational use and practical engagement are the essential foundations of the process.

Here we can sketch in a basic narrative of the idea's formation. The idea began, for the present study, as a focus upon the notion of a lineage that "creates" subjectivity. A note from the research diary:

An evolving history of consciousness projecting its visions upon the future into which each subject is born. These visions made concrete are the horizon into which one is thrown.

Dissonant chords with automated sweeps (created synth module to represent the elements of the work) connected by single note bass.

Chord1   Chord2   Chord3   Chord4

         =========   ========   =======   =======
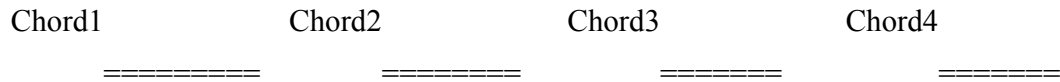
Figure 24 Research diary graphic

Key: "====" represents bass notes.

Each chord represents, metaphorically, a vision attempting to establish itself as a concrete reality: disconnected from each other, trying to establish different systems and visions of reality. The next movement depicts these chords in alignment as a chord progression; they are the spectral shapes within consciousness. This is the "horizon" into which one is born. A melodic line is harmonized by the chords now in a "coherent" relationship. This melodic line represents "consciousness" within the horizon of past nodes and visions made concrete.

This basic idea developed and changed as the piece evolved. A certain type of "psychological" interpretation of *spectrality* began to make itself prominent, based on the reading of a paper *État present: hauntology, spectres and phantoms* (Davis 2005). As noted the piece was also emerging from the musical application (*Harmonic synth*) and the possible new uses that could be put to. The thinking between the two poles (material and philosophical) led to changes in both the application and the thought form.

The psychological position is one that focuses upon the notion that one is never only a presence that is transparent to a self-understanding. The "self" may be structured

according to a kind of invisible phantom located in one's family heritage. This is a reading based on Abraham and Torok's work on "trans-generational communication":

Abraham and Torok had become interested in transgenerational communication, particularly the way in which the undisclosed traumas of previous generations might disturb the lives of their descendants even and especially if they know nothing about their distant causes. What they call a phantom is the presence of a dead ancestor in the living Ego, still intent on preventing its traumatic and usually shameful secrets from coming to light (Davis 2005, p. 374).

The phantom or ghost is read, according to this account, as a kind of encryption of "unspeakable" acts of past generations. The more Derridean "specter" is built of the same kind of stuff – but it orients itself towards the future (Davis 2005). It is important to note that we approach these texts as an inspirational starting point. The work begins a process and engages with the ideas of the other: it is an invitation to a dialog.

As an entry point to the idea of spectrality this configuration showed promise in terms of metaphorical form. As Davis points out (p. 374), the *specter* of Derrida is quite different from the *phantom* of Abraham and Torok, yet he also notes that Derrida certainly knew their work and was, perhaps, influenced by their ideas. For our purposes the idea of *spectrality* is to be read in terms of a quite basic conceptualization, the idea that the spectral emerges from within the present (time) at every turn and that no present (time) is "self-sufficient" (Jameson cited in Davis 2005).

Added to the basic formulation is the idea of a "future spectrality" in which some kind of utterance from the future is forming in the present. The "future spectrality" is a more difficult concept and it is also more difficult to realize musically. The idea that

something is forming from out of the future – this could be realized as a kind of spectral voice that emerged from the work itself, unbidden.

These two kinds of spectrality became the driving force of the work. The musical form seemed to accommodate the first type of specter without any difficulty – the musical work as a whole is a kind of "controlled integration". Metaphorically the two chords of each "node" are representative of a consciousness – the past speaks through the present, dissonant, but integrated. The integration symbolizes the manner in which one assimilates one's heritage, the dissonance represents that not everything is perceived and that the past can affect the present. Further that the past can affect the present in ways that one does not fully perceive – a spectral form.
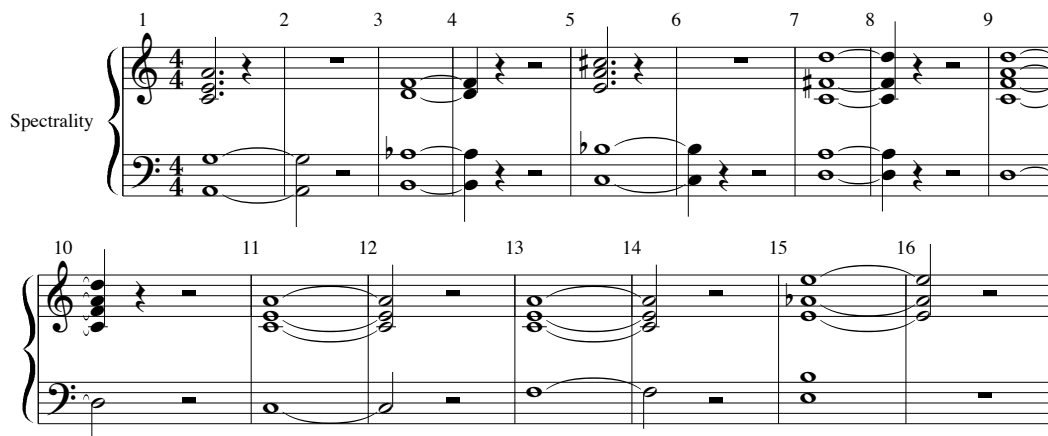
Figure 25 Process Score SPEC

The difficulty lay in the concept of "future spectrality" and the symbolization of this concept. The requirement here was a new *emergent* form that revealed itself from within the musical form of the first metaphor. The form of future spectrality is one that came into being synchronously with an interpretation of the first recording of the piece. It is therefore not strictly accurate to describe the musical form as being demanded by the text. The interpretative strategy of the process looked to the

different material (media) and the manner in which those materials were related in the expression. The text suggested that there could be a "specter" in the form of a voice from the future – a representative passage was fixed upon (2:47-3:10).

The LFO that drives the bass-line pans the tone back and forth (beginning at 2:47). The fade-in of a new chord from the synth changes the focus for listener in terms of the acoustic quality. Taken as a whole the passage can be perceived to have a "spoken" quality. As the vocalizing component enters over the bass note the bass note is masked and altered by the incoming chord – this alteration has the effect of "cutting away" part of the midrange and replacing it with something new. This "cutting away" leaves the higher partials in a *seemingly* new relationship.

This interpretation represents the future speaking through the present: unformed and saying something unintelligible. The form itself is nevertheless significant, it symbolizes a "voice" making itself present. In terms of the "voice-like" nature of the passage more could be done to emphasize such a quality. The LFO panning in combination with the slow entry of the *Harmonic synth* focuses the attention in ways that could be further investigated.

The basic harmonic form of the piece is represented in the notation at figure 25. The piece is tuned with just intonation in relation to each note but it retains ET in moving from fundamental to fundamental. The score (see appendix 1) also gives instructions on how the different chords are to be ordered. The notation in figure 25 is a beginning point – the chords must be rearranged according to some imposed schema (either by ear or chance operation) and chords must overlap with each other according to the envelope diagram contained in the score. A performance must take into account the metaphors of "controlled integration" (trans-generational communication) and the emergent "voice" that appears from the future.

The notation for any given piece can only be a "fragment" of the whole in relation to the models being described here. The necessity of the research (in the form of the criteria of a particular piece) to move past the "success" of a harmonic progression or pleasing cadence must be accommodated. The models that are being presented, the collection of particular practices and theories, require that the user push beyond aesthetically pleasing formulations towards a "complete" articulation that satisfies identified criteria. As noted in a slightly different context of this thesis it is not necessarily the case that the musical "diagram" (the metaphorical structure as musical form) completely defines the content of the artifact. There are also intuitive contexts and, perhaps, contexts that develop out of an interpretative listening, that become part of the complete artifact. Pleasing harmonic and textual effects can be accommodated in such a way, the working theory allows one to build upon the "diagrams". However: it is important to maintain vigilance in relation to the original metaphorical structure. If the user is to make an authentic attempt at drawing the media together the application of the working process must be sheltered. There are no absolute rules in such a practice, yet working through the kernel authentically and with rigor allows the later more intuitive expressions to coalesce around that kernel meaningfully.

5.3 From philosophical meditation to compositional system

At this point in the research a conference paper was written that attempted to apply the ideas being developed in the research to a slightly different target. The application of the ideas to computation itself (in the form of a programmed compositional system) was described. The work here produced an "artifact" (a musical piece) and it can be read as an artifact in an extended sense. The process fleshes out an important aspect of the research and is worthy of documentation.

The name of the paper is *From philosophical meditation to compositional system: a working process* (Simon 2014). The task that I set for myself in the writing of the paper was to take a philosophical thought-form and blend it with the concept of an automated compositional system. However, although setting out the parameters schematically in this way was helpful, the work quickly became more fluid and, in that process, more sophisticated. The paper itself is located at this link:

https://sites.google.com/view/documenta-scott-simon/research-papers?authuser=0

Firstly, it should be pointed out that this piece does not conform to the general structure of the artifacts. That is true only superficially. The thought-form is present and this would be used to generate the "program" text for the video during performance. There is (it is true) no discrete piece of music or accompanying notation. One is building a "system" of composition from a specific philosophical text, and this *system* produces the music. The music is different each time depending on the various elements that are fed into the system.

Note that the "thought-form" is re-titled "philosophical meditation" in the paper as the readers would not have access to the PhD definitions of language. This makes no actual change to the concepts and overall structure. In this section I will use "meditation" and "thought-form" interchangeably.

On the surface of this work a couple of obvious points of reference can be made. The first is that the idea is closely related to Cage's *Williams mix* (Cage 1951-53). Both works rearrange inputs in various ways like a "collage" to create a new piece from the combination. No doubt in Cage's place this was directly tied to his philosophical ideas about the release of music from its expressive "straitjacket". In the present case the paper and Max/MSP patch (Called "Sampler device" in paper) were completed without any thought of the connection. However upon reflection (and in discussion) this similarity was perceived. In any case Cage's artifact (on one side) and the present prototype for an automated compositional system on the other have some differences. Larry Austin has created a "Williams remixer" which algorithmically reproduces Cages original process (Austin & Thompson 2001). The *Williams remixer* would certainly be very similar in structure to the kind of things that appear in the present (prototype) system / artifact.

However, the present "artifact" remains relevant to the research for one very good reason. The process that is presented in the paper is described as a "thought experiment". A thought experiment which attempts to find a way into the space between the development of a philosophical grammar and the software related devices that register a continuing compositional in relation to that grammar. It is this slightly different approach to the research that reveals something noteworthy. The emphasis upon the "process" rather than a completed artifact reveals possible future directions and elaborations of the research, and is an example of another facet of the research.

In order to elucidate this some brief observations are offered. Firstly, it is the complexity of the philosophical "thought-form / meditation" in the paper that makes of the compositional system something interesting. As noted, other composers have already implemented performances and compositions which are similar aesthetically. Furthermore, Cage's ideas already seem to prefigure the piece in many ways. However this does not change the fundamental point of interest: the use of a complex synthesis of philosophical ideas to create an algorithmic process. As a part of the

research it seems to have a particular place insofar as it offers a blend that has an automated and algorithmic structure as its primary goal. In addition, this process could easily be turned into a generative art piece, a generative artwork that is founded in a philosophical "thought-form". This forming process in which the thought-form begins to move into the computational and the algorithmic provides another perspective on the research goals.

In any case, the piece is a "thought experiment" and the max patch is a prototype. The patch does generate audio – a link is provided here: (Link: https://sites.google.com/view/documenta-scott-simon/research-papers/music-files). Listening to the piece it is possible to see the rationale of the work – in embryonic form. The idea here is that the "affective power" of music as a positive force is offered even as the negative "power relation" of the work as an "opium" is negated (see Simon 2014, pp. 1-2). The work on the prototype is not complete, and it is really the content of the thought experiment that is significant. The patch itself is however something worth pursuing and it is included in the future work section at the conclusion of the thesis.

It is worth noting that the work shows the importance of the "state of the art" to the research as a whole. The "prototype" models that were derived from an analysis of past practice (and introduced in the introduction to the study) are only to be understood as a "starting point". The construction of a more sophisticated and detailed "state of the art" or "background" allows, in turn, a more sophisticated practice to be formed. Thus in the case of the present work the descriptions of Cage provided in chapter 2 formulate a perspective on the present artifact.

The use of chance operations that the sampler device employs are similar in many ways to Cage's piece. Also we cannot deny that the central theme of Cage is one that is also central to the present device – this is defined as *the cleansing of the power relations within musical expression*. However: what we can claim as interesting and

novel in relation to the present device / system is precisely its *development* of Cage's basic themes in a new key. Nowhere in Cage or those that came after him can we find the same development of "a theory of power relations" in connection to musical expression such as the thought-form in the paper (Simon 2014, pp. 1-2). However we do have Cage's description of a "musical composition" that has a very similar conceptual agenda (quoted in chapter 2).

As noted, the state of the art chapter in the present study reveals connections between the two systems but it also creates space for nuances and developments. This "space" then allows a dialog to be formed and points the way towards other outcomes that are built from that dialog.

One such "outcome" that clearly has not yet been realized within the sampler device is the retention of a kind of "virtuosic" affective power. Other formulated outcomes are demanded by the device also. Describing the "aesthetic considerations" a longer quote from the paper is relevant:

Aesthetic consideration 1: The music must retain some rhythmic and stylistic components that place it in a category that we might say is rhythmically and syntactically conservative. Collaged elements are fine but the end result will not be musique concrète - something less abstract is envisioned. Metronomic timing and standard divisions of note and duration within that timing are proposed.

Aesthetic consideration 2: We wish to emulate the general flow of a composed and performed piece. This means that too much repetition will be a problem. On the other hand completely random ideas will not work either. The pieces that are generated must have a quality of slow transformation over time with recognizable continuity as a central component.

The aesthetic considerations (1 and 2) are to be understood as belonging to a general criterion of creating a shared objective space of interaction that retains some virtuosic gestural information. This pertains to retaining a type of signal which can still be psychologically effective (and beneficial) in the manner represented above in the quote from Adorno (Simon 2014, pp. 3-4).

The aesthetic considerations described here are produced from the meditation section of the paper. The meditation demands certain modes of working and also forms the criteria (considerations) in its own image. The meditation / thought-form produces a complex set of criteria that must be realized within the programming. These criteria eventually become the pseudo-code that guides the coding.

The meditation in this context becomes a way to organize a practice in relation to a refined set of artistic criteria. The objection might be raised that the criteria become too complex – why construct such a convoluted set of criteria that require such exacting programming to realize? Yet the complexity is also a positive outcome of the experiment: there are no arbitrary aesthetic components left in the criteria. The criteria are grounded in a philosophical meditation that makes sense of (in a detailed way) the kind of application that will need to be programmed. In this sense, although we have acknowledged above the very real connection to Cage, the development of the meditation provides new requirements within the sampler device itself. Such requirements will differ from Cage's, and we can see this in the fact that one of the aesthetic considerations is the retention of a "psychologically effective" component within the work. Further research would need to define what and how that concept could be realized. At this stage the "thought experiment" shows us the manner in which the research can be applied to computation itself: the blend between meditation / thought-form and coding. This use of the *thought-form* (reverting now to the language of the research) points to a way of refining the research, the direct link between the philosophical text and the aesthetic outcomes in relation to programming (computation) receiving a push.

5.4 Models of practice phase 2

The models of practice that are described in this study take the form of a *narrative of process*. Within this narrative there are points of a more general nature that become important to the mode of working, and can be understood as functions that can be made use of in multiple practices. This points to the models as having both a subtle praxical use-value *and* a more obviously apparent series of functions. This can be shown through the fact that the more difficult paths into thinking between music and philosophical text, are balanced by some more readily available techniques, for example, the theory of "scale and focus" or the theory of "conceptual blending". Neither of these techniques is "available" in any basic sense but they are certainly a point of contact that one can make each time a user wants to put the models to work and create a blended-space artifact.

There is also a necessity to develop different working contexts and to allow a flexible, improvisatory, element into the work. This cannot be shown in terms of the logic of the procedure itself, rather it is to be understood in the more general understanding that an artist or composer brings to the creative domain. There is no *need* to work outside of the basic framework of creation (in this case creating blends of music and philosophical text), but then "need" is not something that that is accommodated by the more spiritual goals of art.

In the present case the building of the *Harmonic synth* was an activity that extended itself through various dimensions internal to the design process of the application and also to the creative process in general. This can be shown by focusing on certain facts in relation to the preceding artifacts. Artifact WO was the first iteration of the harmonic synth – it was in an unfinished form throughout the making of that piece. Yet "unfinished" signifies here that it was in a state of flux, not that it was un-useable. This state of flux allowed the criteria of the piece to form the internal components of the application design, and also for the changing design to be auditioned (as sound) in

terms of the guiding metaphors of the work. This spilled over into the next artifact SPEC. However the more intensive demands of artifact SPEC in terms of the use in the work, demanded changes to the interface. The first elements of artifact SPEC made use of an early iteration but the app soon became modular. The modular version was easier to use, more understandable, looked more streamlined and held more information for the user while in use.

A significant point here is the fact that the application became the fulcrum for further creative processes. Designed to implement the idea of "controlled dissonance" in artifact WO, the idea of SPEC made use of the *Harmonic synth* as a more central component. The scale of the metaphor as form in SPEC was more pervasive than WO. This process of elaboration, or intensification, became useful as a way of refining the synth's design and also of pushing the models of practice forward. The models of practice cannot be understood to be a static set of rules that one simply follows to create an artifact. The very fact that there are "models" plural, prefigures this flexible aspect of the research. There are many paths into the process and a user is encouraged to build even more.

One such path is the changing of the fulcrum point around which ideas coalesce. A GUI / synth application such as the *Harmonic synth* can become more than a simple tool to realize one piece. It can become an evolving form in its own right, an axis around which further development is built. The working models must be able to accommodate this kind of shifting of center, and allow for changes of the central zone. A "text" will find its way into the work from another direction in this shifting of focus.

The *Harmonic synth* certainly allows new ideas to develop outside of the central themes of the research itself. This oblique approach is felt to be significant in relation to the models of practice of the present study, allowing many routes to be generated according to the particulars of each artifact. A concrete example of such a route is

warranted here as it will contextualize the final chapter of the research. Phase 3 of the research takes an important aspect of its structure from an experiment done with the *Harmonic synth*. In actual fact the experiment led to an insight concerning the medium of a music itself, and is not really to be understood as emerging solely from the *Harmonic synth*. This "insight" is however the difference between phase 2 and phase 3 and can be introduced at this juncture.

The experiment with the *Harmonic synth* is described in more detail in a paper in appendix 3. Briefly the work (titled *Flight*) was organized around the use of the application to create a "tuning context" as opposed to the use of a defined *scale*. The *Harmonic synth* was the perfect candidate for such an experiment – it allowed one to make use of "dissonant" components in the spectral make-up of a sound, controlling such dissonant elements through the amplitude reduction of specific partials.

The original name of the work was *Context* – this is a revealing name in terms of the discussion here. The emphasis upon "context" was an idea that was becoming increasingly important to the research as *Flight* was worked upon. For *Flight* the use of the compositional process itself to reveal the step by step structure of different "planes of articulation" was primary. In a very general way we can describe the process as having three stages: (1) The initial "idea" in which an experiment with the *Harmonic synth* is formulated; (2) an interpretation of the first iteration (of the composition) that realigns the focus; (3) a further interpretation based on the development of the piece (after the realignment of interpretation 2) .

The three stages of the work showed clearly that the work of composition in this case was being organized around different levels of organization, or as they have been described here, *planes of articulation.* This process will be described in more detail in relation to phase 3 (chapter 6). Briefly put: the idea of a "plane" or "level", informed by various readings in phenomenology, was concretely manifested in the composition. This concrete form of the idea "showed*"* the manner in which the composer can

actively foster the shifting from one level, or plane, to another within the creative process.

5.5 Discussion and interviews

In the course of this study 5 interviews were conducted concerning some of the themes of the study. The questions are reproduced in appendix 2. Briefly: the main theme of the interview given to all 5 participants is focused upon the recognition of concepts within musical examples.

The interviewees consisted of five successful artists – some artistic researchers in an academic environment and some artistic practitioners in the wider artistic community. The gender of the artists was distributed fairly evenly: 2 women and 3 men. The point of these interviews was to foster a dialog with peers in relation to the some of the themes of the study. This was understood ultimately to relate to the fact that the study is set within an "artistic research" context, and a dialog with other artists and researchers is essential.

In terms of the kind of information that emerged from the interviews a couple of preliminary observations are offered. The "interviews" so-called are not structured surveys in which only one answer is acceptable. While there are some questions that take a yes / no the participant is encouraged to diverge from the format whenever they feel it is appropriate. The questions are a stimulation to dialog about the themes.

In terms of evaluating the music of the study and the musical applications (such as *Harmonic synth*) there are a few points at which these interviews are useful. However it must be stressed that the input of the artists is not primarily focused upon backing up the aesthetic success of the works or the applications. Such evaluations do appear

within the interviews (and they are noted) but it is the dialog of peers in relation to the theme of "the connection between music and other domains" that is the primary locus.

The present study is based on conceptions of musical form and content that include the inter-subjective schema concerning basic ontological categories. As described briefly above the inter-subjective negotiation concerning the basic categories of concepts such as "verticality" is taken as a given. Such categories govern the ultimate meaning of concepts such as "controlled dissonance" as a metaphor for the relationship between the wasp and orchid. Interviews that are structured around opening a dialog between subjects that address this type of metaphor, and the ontology that stands behind it, are useful to establishing the practice as meaningful (within a Western culture).

There can be no question of "fixing" meanings ultimately between music and text, each person has a different take on what the meaning of various media are in relation to other media. Yet there are some very basic structures which make sense to participants as *self-evident*. In the interviews that were conducted in connection with this study this is clear up to a point. Question 4 of the interview relates to two passages the first of which is a granular synth the second is a smooth pad. The two illustrations contain a "fragmentary" particle system and smooth series of lines. The illustration of fragmentation can easily be connected to the granular synth (see graphic appendix 2). The concepts "fragment" and "whole" are then introduced and the same result is obtained. This type of correlation, though basic, is the foundation of the more complex philosophical metaphors such as are contained within artifact CT.

Questions relating to the *Harmonic synth* also seem to elicit uniform responses from the small group surveyed. In one question a blended space component from artifact WO was offered (made with *Harmonic synth*). The ideal of motion was identified in the musical passages in question 9 as belonging to sound WAV_WO (see appendix

2). However one respondent noted that motion was not "strongly suggested". Nevertheless more strongly than the offered alternative.

The two options to question 9 are WAV_WO and WAV_WO2. WAV_WO is the blended space component used in artifact WO whereas WAV_WO2 is a chord without the partial sweeps and filter motion in place (un-treated chord). Respondents uniformly agreed that the blended-space component captures the concept of "motion" more than the alternative sound file (WAV_WO). However not all hear it as strongly suggestive of motion – it is suggestive of motion in relation to the alternative passage. One respondent noted that it was not motion in the sense of "…what one might compose to accompany footage of a moving ocean-liner" (respondent 3). It was agreed however that it did embody the concept in a relative sense. Respondent 4 heard two separate tones in the alternative passage (WAV_WO2). The use of the *Harmonic synth's* sweep (of partials) and filter functions were perceived to unify the sound in WAV_WO. WAV_WO was a "single sound" that was also "deeper" than the alternative. These answers were added to respondent 4's answer that WAV_WO was more suggestive of motion. Respondent 5 observed that the "narrative curve" of WAV_WO was more pronounced than in the alternative – it constructs a whole cadence with the motion within the confines of the tone (the sweep of filter and partials). The other un-treated tone does not.

Which of two sound files represents better the concept "controlled" is the subject of question 8. The chord files are WAV_chordA or WAV_chordB. Both chords are made using the *Harmonic synth.* WAV_chordA however makes use of the app functionality in tuning down partials and the filtering mechanism. 3 out of 5 perceived WAV_chordA as more controlled. Respondent 4 described WAV_chordA as being "more produced" and therefore "more refined". This tempers respondent 4's position (negative to WAV_chordA being more "controlled") insofar as "refined" and "controlled" are not interpreted as diametrically opposed. Respondent 5 however was

negative on WAV_chordA being more controlled: the concept was embodied in neither tone.

Respondent 4's responses in relation to the "controlled dissonance" of WAV _WO in question 9 as to whether it had motion elicited a longer response in relation to the two files. One observation for respondent 4 pointed to the more "unified" nature of the WAV _WO file. This accords in some way with respondent 5's position: WAV_WO is an example of musical motion in which a musical "idea" attempts to "take over" but is rejected. Upon questioning this observation respondent 5 noted that the tone was inflected and contained "musical motion" in a way that WAV_WO2 did not.

These observations can be related to the criteria established in relation to the CIN diagram of artifact WO in regards to the symbiotic play between the forms. While one cannot make any claims about the ultimate meaning of the blended-space component (WAV_WO), the answers strongly support a generalized "motion" concept as present in the sound. Equally important however is the discussion that is generated concerning the mapping of sounds to concept and image. The discussions open the way to collaborative work based on the working models presented in the study. All of the respondents understood the meaning and direction of the questions and could speak fluently about the manner in which one integrates and constructs blends within practice.

Chapter 6 - Phase 3

Phase 3 of the research as set out in the timeline consists of two artifacts. *Constellation theory of knowledge* (artifact CT), *On the philosophical concept of the beautiful* (artifact OB). Also made use of were two "supplemental" artifacts *Glass bead* (artifact GB) and artifact *Flight* (artifact FLT). These phase 3 works (CT and OB) were based on interpretations of the earlier practice that led to innovations to be discussed in this chapter. As the research progressed the manner in which the internal creative processes were perceived was altered, the processes becoming more refined. This led to an emphasizing of specific components and to a new understanding of how those components were ordered. Even the manner in which the practice was organized, the aims and structure of the process, evolved. This included the conceptualization of "music" itself. A link to the music files is provided here: https://sites.google.com/view/documenta-scott-simon/research-papers/music-files

The thesis has been organized into three main phases. This is a useful way of organizing the research and writing about the research. The narrative that unfolds through the description of the phases accords well with the kind of knowledge that is being displayed. The reality of the artifacts is that they connect to different ideas and concepts at different research periods. This is captured through a description of the unfolding of the process through the phases.

The methods and processes of phase 3 develop out of the work in the first two phases. The important concepts of those earlier phases are organized around the articulating of a coherent method, and the hammering out of a path between the different media. As noted in chapters 4 and 5 the first two phases coalesced around a multi-method approach.

One of the main areas of interest in phase 3 is a shifting of the research focus towards the temporal and contextual dimensions that music embodies. These dimensions were

indeed sketched in earlier (see the discussion of artifact FR). However these dimensions became more insistently part of the practice of making in phase 3. The research of phase 3 has, as experienced by the researcher, an *insistent* quality in relation to the direction it aligns itself with.

In researching the process of working between music and philosophy the researcher encounters some significant and fundamental structures that require explication. The *temporal* and *contextual* aspects of musical expression are two such structures. Music is a temporal art-form, it cannot be described adequately in static formulations. The realization of a metaphor as musical form requires more than a simple "idea" of blending, there must be some way of creating *significant* form. The concept of "significance" is, no doubt, a concept that cannot be definitively organized. How is one to know that a musical form or musical passage is "significant"? In the present case, the making process (in which metaphor plays a role) is experienced only as a starting point. It is incorrect to claim that the blending process (the blended-space) exhaustively characterizes the artifact. The temporal unfolding of the piece requires other expressive interventions in order that the work satisfy the composer's constant, ongoing, aesthetic evaluations. Connected to this unfolding is the meaning of a passage or a phrase within the context of the work.

The "context" designates here the meaning that is constructed (and constructive) through the entire matrix of a work. A chord, for example, is never truly "dissonant" or "consonant" in any absolute sense. These designations have a partly "psychological" aspect, the previous harmonic motion forming the current "meaning" of a chord or phrase etc.

In the present study this focus on "context" was experienced as an aspect of the making process, an aspect that became more related to the philosophical metaphor as the research progressed. The artifacts CT and OB are both structured in terms of renewed interest in the manner in which the blended-space component is embedded

within the temporal aspect of the musical expression. The musical *material* must become part of the theorization of the research process. The context of the metaphors change their meaning within the music in relation to that context. The "results" that come from realizing philosophical text as musical form are often tied into an understanding of how the contextual and temporal aspects of the music are being formed. What, for example, will be the meaning of a chordal progression that has been fragmented by a philosophical metaphor? The basic meaning of the harmony will be distorted, perhaps even beyond recognition. Yet also possible is that the progression will be re-formulated, its original diatonic meaning still present but hidden or cloaked. The motion between one event and the next will be organized by a new contextual logic. Furthermore, the meaning of any particular event will be altered. Music as a temporal art requires that such problems become part of the theorization of the process.

Why not simply ignore this aspect of the practice and concentrate upon the blended diagrams, leaving the music to "take care of itself"? Such an approach would fail to take some of the compositional elements into full account. The blended-space components are always within the work – they exist within the context of a work. These components change the meaning of individual events (that surround them in a piece) and the overall form of a piece. It is artificial to expect the connection between music and philosophy to stop at a certain barrier and go no further. The practice becomes more nuanced, and more elements become available to the practice, as it moves forward. The temporal aspect of music, the unfolding of music as a series of contexts that produce meaning, becomes one more component in the research into constructing models of practice.

Phase 3 is characterized by new theoretical orientations, and also by some new ways of approaching the practice. In the following sections a description of the important components of phase 3 is offered. In terms of the practice there were two significant points of contact. A reading of Merleau-Ponty's ideas concerning *gestalts* (Merleau-

Ponty [1945] 2005) and Helmholtz's description of the perception of partials in vowel sounds (Helmholtz [1856] 1954). These two points of contact together organized a particular perspective that became constitutive of the practice in phase 3.

The insights of these philosophers / scientists led to an emphasis upon "context" in the phase 3 creative process. This involved a re-formulation of the definition of "music" itself. The concept *music* becomes the focus of a series of meaning-giving contexts rather than an expression of one *concept* or *idea*. The artifact thus takes on a certain complexity, and in the study itself this complexity requires explication. The working models, and the framework overall, must account for all the elements which appear within the creative process. A complete account of every nuance in the creative process is perhaps impossible, however the main elements that appear within the scope of the research are essential for fleshing out the framework.

In what follows the theorization process as it was experienced is described. As noted particular theories informed this process – a discussion of those theories is offered below. The end result of the theoretical intervention is a new way of understanding the making-process. To sketch in the basics of this "new" understanding let us provide a *map* to what follows (in relation to the structure of the creative process).

(1) The making-process: the philosophical text is structured as musical form to create a blended-space artifact. This is a single "plane of articulation" or "level of organization".

(2) The interpretation of the aesthetic dimension of the work allows a second plane or level to be perceived. This second *plane of articulation* is then worked on – this to accommodate the temporal reality of music. A mere formal process that constructs a blend without an engagement with the unfolding of the music is not capable of revealing significant form. In real terms the process involves multiple layers, moving

between theoretical structures and ideas, formalizing elements, and then re-interpreting in the context of the unfolding of the work.

Xenakis: "It seems that a new kind of musician is necessary, that of the artist-conceiver of free and abstract new forms, tending toward complications and generalizations at several levels of sound organization" (Xenakis 1985).

Mogini: "Melodies are perceived as gestalts or patterns rather than as a succession of intervals" (Mogini 2011, p. 527).

6.1 The logic of perception

One of the main insights emerging from the first two phases of the research was an idea connected to *context-based meaning*. Another way of describing the insight is as an increased emphasis upon the logic of perception. The "logic of perception" was a kind of normative function against which new ideas and strategies came to be measured within the later phase of the research. The idea of the "logic of perception" deserves further elucidation as it plays a central role in the rationale for the models of practice offered in this chapter. In terms of methodological development such a logic was only articulated clearly within phase 3 of the project. The entry point for an understanding and incorporation of this logic was afforded through an interpretation of *phenomenology* and a reading of a passage from Helmholtz's *On the sensations of tone* (Helmholtz 1954).

In relation to phenomenology we will be making use of a passage from Merleau-Ponty's *Phenomenology of perception* ([1945] 2005) and a passage from Don Ihde's *Listening and phenomenology* (2007). In recent literature some theorists connect phenomenology to psychoacoustics and psychophysics. There are even some branches of cognitive science that make phenomenology a working component (see

for example the journal *Phenomenology and the cognitive sciences*). In the present context the idea of phenomenology is given a quite circumscribed and specific meaning. The use of *phenomenology* will be confined to a reading of a specific text dealing with the creative dimension of perception.

6.1.1 Three contact points

Psychoacoustics and other sciences that look at the manner in which the bodily context of perception is inherent in what sounds and musical logic signify are significant in this context. Helmholtz in his seminal *On the sensations of tone* (Helmholtz [1863] 1954) already makes context-based understanding a concern in his empirical observations and experimental procedure. An example from that work can sketch in what we are driving at in this regard. Helmholtz describing an experiment writes:

I tuned a large bottle to Bb and a smaller one to B'b and united them with the same bellows, so that when used both began to speak at the same instant. When thus united they gave a musical tone of the pitch of the deeper Bb, but having the quality of tone of the vowel oa *in* toad*, instead of* oo *in* too*. When, then I compressed first one of the india-rubber tubes and then the other, so as to produce the tones alternately, separately, and in connection, I was at last able to hear them separately when sounded together, but I could not continue to hear them separately for long, for the upper tone gradually fused with the lower. This fusion takes place even when the upper tone is somewhat stronger than the lower. The alteration in the quality of tone which takes place during this fusion is characteristic. On producing the upper tone first and then letting the lower sound with it, I found that I at first continued to hear the upper tone with its full force, and the under tone sounding below it in its natural quality of* oo *in* too*. But by degree, as my recollection of the sound of the isolated upper tone died away, it seemed to become more and more indistinct and weak, while*

the lower tone appeared to become stronger, and sounded like oa *in* toad (Helmholtz 1954, pp. 60-61)

This example describes the manner in which the "facts" of the sound (in terms of the sound's physical characteristics described by physics (or acoustics)) does not match precisely the subjective perception of that sound. The sound does not *change* except insofar as Helmholtz stops and starts the different sound producers in order to focus his attention upon one or the other of the qualities of the two tones. Fusion of the two tones was achieved over a time span as the attention of the subject was re-organized, the sounds moving from one place to another (from "oo" to "oa" in quality) as the memory of the earlier isolated tone died away. Then, as related at the beginning of the quote, the lower tone fused with the higher in such a manner that the two tones were perceived as one tone at the lower pitch Bb.

The usefulness of this description was discovered in the idea of the "logic" of perception and the manner in which consciousness can be *focused*. The consequence of a "focused attention" is that the composer starts to think in terms of directing the intersecting contexts of a piece. The breaking up of one context in favor of another, as exemplified in artifact CT, creates a new way of generating meaning in a piece.

Merleau-Ponty is a phenomenologist whose work in *The phenomenology of perception* (Merleau-Ponty 2005) is relevant to the research here. The introduction to that work is enlightening on a number of issues in relation to perception. The most critical of these issues for the present study concerns the discussion on *gestalts*. There are various ways to approach gestalt theory, and it remains a viable theory for artists and for musicologists in several respects (see for example Leman 1997). The use of gestalt theory in relation to musicology and music cognition will be discussed in more detail in the following sections. For present purposes a brief re-iteration of its use within electronic music and sound design will introduce it here.

As discussed in the background chapter of this thesis (chapter 2) gestalts are utilized in modern electronic music frameworks to describe ways of thinking about sound. The "little bang" example given in the discussion of Cipriani and Giri's work (see chapter 3) is one example of a gestalt. There is no need to describe this particular gestalt again, but we can draw attention to another list of possible gestalts that are utilized by practicing artists and theorists: good continuation, common fate, joint forms etc. Some further examples of gestalts are given in Cipriani and Giri (2013, p. 507).

Merleau-Ponty's discussion of gestalts is quite drawn out and there are elements that the present research is not concerned with. In one particular section however there is a discussion that impresses itself as particularly resonant in relation to phase 3 of the research. This discussion, and indeed the entire introduction to the *phenomenology*, was a theoretical touchstone for the work of phase 3. In some ways this dialog can be understood as philosophy making its mark on the models of practice (and the underlying framework) in a manner that is more generalized than the particular generation of metaphor for musical form. In a sense the phase 3 "models of practice" reflect a philosophical intervention on the level of the material itself.

Merleau-Ponty describes, in the *phenomenology's* introduction, walking on a beach towards an old ship ([1945] 2005, p. 20). Walking along the shore towards a ship that has run aground Merleau-Ponty perceives the "funnel or masts" of the ship, yet they are merged with the background forest that borders on the sand dune. The complete picture of the ship is not available to perception as he walks towards it, yet he feels that the "object is on the point of altering" (p. 20). He describes this changing perception as a kind of "tension" in which something is imminent as "a storm is imminent in storm clouds" (p. 20). As the upper part of the ship becomes clear, and detaches from the background, the "true" objective state of the world leaps out and various elements make sense that were before occluded or puzzling.

This type of passage and the pointing out of quite plausible aspects of human perception was taken as a point of departure in expanding the research. If one substitutes a kind of "playing" with the background and foreground of a musical piece, a background and foreground analogous to the ship and forest, in which various relationships are structured and then de-structured, the significance for the research is revealed. In the artifacts of phase 3 the realized metaphors, and the blended-space components, become more nuanced in relation to the context that surrounds them. Thus we can talk of a determining context that structures the foreground in artifact OB, a context that takes the form of a "central theme". The *central theme* is present in every level of the work, but it is not revealed until the final level. In artifact CT we can show a tension between a diatonic harmony and a shaping process that re-organizes the chords in terms of a perceived "shape". In these artifacts the philosophical metaphors and the process of creating a blended space, is supplemented by an attention to the material context of the works. Musical form that reflects textual metaphor is nevertheless *music*: tones and chords, harmony and rhythm are still the material of the form.

Don Ihde in his work *Listening and phenomenology* (2007) describes the process of "crafting of new gestalts". Concerning the idea of crafting a gestalt Ihde observes that art practices change the manner people view the world. He continues this observation in relation to music. He writes:

Similarly in music, the contemporary introduction of noise to be taken as music, of random sounds, or monotonous sounds, all strain at making a new gestalt for listening (Ihde 2007, p. 189).

The use of philosophical metaphor could be read as a function for crafting new ways of listening to music, and also of composing music. Indeed, it could be said that every new music is an attempt to re-define how one experiences what music is. To introduce new patterns into a language is to prompt new learning processes, and new

ways that elements of the language can *signify*. This process of re-defining can occur through the artistic practice itself or through a corresponding theorization of practice. Ihde makes a similar point in relation to the perceptual apprehension of an illusory figure (p. 188). In that example a figure (graphic) is shown that can be seen by an external observer as either receding as a "hallway" or emerging from the picture plane as a "topless pyramid" (p. 189) . The observer must make a conscious decision to see the figure one way or the other. Ihde points out that there is also a "third" way to see the figure. Yet when one attempts to see this third way it remains hidden. A description given in the text allows the reader-observer to re-program the perceptual apparatus and create the right conditions for the third option to be apprehended.

In this section a description of three conceptualizations of music has been offered. The three points of contact, Helmholtz, Merleau-Ponty and Ihde, accurately reflect the artist's path towards phase 3. The models of practice described in this chapter are not fully functional without the addition of this engagement. To clarify the contribution of these theories to the working practice a brief summary is given.

1.   The Helmholtz example revealed that the focus of attention from moment to moment can be constitutive of meaning.

2.   The Merleau-Ponty example described (suggested) the possibility of working a whole artifact or composition between ground and foreground. The "gestalt" of the whole can be re-defined through computation and effective process in relation to metaphor.

3.   The Ihde example showed that the use of language can craft new gestalts and clarify how an artist structures perception, both for the self and others. Once one has intervened in the creative process with a theory or observation, one can then develop an existing practice. It is the pointing out of an aspect of practice (or an aspect of an

artifact) with language that allows new perspectives to be revealed, and once revealed the aspect can be elaborated upon.

Let it be noted however that the theoretical and philosophical components of phase 3, as these components appear within the working process, are by no means so easily and tidily summarized. The narrative of process is in flux at many of the points along the way, there is no "blueprint" ordered beforehand. The narrative accounts for the unfolding of the process internally, and the external reflections on finished components. These different perspectives (from *within* the process and reflecting on the process) are kept apart where possible.

6.1.2 Psycho-acoustics and phenomenology

In this section some of the ideas that were generated in the preceding section are expanded in terms of other theorists, composers and philosophers. If section 6.1.1 can be read as part of the generation of the method employed for artifact's OB and CT this section is the extrapolation of the original ideas. This section can be understood as the continued engagement with the ideas of 6.1.1 as the artifacts were recorded and / or performed. In some ways it is also an interpretation of the artifacts, including the iterative gesture that solidifies the initial theory and formulates new directions.

Husserl describes in great detail the experience of tones within a melody (Husserl 1991). The description there shows that although the experience of the melody is not broken into discrete facts, it is also not to be understood as a uniform whole perceived as one percept (leading to a cacophony). Instead there is a meaningful relation between the notes as they appear within the context of the melody over time. This description of time consciousness in relation to melody has ramifications for various artists and composers. We have already described in some detail the notion of "context" and gestalten as offering ways of organizing compositional ideas. In relation to Husserl other composers have taken up the notion of "retentional rhythms"

(Boenn 2008, p. 2). The central idea for Boenn is that one can formalize as computation the manner in which notes and rhythms are retained within consciousness (p. 3). Thus the compositional process could theoretically encompass the fact that there is a "double intentionality" in consciousness: "…the consciousness directs itself towards the perception of the sound in its unity as a time-object, but at the same time it is capable of perceiving all of the minute changes of the sound through the internal time consciousness" (p. 2). The actual process whereby this is achieved will not concern us here, however the fact of a compositional (and computational) focus upon this configuration is relevant.

Ihde makes use of an Husserlian comportment towards listening in his description of the "auditory imagination" (Ihde 2007, p. 132). He describes there a kind of "intensified listening" that involves superimposing a remembered sound upon a perceived sound (p. 132). In listening to a record of Vivaldi's *Four seasons* he makes an attempt to hear the work with this "harmonic echo" in place. This experiment in listening and imagining allows Ihde to play with the retained element and juxtapose it with a new percept in a kind of unfolding game. This internal echo is then recognized in an actual musical element: Ihde discovers that the "harmonic echo" is a device that Vivaldi used in various passages (p. 133). Such ways of using phenomenology are useful to compositional practices that relate philosophy to musical form – it is in the sharpening of the material through such activities that the use-value is located. The active use of theory to intervene in the listening process, and also the creative process, allows those theories to become more than abstract symbols. That is, philosophical ideas become more than elements to be symbolized within a work. Schaeffer too made use of phenomenology to focus on the type of listening that could be produced in the composer. This focus allowed him to structure his listening habits in a new way and through that re-structuring to change his compositional practice (Schaeffer 1977).

Music cognition as a field offers various insights into the manner in which music is understood by listening subjects. The more sophisticated experiments can no doubt give some insight into creative practice and this is acknowledged (Krumhansl 1990, p. 282). Yet it is the rationale that drives some music cognition that is most relevant in the present context. The axiom that we perceive music in terms of *gestalten* and overall pattern is, for researchers such as Carol Krumhansl, decisive. Describing the experiments reported in *The cognitive foundations of musical pitch* she writes:

Many of the studies reported here can be described as trying to understand how the "flesh and blood" of the musical elements, the tones and chords, are determined by their functions in larger musical contexts. The results strongly confirmed the notion that the meaning of each element, and how it enters into relations with each of the others, depends on the context (Krumhansl 1990, p. 282).

Krumhansl is here referencing the work of Wertheimer in relation to the contextual meaning of melody. Further on she develops these ideas of context. She writes that the physical attributes of "sounded events" are not the same as the "perceptual organization of music" (p. 283). It is the gestalt theories of "grouping" that offer a "useful framework" for situating the experimental results obtained (p. 282).

The experiments in the body of the work are also interesting in terms of compositional procedure. The experiments concerning the identification of key, and the perception of the modulation of key are a case in point. Huron's review of Krumhansl emphasizes the notion that formal music training changes the manner in which you hear the probe tone in relation to atonal music (Huron 1982). The implication here is that one can construct the gestalts that one uses to understand music. The construction of a gestalt around atonal music is discussed in relation to Krumhansl's research (Huron 1982). Subjects with a training in atonal music theory were more likely to allocate the position of probe tones in relation to the compositional system

(serial system in this case). Those without training continued to try and situate the probe tones in a tonal hierarchy.

Stephen Handel observes that a listener's "internal structures or grammars" make sounds meaningful (Handel 1989, p. 324). Handel offers a graphic that shows the different ways that a "fact" can be organized (in actuality) and yet still have one dominant perceptual interpretation (p. 324). The organizing tendency of consciousness is organized around a grammar, a grammar that makes sense of various sounds by grouping and segmenting them (p. 324). Ambiguity is papered over by the internal grammars that the listening consciousness utilizes. This structuring intuition (in Western music) is analyzed in some detail by Handel in *Listening* (1989, chapter 10), for present purposes it is relevant that theory can reveal (create) new perspectives and gestalts. The underlying ambiguity of musical expression can be ordered in new ways and according to new structural templates.

The theories and ideas arrayed here became part of the thinking process attached to phase 3. There are various titles and phrases that we could use to describe the rationale of phase 3, it is best understood as including a focus on the "logic of perception". This captures the importance of the texts quoted and the readings engaged with – there is no one clear path based on music cognition or phenomenology that stands above the others. Instead the readings as presented here honed a particular perspective on practice, a perspective that imposed itself on the creative practice. This perspective can be read as another facet in the developing narrative of the models of practice, and ultimately the research as a whole.

The conceptual framework (as a complete structure) accommodates the pragmatic organization of various ideas and theories as they appear in the making process. The arrival at phenomenology was not accidental in the research – the interpretation of the earlier artifacts had shown that *gestalts* were very useful in structuring the blends.

In the present study there is no attempt to get back to an *original ground* of listening. Acousmatic practices are accepted as having an importance in terms of orienting oneself towards music in a particular manner. However the main focus of this study, in relation to phase 3, is organized around the changing of perspective in relation to listening and ultimately composing. The insight that drove the compositional procedure of the phase 3 artifacts was one in which *context* was deemed to be paramount. Context was understood to be a general category that afforded various different ways of approaching the temporal aspect of music.

In the terms of the method *per se* nothing was altered between phase 2 and phase 3. Rather the manner in which the three methods of inquiry were organized, in relation to the status of the musical sign itself, was altered. The temporal aspect of music was identified in phase 1 as being a component that set music apart from other types of artistic practice. The fluid nature of music as an unfolding through time makes of it a unique design problem. This temporality, the subjective experience of it in relation to research, led eventually to an emphasis upon developing contexts and "planes of articulation".

6.1.3 Planes of articulation

Phase 3 organizes itself around new insights into practice. The *reflection on* practice (and *reflection in* practice), relating to phases 1 and 2, revealed insights into how one might develop the practice. As noted in the method chapter of this study the approach to the research is not to be understood as "static", rather it develops over time as new data becomes available. An important addition to the research in phase 3 is the idea of the "plane of articulation".

It is written above that the theoretical readings that accompanied the advent of phase 3 led to a changed mode of practice. This is certainly true in one concrete aspect of the process. It is also true to say that the idea of the plane of articulation was first fully

understood through the interpretation of a piece of music. Did the theorization of the concept *plane* arrive before the interpretation or did they arrive concurrently? This dialectical process of making (creating) and interpreting, the shifting between theory and creation cannot be easily teased apart as to which "comes first". For research purposes the essential fact is that the theory and the interpretation that supported the theory emerged together over a period of the research. The theoretical underpinnings of phase 3 are introduced in this section. The use of a creative process to focus in upon this idea in a more concrete manner is described briefly in section 5.2.3 in relation to the synth app and the use of the composition *Flight*.

Some theories of gestalten and the "patterns" of perception are described above (section 6.2.1) in relation to a reading of phenomenology. This "reading" is an experience within the research process – it *was* experienced by the practitioner as a *pointing out* and developing of ideas latent within the research. Yet such theoretical musing is not in itself the final word. There must be a corresponding creative insight, an insight within the medium itself.[13]

One of the insights of phase 3 is the re-definition of the different media that are being used. In actual fact it is the re-definition of one of these media - the musical component - that becomes paramount. The importance of "thinking in a medium" takes the place of any static conception of how the research is to progress (Sullivan 2005, p. 128). Thinking in a medium is that kind of thought in which the structure of the medium begins to extend itself – no longer is it simply something that one utilizes to realize goals. The medium takes on a kind of significance within itself,

---

[13] The use of composing as a tool to reveal new insights into the creative process is, on one level, a banal insight. Naturally, the creative process must make use of actual creations in its development of models. Yet the use of supplementary works that deal with one idea outside of the main theme of the research is slightly less obvious. The use of musical articulations as a form of cognition, a process that reveals certain theoretical insights in a concrete manner, this idea was introduced briefly at the end of chapter 5.

consciousness begins to unravel the medium's actual content (outside of the perspective that one has taken up previously).

"Thinking in a medium" is not to be understood as a new "method" to be added onto the other methods of the study. Rather it is a kind of re-organization of how the methods will approach the medium. It is also to be understood as an important component in the framework. The framework evolves from one phase to the next, and it can also be stated that the framework is not to be conceived of as static (even from work to work). There are of course components within the framework that are relatively stable, but there are also shifting components. These might change from piece to piece and can be understood as overlapping with the artistic criteria themselves. This development of the framework is located primarily within the individual models of practice. There is room in the description of the individual working models for a discussion and analysis of the more malleable components of the framework. In some ways this "developing framework configuration" is tied to the philosophical component in the research. There cannot be a static definition of *music* when that definition is open to re-structuring through the philosophical metaphors of particular works. It can be looked at as *either* a bleeding over of the philosophical component into the basic ontological foundations of the artist's perspective *or* the focus of the philosophical thought turning itself to the medium itself (music).

It is unavoidable as a researcher in the arts that one begins to think in the chosen medium itself. It is necessary even in cross-disciplinary work, the danger of working from an external "a priori" position ever-present in such work. The research cannot be expected to merely provide new compositional processes to attach to a conception of *music* that has always been simply "present" (i.e., un-scrutinized). Rather, the medium becomes necessarily caught up in the process and in so doing becomes a "new" medium – something that is seen anew. Phase 3 is testament to a new way of thinking through the medium itself (as experienced by the artist) and this must be

analyzed in addition to the metaphorical and technical aspects of the particular artifacts.

The structuring of music through philosophical ideas, the *blending process*, the formalization of metaphor, these are useful ways of providing a starting point for creation. There is a danger however of constructing a purely "a priori" music which simply satisfies an artificial goal for a work and then rests. The actual structure of the piece, the manner in which the blended-space component is formed within the context of the whole work must also be accounted for. The embedding of a metaphorical symbol must be followed by a new interpretative strategy. How does the piece form itself around the component? What is the meaning of the component within the temporal unfolding of the work? These are questions that occupied the foreground of phase 3.

The answers to such questions take the form of elaborating upon perceived *contexts* or upon "levels of organization" as Xenakis describes a similar idea (Xenakis 1985). Roads describes in detail the idea of organizing multiple scales within a work, either by taking a "top-down" approach or a "bottom-up" approach (Roads 2015, p. 298). Both *top-down* and *bottom-up* approaches are described and shown to have positive and negative aspects. The more interesting strategy for Roads (a strategy that can begin with either basic approach) is organized around the concept of "multi-scale planning" (p. 298). This kind of planning is deemed essential in the search for compositional strategies that can replace the "classical generic forms" (p. 262). Roads emphasizes the multi-scale strategy in relation to the different temporal scales of a composition and the essentially fluid, improvisational and "opportunistic" nature of the strategy in respect to its implementation (pp. 299-300). The importance of the concept of "timescales" for Roads in determining the levels of the assembly marks it as slightly different to the present process. The organization of different scales within the work (meso and macro) is perceived as a guiding principle. Yet a close reading of Roads will reveal that the multi-scale process as he describes it can accommodate the

more individualized and non-specific aesthetic iterations being implemented in the present study.

In the present study the phrase "planes of articulation" is favored: this for the reason that slightly different aspects of the compositional strategy are focused upon. In basic terms the work is generated through one dimension and then it is interpreted and evaluated in its unfolding as a work of music (the temporal dimension of a piece). A new level is identified in the work, the new level or plane is developed according to its own logic. To explicate this idea further, the concept of *planes of articulation* will be described in relation to artifact creation.

A beginning point – a first plane of articulation - will often be based in a kind of static space. This is understandable in terms of how one approaches the process: thinking through an idea to be blended with a musical articulation lacks the real-world unfolding of a theme, passage or movement. However, once one has organized a series of actual musical expressions the situation is changed. The music now has a direct say in the proceedings and compositional changes can be made in terms of ideas or dimensions suggested by the music itself. The interpretation can focus upon those emergent structures within the music itself. This is the identification of a 2nd plane of articulation. This 2nd plane may or may not be connected to the first. The use of theory to point out aspects of this new level can also be useful at this point. Also useful is a close aesthetic listening that may identify elements of this new level / plane.

In the present study the existence of an emerging internal logic in the artifact is an aspect of the creative process. That logic may contain various planes of articulation, some significant some less so. Central to the research is that one of the planes, an important or pivotal plane, is connected to the blending of philosophical text and musical expression.

When does one stop this process of interpretation? Surely a user could continue to find new elements to bring out of any given piece, and one could work in this way indefinitely. This is the nature of musical composition and artistic research: there is no objectively definable set of rules which will make sense of the practice in terms of boundaries or limits. The research is a species of pragmatics, and it offers heuristic approaches to working though ideas and problems. The use of philosophical text, the creation of a dialog between music and text, this is a *working* activity. The artist or composer works through the ideas, interprets according to the presented forms, and works some more. There is no necessity or rule that demands that one stop at this or that arbitrarily decided point. Yet this need not overly concern the composer or artist.

The activity of identifying a series of planes allows one to clarify the process and to work with it productively. In phase 2 of the research a similar idea was described in relation to the "developmental logic" of a piece. At a certain point the artist listens to the work and allows an evaluative interpretation to bring out the meaning of the work or to suggest alternative meanings.

The 1st plane in artifact CT can be read as the writing of the original notated score. The 2nd plane of articulation is formed around the philosophical metaphors and the blended-space component. The 3rd plane could be understood as the interpretation of the artifact in the light of phenomenology and gestalten. This 3rd plane is related fundamentally to the 2nd: it emerges from the elements that are thrown into the work through the blended-space structure. Thus "philosophy" enters into a second relationship with the work. It does so now however through an interpretation of the musical expression itself. Thus the philosophy utilized in this third plane is a "pointing out" of aspects contained within the aesthetics of the piece. Once pointed out the aspects may be developed.

Another level of organization is located in the training for improvising with the new form the music takes (once the blends take effect). This is the re-organization of the

improvisatory logic for the guitar. The gesture in relation to improvising must accommodate itself to the changed relationships of harmony and overall rhythmic structure. An altered way of playing is the result, this is described in detail in the analysis of artifact CT (section 6.2). We could call this level a 4th plane – it is really up to the user how the planes of articulation are to be ordered and organized. A user (imaginary) could also maintain that it was equally practical to understand this plane as a part of the 2nd or 3rd planes.

There is no necessity for every plane of articulation to utilize "philosophy". In some works the musical form is interpreted in terms of e.g. a purely spatial characteristic. This characteristic (of "spatiality" in our example) then becomes a guiding model – the motion of a series of tones through an imagined space. As stated in chapter 4 of the study the blended-space component does not exhaustively characterize an artifact.

In artifact CT the use of philosophy became an aspect in the pointing out of the 3rd plane of articulation. This is a reporting of the process as it was experienced in the research. Yet there is a certain *generalizable* fact that accompanies this procedure. The pointing out of a plane that orients itself in the *medium* allows the understanding of the process, on the compositional side, to be deepened. Importantly, the blended-space components are *music* first and foremost. These components are embedded in music. There must be an accounting of their use outside of the formal attributes given to them through the blending process. The problem stated: how does the artist integrate these blended-space components into music and into performance? This is related to the "facts" of the process as experienced in using the framework: the utilization of a blended-space component (built from a kind of artificial *a priori* mode of working) must be followed by a re-interpretation according to the structure of the music as it appears in consciousness. This re-interpretation need not be philosophical, as stated above. However, the use of philosophy or theory can help to point out aspects of the music in order to clarify what appears there.

The way this process worked in phase 3 may be taken as an individualized mode of practice, unique to the particular problems. However the general significance of the work must be understood in terms of the fact that the pointing out of the "planes of articulation" required precisely this way of working. It is an outcome of the research that the evolution of the working mode begins to reach into areas such as those being described here. The emphasis upon "scale" and "focus" in phase 2 prefigures the cleansing of the lens and the appearance of the planes of articulation. For it is certain that the description of a "plane of articulation" as a working concept is related to the concepts of *scale* and *focus*.

It could be objected that what is being described here is simply an expanded version of the notion "focus" as described in phase 2. This is perfectly acceptable within the overall epistemological framework of the study. However, if one were to reduce the concept of planes / levels to one of *focus* then one would also have to account for various differences. Furthermore the practical use value of the models would become difficult to access, the collapsing of the two ideas into one. Over-determination of the concept "focus" would mean that one might have to explain each time where one is approaching the concept from and the particular relationship it has to a practice. Certainly they are closely related, however there are significant differences in the outline given here and the implementation of the concept as a whole.

One final point is relevant to this section. The models of practice are not to be structured as *either* a "form of cognition" *or* as a tool for "expressing content" through music. The practice must be able to accommodate both of these concepts. The models must be able to accommodate nuanced expressive components *and* human centered discourse: artifact creation as defined here can take into itself many planes of articulation and be developed on multiple levels of organization.

6.2 Artifact CT

The artifact *Constellation theory of knowledge* (hereafter artifact CT) belongs to phase 3 of the thesis as set out in the timeline. Phase 3 is characterized by a more complete implementation of the process of working with the blended-space artifacts. In this section an analysis of artifact CT will be provided, and a description of the creative process as it is developed from the earlier practices. Link to artifact CT: https://sites.google.com/view/documenta-scott-simon/research-papers/music-files

There are various aspects that need to be covered in relation to artifact CT, including performance, method of development, compositional framework and contextual considerations. The score for the piece is provided in appendix 1.

The background to the piece is located in the interpretation of artifact TG (see section 4.1). As noted in the analysis of artifact TG, the presence of perception-based structures (organic structures) within the recorded version of TG suggested further elaborations. The idea of a "shaping process" became the starting point for CT.

Also central to artifact CT is an improvisatory component. Improvisation is a broad topic; in relation to CT it has a few quite specific determining characteristics. The software applications that were designed to implement the philosophical ideas provide some real-time parameters that allow change and development to be registered during performance. A guitar improvisation "answers" or "reflects" changes that occur in the electronic soundscape. It is a two-step process in which various elements can influence each other and change the overall direction of the piece (within some defined boundaries).

Figure 26 Process score of first movement artifact CT

CT produced some effects that were not expected in the planning of the piece, effects that were exploited in the compositional process as it developed. These can be isolated and described as they emerge from the analysis. An example of this, which will require further elucidation below, is that the temporal structure of the piece was altered. The philosophical metaphor re-organized the piece in such a way that the perception of the diatonic structure was made less comprehensible.

In a diary note from 19/6/2015 on artifact CT a "first test" of the piece is described. The note runs:

First test….CCS studio. Impression. The timescale needs to be long. The mind cannot fix on the harmonic structure as quickly as when the rhythms are simple. The shapes show that there is a content but it is hidden. The turn towards next key (B major) shows that something has changed…the return to A minor then reinforces this insight (Research Diary Ipad 19/6/2015).

Note that the key of part 2 is identified as B major - it later became E major. A couple of elements related to the temporal dimension of the piece appear in this note These points will be expanded upon below.

Artifact CT is, in its present form, in some respects only a prototype (in terms of the performance configuration). Two or more players would make the performance of the piece more fluid. The performance in Glasgow was accomplished by one player (Simon 2015). This limits some of the possibilities of the work – yet it did provide some interesting developments also.

The work is in some circumscribed ways "interactive", it involves a species of dialog between process manipulation and improvised guitar. As Frisk and Karlsson point out improvisation is a real-time process that in its volatility is not easily transformed into a "researchable entity" (Frisk & Karlsson 2011, p. 280) They note that documenting the performance on video is useful, but is also only a representation of the object and not the object itself (p. 281). In section 6.2.3 of the present study a particular performance of artifact CT is analyzed in more detail.

The researching of the object as an unfolding entity (performance) with temporal extension is considered important to the study. The object gives out some contact points in relation to gestural articulation and perceptual cognizance that are present fully only within its temporality. That is to say one must take note of and work with the performance as an aspect of the research. The models of practice require a

reflection upon the work in relation to temporality. This "requirement" remains to be shown in more detail.

The first realization of the temporal dimension impressed itself upon the artist in relation to the improvised guitar parts. The guitar parts had to be organized in terms of the adjustments that are made to the M4L applications as the piece progresses through a performance. Without engaging in a full description of this aspect here some introductory points are warranted. There are two main areas of interest. The first is the fact that the manipulation of the basic score through M4L devices requires the performer to interact with the GUI of each device in real time. The processes are not automated and require a working upon the material in order to create the "shaping" result. The second point of interest is the manner in which the improvised guitar line is formed stylistically. The way the performer reacts to the altered (shaped) soundscape requires elucidation. These points are described in more detail in relation to an actual performance in section 6.2.3.

The main theme of the work is a synthesis of ideas relating to *The constellation theory of knowledge*. The thought form to the piece is contained in the score (appendix 1). Walter Benjamin, Theodor Adorno and various other philosophers have made use of the concept "constellation" (Adorno 1966; Bowie 2013; Benjamin 2009). In figure 27 the metaphors extracted from an engagement with the theory are represented as "system", "fragment" and "constellation". These basic metaphors guide the musical articulation represented in the central bubble of figure 27. The central bubble in figure 27 represents the use of Max /MSP and Ableton Live to construct M4L applications that work with the metaphors, this represents the conversion of the formalized language to effective process. Further elaborations and developments are represented underneath the main bubble by "elaborations". The last element is performance techniques, describing the manner in which one engages practically with a performance of the work.

Referring to figure 27 the overview of the artifact in relation to performance is shown. A series of metaphors is shown on the left hand side of the diagram. This is the basis of the work and it changes according to which of the three metaphors are activated. The center circle represents the "series" of algorithms. This reflects the fact that the metaphors are slightly different, but also that in terms of a working process a series of functional applications was found to be more evocative. Thus one "metaphor" was organized through multiple applications. In real terms this was confined to the shaping process of the "constellation" metaphor which was identified as the aesthetically interesting process. The metaphors of fragmentation and system were present in the piece but play a minor role in the work. This development of the aesthetic of the work can be understood as elaborating on the basic form in response to the internal logic of the work as experienced. A more complete description of the M4L applications is contained in sections 6.2.3 and 6.2.4.

In artifact CT the guitar was originally worked out in relation to a sequence of chords. The chords were understood to be the basis upon which algorithmic / computational transformations were performed. The original score is located in appendix 1. An example of the "writing" that accompanied searching for the right areas of improvisation is located in a scan from the research diary at this link: https://sites.google.com/view/documenta-scott-simon/research-diary

As written in the score the notated chords are to be arranged and utilized in whichever way a performer deems fit. In the rehearsal for a performance the guitar work was organized, or modified, by the type of rhythmic structures that were being generated by the transformations. This was experienced as a novel type of playing experience. Firstly, the rhythms of the piece changed with the applications of the metaphor. The guitar work had to accommodate itself to theses changes. Secondly, the breaking up of the metric timing in relation to the chords brings a change to the diatonic form of the piece. The harmonic center became more diffuse and less hierarchically and

formally ordered. Improvisation in these conditions made for new challenges and new solutions.

```
┌─────────────────────────┐
│   Metaphor 1:  System   │◄────────►
└─────────────────────────┘          ╭───────────────╮
                                    ╱                 ╲
┌─────────────────────────┐        │    Processes:    │
│  Metaphor 2:  Fragment  │◄───────►│    Series of    │
└─────────────────────────┘        │    algorithms    │
                                    ╲                 ╱
┌─────────────────────────┐          ╰───────┬───────╯
│ Metaphor 3:  Constellation │◄────────►      │
└─────────────────────────┘                   │
                                               ▼
                                    ┌────────────────────┐
                                    │    Elaborations    │
                                    └────────────────────┘

                                    ┌────────────────────────┐
                                    │ Performance techniques │
                                    └────────────────────────┘
```
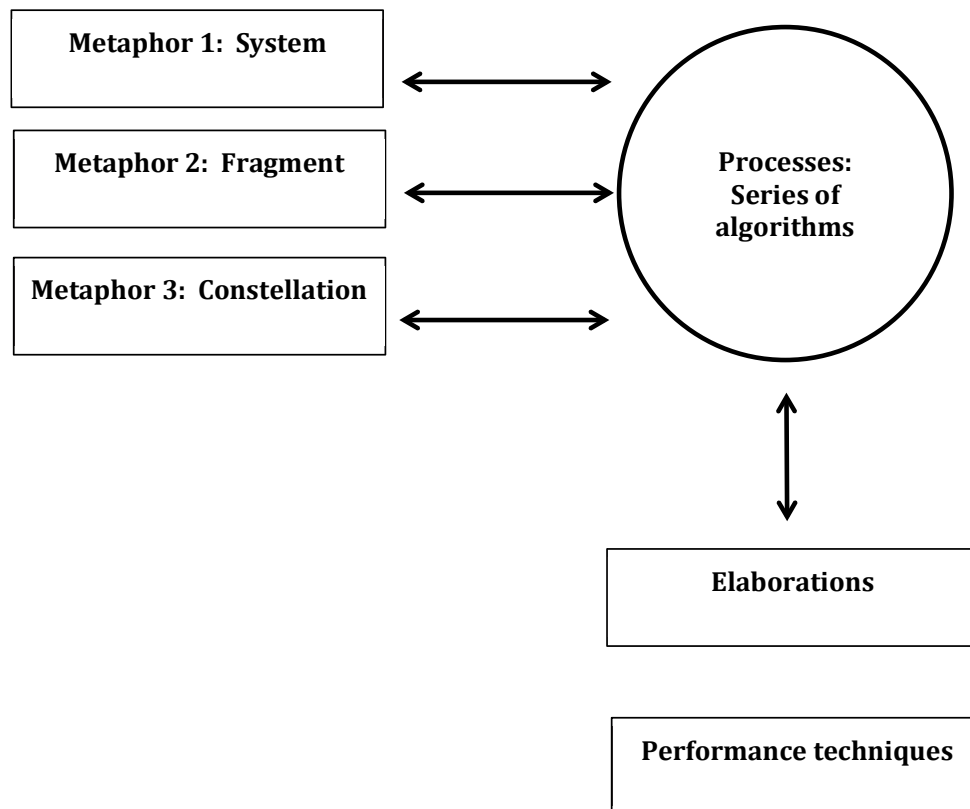
Figure 27 Overview Artifact CT

As noted in the essay *Empirical studies of computer sound* improvisation is utilized by some performers to create "novel and stylistically unfamiliar work" (Bailes & Dean 2009, p. 479). The authors of that essay are dealing primarily with the improvisation process using the computer. The use of computer processes to extend the repertoire of instrumental playing in reaction or dialog with those processes is the focus here. One of the effects of the computational processes (put into play in artifact CT) is the gestural approach to improvisation. It is in the instrumental improvisation that one encounters the most pronounced changes as experienced by the researcher.

There are of course many definitions of "improvisation". There are times when improvisation is simply a re-arranging of a series (a scale or harmony or process) in ways that are formally unique but perhaps not novel. The specifics of the manner in which the guitar improvisation is experienced in a new mode is detailed in the "performance analysis" (section 6.2.3).

The importance of introspective reflections in the improvisatory process is the subject of some articles / writing (Frisk & Karlsson 2011; Cobussen 2008). Specifically the importance of the introspective process as an object for research, and the other components that appear between "agents at play" (Frisk & Karlsson 2011, p. 285). The performer becomes a "listener amongst other listeners" (p. 285), and the communications flow is not tied to the traditional structure. The continuum between the listener as performer and the elements that create performance, the web of networks that are experienced by the artist in the creative process: these are the research elements (see Frisk & Karlsson 2011, p. 285).

In the present context we can identify various points that are important within this continuum: (1) The experience of the phenomena of performance: the manner in which the performance structures new un-looked for emergent qualities within experience; (2) The manner in which the performance is experienced as a physical process, i.e., the "back and forth" nature of the structure; (3) The importance of creating a melodic key-based improvisatory frame and then "throwing it away" (so to speak).

6.2.1 Artifact CT: map of planes

An analysis according to the works constituent levels or planes is warranted at this point.   Taking the writing of the composition, and the preparation for the performance, as a starting point the artifact can be analyzed in terms of moving between different *planes of articulation*. This way of working was introduced above in section 6.1.2.

The *first plane* for artifact CT is a series of chords with a melody, the melody is improvised within certain constraints detailed below.   The concept of "plane" described above is also to be understood as a *context* within which developments are organized. There are various internal levels of compositional craft that this first plane exemplifies: the construction of a series of chords using an internal voice model, and the fitting of improvised melodic lines that satisfy the aesthetic demanded by this series. We can see the building of this first plane in terms of the chordal elements, and ideas about voice leading. Also there are the written notes (in the research diary) that detail the type of areas (key and register) the improvisation will move into. Lastly there is the practicing of the improvisation: the written diary notes guide the shifting between scales (or scale patterns).   This occurs in "real-time", the artist makes use of written notation *and* diary notes while improvising to the unfolding chords (played by Ableton Live).   The diary notes act as a kind of visual cue for changes as they are unfolding (for example a note will show a sequence of bars 1-16 as having an "E-minor" key and also as having a tendency towards additional notes i.e. "G#"). Thus the first plane of articulation is a complex in itself. As a principle of explanation it circumscribes a field of relations adequately.

The *second plane* imposes the algorithmic, or process-oriented, structure upon this first structure. It breaks apart the elements that were built up there and re-orders them.   The earlier practice sessions (for improvising with the work) come to "nothing" in the sense that this way of approaching the improvisation is not utilized.

The playing (improvising) now takes on a form that is quite different. However it is not for naught the first structure. Inside the transformations the first plane remains, and the understanding of the chords and the changes (improvised lines in context etc.) is connected to a new more abstract understanding.

In practice sessions for the Glasgow performance some formative processes and ideas were observed. The movement between first and second plane is one that reveals a place of novelty. It is not somewhere that as a listener the composer has worked in before, it is also not a "completed" place. It is something that holds a particular promise in terms of what it shows, but it is not a place that has found its certainty. This may be the structure of the piece itself, destined to begin in an area that has certainty and move outwards into something more tenuous. It is the very nature of the distinction between first and second structure, and what these designations signify here, that bring to the fore ideas such as "tenuous", "incomplete" and "novel".

The pushing of "fragmentation" and a metaphor of "constellation" re-orders the first (diatonic) structure radically. This process is, in relation to the harmonic structure, a way of *dissolving* the harmonic structure and the chord progression (as notated), and the *imposition* of a new compositional rationale. At the first practice sessions the improvised melodic lines, built up through practice and organized as written notes, were now lost. There did not seem to be a way to return to the melodic and harmonic templates that governed the first structure of the piece. The structure of the piece (the second plane) is such that it becomes paramount and takes control of the aesthetic.

A third plane is then added to this structure. It is to be understood as the interpretation of the aesthetic dimension of the temporal unfolding of the piece. If the second *plane of articulation*, or *level of organization*, was organized in an *a priori* manner, i.e. the philosophical ideas imposed on the structure of the music, the third plane now allows the music to speak again. However the unfolding of the meaning of the piece in aesthetic terms is not "un-theoretical". The identification of the changing

nature of the temporal meaning of the work is revealed through a close aesthetic listening – that much is true – however to really fix the aesthetic dimension for understanding (i.e. in the understanding of the composer / performer) the theoretical application of gestalt theory (revealed through phenomenology) was required.

6.2.2 Artifact CT: theoretical reflections I

The ongoing reflection on the nature of the "practice as research" demands certain changes to the way that one works. The imposition of the theory, as part of the practice, is implicated in every aspect of that practice. To create can also mean to theorize (in this case it does). Every aspect of the creative process, from the programming of musical applications to the researcher's understanding of "music" as a concept, can be accompanied by theoretical musings. Furthermore one can *foster* this attitude and bring theory into the studio, and work with the theory in order that aspects of the practice that were hidden or occluded are highlighted. The theoretical reflections that are interwoven with the building up of a work can be integrated more and more with the practical *making* processes. Jonathan Neufeld describes the manner in which he perceives theory to be related to praxis. He writes:

To describe the norms and intuitions actually operating in musical practice is, in part, to describe the philosophical arguments that helped make the practice what it is. To engage in the philosophy of music as a form of descriptive metaphysics should bring one to notice that the philosophy of music plays more than a merely descriptive role in musical practice. This was true of the philosophy of music in the past (I briefly mentioned the middle of the nineteenth century, but could have mentioned numerous other periods), and I can see no plausible way to exempt current philosophy of music, at least conceptually, from this active role (Neufeld 2014, section 4 paragraph 8).

This is Neufeld's description of the manner in which the philosopher comes to be connected to the creative practice itself, no longer merely a describer of the creative

practice. Presumably Neufeld has in mind the work of theorists and philosophers that are distinct from the creative practitioner. There is no reason that the composer cannot be the composer-theorist, bringing these two poles together.

This is directly relevant to the present study in terms of the creative process *as experienced*. The ontological structure of the music changed (during the research process) in relation to the philosophical thought processes – the engagement with theory went beyond the use of a text to produce metaphors for an individual passage or event.

The use of theory and descriptive metaphysics is a part of the practice as it unfolds, and this way of working impacts on the nature of the being of music itself. That is to say the practice that is here modeled makes use of theory in a variety of modes during the work, one of these modes is the utilization of theory to point out aspects of developing compositions or artifacts that were unsighted. The interpretation of a passage, or indeed a whole composition, can reveal certain aspects emerging from the work that require further elucidation. In the present case, in relation to phase 3, this use of theory to highlight emerging elements within the specific pieces (artifact CT and OB) showed that the medium of music itself, as conceptualized here, was in need of further work.

Certainly, the blending of music and philosophical text is possible without adding a dimension of psychoacoustics and a theory of gestalts. However: how will the aesthetics of the work be approached? How will one bring a meaningful play into the material itself, the medium of music? In the lived creative processes of phase 3 the experience demanded more than a simple blending of two media, the medium of music itself became open to a process of development through theory and philosophy.

This process was demanded by the material in a certain sense. The reflection on the outcomes of applying the processes in artifact CT pointed to a particular way of

reading those outcomes. The changing of the harmonic dimension according to the metaphors generated by the text demanded a reaction and an interpretation in relation to the musical form itself. The outlines of a "hidden" (harmonic) meaning in relation to the effect of the algorithmic intervention were discerned in the practice sessions (see section 6.1.3). This first insight into something that was "thrown open" by the process was deemed worthy of further investigation. The investigation showed that an important aesthetic dimension was present, a dimension that could be enhanced. This dimension could of course be left undeveloped, present but not emphasized. Or this dimension could be isolated and brought into relief through a theoretical reflection. A note from the research diary (22/3/2016) reads:

Once pointed out the "2nd structure / 1st structure" idea becomes more prominent. This allows further development. Creating a longer time base on the application Stepper 3.3 *allows the 2nd structure to become stronger.*

This diary entry points to a different nomenclature for "plane", namely "structure". The meaning is the same. The use of the theory of foreground and background described above in relation to Merleau-Ponty's work afforded a new perspective on the work. The idea that one could make conscious use of moving between the two different sets of sensory intuitions brought the reality of this, in terms of the music, into focus. This had the effect of highlighting the need to "strengthen" one pole (2nd structure) and then to revert to a state in which this pole is weakened. This strengthening of the *2nd structure* (the second plane) changes the temporality of the piece as it is experienced. This will be discussed in more detail below (section 6.2.2).

The diary entry captures the essence of what we wish to discuss yet it misses some important elements. The diary note is artificial in the sense that it "misses" the *first plane* that we described as the *diatonic harmony* of the work (section 6.1.3). The "second plane" is the algorithmic process and the "third plane" is the new interpretation (the establishing of a further *gestalt*).

A focus on two *planes of articulation* became a part of the compositional process. Plane 1 was, for all intents and purposes, not taken into account any longer. The significant planes were: Plane 2: the symbolized philosophical component present in the shaping process, and; plane 3: the interpretation of that aesthetic in terms of yet another philosophical thought process. Formalized music systems would no doubt stop at the second plane: the job has been done and the criteria realized. However, in the models of practice that are being developed here the growth of the material as it evolves is encouraged to flourish. This necessitates an interpretative and iterative process. The medium of music itself was interpreted as holding an imminent gestalt, a gestalt that could be understood with a theoretical prism.

Descriptive metaphysics can become part of the structure of the musical practice itself, this to be understood as a move from *symbolizing ideas in musical form* to a more pervasive *entwining of music and philosophy*. In this light we see that the musings on psychoacoustics and phenomenology above are not side issues, they are part of the ontology of the work in both its compositional and performance aspects.

The word "ontology" is used here to differentiate a series of insights from other conceptual configurations within the research. Ontology designates a change in the manner in which the practice conceptualized the being of "music" as such. It is utilized here to indicate that the governing processes – that which organizes how one comes to practice music and with what assumptions and guiding principles one works – is to also take into account the philosophical musings that have structured and re-structured those principles and processes.

When the philosophical description of the practice becomes a component in organizing the perspective that one holds in relation to what music "is" then one must perceive that the description has become creative, it is a part of the creative process (Neufeld 2014). The most obvious and easily spoken descriptions of music relating to

its "temporality" describe only what one has experienced. Temporality explains nothing if one is so immersed in music as not to see the manner in which temporality can become a structuring principle. The philosophical intervention that one brings to each succeeding interpretation (within a study such as this) allows one to understand anew central ideas such as "temporality" in relation to the being of music.

In relation to artifact CT there can be no question of trying to claim that everything was in place theoretically and the musical idea just followed through on the theory. Rather we can perceive instead a slowly developing interest in relation to the ideas of "context" and "temporality" as these ideas appeared within philosophical texts. The process of bringing something into the dynamic field of the making process, the *habitus* as we have described the present practice, is one in which the thought process is left open and always in touch with the musical activity. This allows more than a basic metaphor to appear as musical form, it also allows one to push the descriptive process into a creative direction – the very self-understanding of the musical structure becomes a target.

Artifact CT reflects this dialectical logic. The temporal nature of understanding is a focus of the work, the attempt to cloak the unfolding of a meaning. The concrete realization of such ideas needs to explicated in more detail. This is the task for the following section.

6.2.3 Temporality

In the unfolding practice as described in this section a concrete "return" on the various theoretical and practical engagements is expected. That is not to say that we wish the theory to be put into practice successfully, or that we would like to simply theorize on the practice as it structured. These are certainly admirable goals and they do capture some of the elements of the research as it plays out. In the present case however an interpretation of the piece through a preliminary *close listening* led to the forming of

an impression. The "impression" found something in the work that was more than the play of the computational processes upon the harmonic content. The activity being described is the attempt to think with the artifact, to structure the habitus in a way that allows a new unity to appear. The artifact is not the crystallization of theory, and a new theory is not suggested by a completed artifact. The theory unlocks an idea and the music "accepts" some of the designation but demands something else, so one returns to the theory – a back and forth between the domains.

In the artifact CT we are looking to reveal a dialectical logic, a logic that constructs a new gestalt. The gestalt that we are building is one that "cloaks" the harmonic content of the work, and re-organizes the temporal unfolding of meaning. This is the essential guideline within the work that appeared from the application of the basic metaphors. An example from the work is warranted at this point.

Figure 28 shows a sequence of 4 chords taken from the score of artifact CT. The notes in the chords are color coded. After bar 8 the chords have a shaping process applied to them, this distributes the notes through the following bars. The "drum" line shows the metronomic percussion / kick drum. The color coding reveals the new positions of the notes from the fragmented chords: purple, blue, green and red are now all mixed up in terms of temporal order and original metric timing (see bars 9-16).

Figure 28 CT example

The basic premise also has potential to be pushed further along the same path. For example, in the relation to a form that is firstly *present* (perhaps for 8 bars metrically undisturbed in relation to the chords) and then *disturbed* (8 bars in which the algorithms are utilized to break apart the chords) and then *broken down* completely (spectral and harmonic content of notes changed, tonal hierarchy diminished or distorted). This type of practice is aimed at the temporal being of comprehension, the meaning of the original "diatonic structure" or first plane is disturbed but ultimately retains its central status within the disturbance. Such manipulation of context is based

on *deferring* a meaning, and then further, developing new meaning from within the deferral itself.

The attempt by the listener to "fill in the gaps" that are left within the ruptures according to convention and tonal system, and making bridges based on the fragmentary and changed evidence within the ruptures leads to, by the very nature of the process, a cloaked "first structure". The second structure may indeed become dominant and take over completely – in this case the first structure is like an echo that is present but only distantly perceived.

As the amount of delay (that can be applied) becomes potentially greater, the greater the potential disturbance of the original harmonic structure. In practice some notes are left where they are notated, while some notes are pushed forward as far as 8 bars or more. The effect of this disturbance is the accentuation of an abstracted form. The different M4L applications created for the piece allow different amounts of delay, some allowing smaller amounts (3-6 seconds) some larger amounts (6-10 seconds). The applications that work in the 3 second range (3000 ms) facilitate finding workable results. Some applications however (the applications that work in the 10000 ms range) are taxing to the performer and require a lot of time and effort searching for useable spaces. The tradeoff is that the more difficult applications create very abstract spaces and the original harmonic content is only very distantly perceivable. This can be useful and provides the performer with a broad palette.

With two performers working together as a group the piece will most probably realize different scales of organization and be able to move between different landscapes more precisely and smoothly. The work has been performed solo - this requires improvising on both computer and guitar. This solo process can also be rewarding from the performer's point of view. Firstly, there is a searching for interesting shapes with the user interface (UI) of the chosen app. Secondly, there is a use of guitar to

improvise as a kind of "answer" to the structure produced. This *dialog* continues throughout the piece.

Immensely useful to the work as it unfolds during performance is the saving into memory of different "shapes" on any given M4L app. The saving, recalling and interpolating between shapes and patterns created during performance makes the searching process much more rewarding. A provisional shape can be produced and saved, followed by another which is also saved. Returning to the first via a recall button allows comparison and then fine tuning – *interpolation* between recall-states allows a fine grained rhythmic tuning of the parts. This was a secondary iteration added to the M4L applications and it was based on practicing for the performance. The guitar work needed a way to "latch" onto the best and most useable components even while allowing further searching.

The "deferral" of meaning, alluded to above, that the effective process constructs is a deferral on the level of understanding. The process of building a performance out of fragmenting the basic structure (the first plane) and searching through new variations creates this space of deferral. The initial interpretation of the piece suggested this possibility, and the philosophical and theoretical reflections isolated and refined it. The work upon the M4L applications allows the different aspects that appear in the basic piece to be elaborated on. The elaborations extend the aesthetic of the work but they also "run the blend".

In a note from the research diary (July 6 2015):

One harmonic heard first changes the perceived constitution of another tone….The ear as it hears the series of notes dispersed in relation to a harmony is not merely assembling a fact which is deferred. The content of the structure can take on a life of its own…the many logics, micro and macro, which are connected to a logic of perception. Thus the deferred reality of a "fact" that changes according to context

can become extended and manipulated…used to entice one interpretation and then move to another instead.

The process as a whole can be directly tied to the theoretical reflections outlined in section 6.1 above and described as the "logic of perception". The description of Merleau-Ponty's walk along the beach (and the structure of a complex perception) sharpened the perception of the aesthetic discerned in the piece. Further Ihde's point concerning the use of language to reveal a new way of perceiving is relevant: the theoretical reflection on the process of creation points to elements that can be isolated and emphasized. Philosophical thought processes appear in the artifacts as elements to be symbolized (in musical form), this is supplemented in phase 3 by a development of the material itself. Phenomenology and psychoacoustics provide theoretical entry points for a clarification of the central processes involved in realizing artifact CT's goals.[14]

The fragmentation strategy employed in the present artifact hides, or *problematizes*, the manner in which the harmonic content is allied to a key. Moreover the strategy hides what each individual chord means in relation to the hierarchy – there is a shifting between the original meaning and the meaning being constructed according to shaping metaphors etc. In relation to the development of the composition one interprets at each step. Also it is not a question of simply reading the "facts" off of

---

[14] It is probable that such deferrals of meaning in terms of the harmonic content of the piece can also be described in terms of music cognition. Krumhansl's overtly "gestalt" approach (Huron 1992) can be made to speak to the types of compositional processes being employed here. Certainly a complete analysis cannot be formed, that would be outside of the scope of the research. However the present research could be developed with reference to notions such as "contextual distance" and "contextual asymmetry" (Krumhansl 1990; Huron 1992). The distance that a subject perceives between successive chords, within a context, changes in relation to the position of the chords within the tonal hierarchy. The "cognitive schema" that one uses to decipher where a chord is located within the tonal hierarchy is, naturally, disturbed by the shaping processes of artifact CT.

the surface of the work. The overall form, the gestalt, that appears through (1) creative activity, and (2) interpretation of the result, is something that must be worked with and developed consciously.

Experiments in music cognition point to the identification of the tonic key in relation to chords as being strongest towards the end of a progression (Krumhansl 1990). A listener becomes increasingly confident identifying a home key as a chord progression slowly unfolds – with key changes initial identification of the "new" key is often incorrect. The more information that is gathered the better the listener is able to make a final correct assessment. The final chord registers the strongest correlation to the key in experiments (Krumhansl 1990). Breaking up and fragmenting the chords will lead to weaker correlations between the final triad and listener perception of key.

In artifact CT the breaking up of the chords must of course break up the context and the schema. The extent of this fragmentation, as experienced, depends on the formulative processes imposed upon the material. In the artist's appraisal of the situation the breaking up of the chords still provides a general sense of key but the temporal scale is changed. Some observations: (1) The voice leading component is destroyed by the processes; (2) the tonal context is still present but not ordered into identifiable triads – if the tonality was originally complex (many passing notes etc.) key identification (by listeners or audience) may be difficult; (3) the extra step of shattering and reconfiguring also undoes the possibility of the melody (improvised melody) that was part of the work – this was experienced in relation to artifact CT.

In relation to performance of artifact CT the precise areas of melody that were worked upon to mesh with the harmony (reciprocally) were found to be no longer applicable. In general the process gives the performer the feeling of both *familiarity* and *strangeness* in relation to the work. Some of the harmonic content is still present in the re-ordered structure (the familiar) but it is now so changed that it is difficult to work with (the strange). The context of the harmony has altered and this makes the

melodies that were previously utilized (during improvisation) no longer tenable. The precise sequence of events that order(ed) the chordal structure have been broken down. In general, the musical context of the original plane has altered through the algorithmic processes, and two possible outcomes are revealed. The context can be utilized by the performer in a completely fragmented form (1), or the performer can alternate between *fragmentation* and *stability* (2). It is of course quite easy to return the piece to its original form at any time if the performer sets the M4L application appropriately.

In the present case the practice sessions concentrated upon a slow "forgetting" of the original melodic structures. This was a conscious decision: the concentration on the distant echo of the original harmony was emphasized. There were no longer any clear landmarks in the piece (as structured through the M4L applications), and this led to a complete revision of the structure of the improvisation. A distant "echo" of the original harmonic structure was discernible and this could be reacted to in the improvisation.

6.2.4 Performance analysis

The performance of artifact CT took place at Creativity and Cognitions conference 2015 in Glasgow. The performance included a paper for the conference proceedings (see appendix 3). The video of the performance is provided in a link here: https://sites.google.com/view/documenta-scott-simon/performance-glasgow

The video gives an outline of the performance, the recording was done through a camera without an external microphone. The purpose of the video is for personal study and practitioner reflection and is in no way a recording that can be released or re-used. In this section a brief description of the experience of the performance, problems encountered during performance, evaluation from the performer's perspective.

First engagement with the performance: make sure the applications are designed to be easy to use and to set up during the pressure of performances. This is an obvious point, it is however easy to make the mistake of giving oneself too much to do. The problem encountered in this piece is that there are numerous applications that require set up. The question arises: why so many applications to deal with three basic metaphorical realizations? The answer is best described in terms of personal aesthetic decisions: the motion through different ways of realizing the metaphors / blends is interesting and offers a testing ground for different possibilities.

In any case a glitch was encountered from the very first bar in terms of a metronome that failed to engage. Resolution: engage metronome. The setup has multiple components and it reaches across channels in the DAW – the trigger for the harp on channel 4 is governed by the metronome speeds of channel 1. Such complexities of setup translate into troublesome shifts between sections. In the present case these were experienced as manageable. The tempo of the piece as a whole is quite relaxed and requires a kind of "question and answer" form. A "shape" is produced with the applications (M4L devices) and then some improvisation is done to make use of that shape. This back and forth manner is not based on a "seamless" expression model: the performance has a "searching" quality. Solutions are "tried out", worked with, dispensed with, modified and fine-tuned according to the aesthetic assessment of the performer. It is a real-time expression with some constraints, the unfolding of the piece formed around the searching for significant forms and ideas. More detail on how these decisions are made (and using what criteria) is given below.
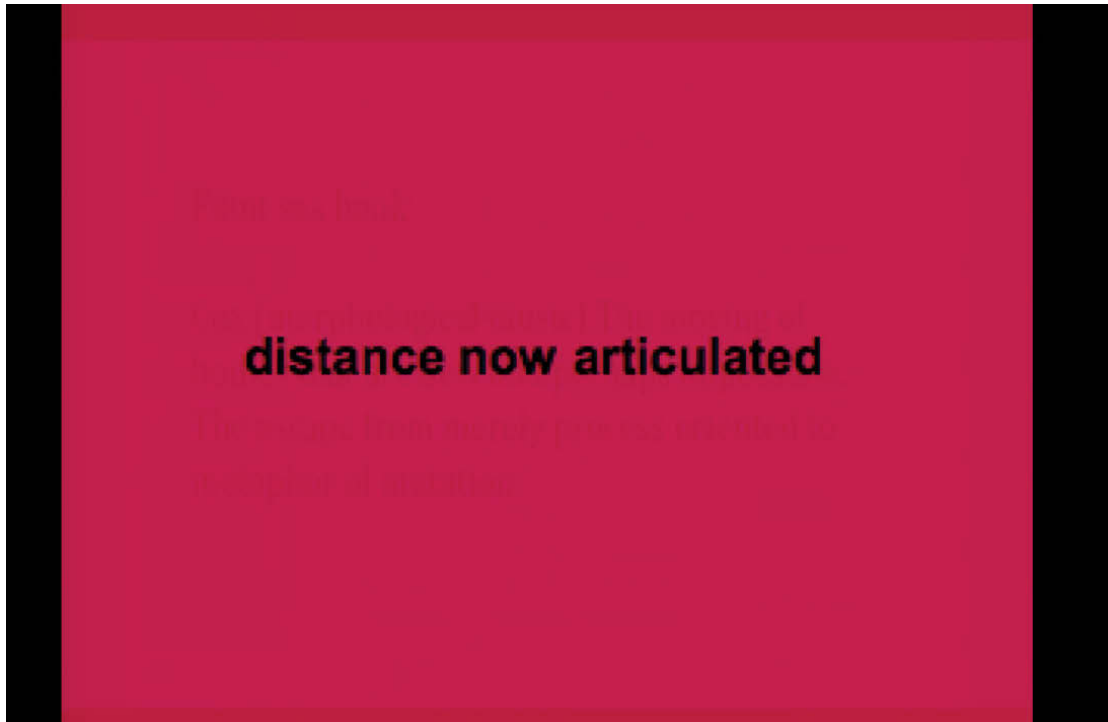
Figure 29 Still from performance movie (artifact CT Glasgow 2016)

In order for a good understanding of the manner in which the improvised line (guitar) is to fit into the soundscape monitoring must be on-stage. The monitoring must be close to the person using the instrument in order to allow good integration. Delays can be introduced, latency of signal, and this is problematic in relation to the complex rhythms that the piece generates.

In terms of the overall harmony and tonal characteristics of the piece some observations are here submitted. The original version of the piece is notated in figure 26 accurately. The motion through the chords is one that is experienced by an improviser as "complex". The A minor scale will fit into most of the passages but there are also elements that require a different orientation. In a note from January 2015 the notation is supplemented for improvisation with a series of "key" centers. In sequence of bars: 0-2: C Major 2-8: E Minor 9-16: A Minor 17-20: D Pentatonic 21-28: G Major / C Major.

Such charts are utilized for performance and recording in every case in the present study. The use of notation is a good representation of a general harmony, and the addition of a table of "centers" around which work can be done is also useful. The models of practice require such details, the user must manage different types of information efficiently. The intersection of contexts of different types requires a "best practice" in terms of managing the information within those contexts.

The practical application of this "key center" chart is complicated by various considerations. Certainly in working the improvised line into a coherent form the chords as notated were utilized. Thus the chords and the key chart were a starting point for the practice sessions. However once the processes and algorithms of the work are brought into play the entire meaning of the piece is altered. The "shaping" process, the "fragmentation" process – these play havoc with a simple improvised line. This is as the work demands. The shaping process, distributed over various channels in Ableton Live and organized with various M4L devices created for the purpose, destroys the vertical harmonic content. From the performer's perspective, the earlier practice sessions with the un-altered chords begins to seem like wasted time. As the practice sessions continue new gestalts and forms emerge. In the present case the work was organized for a performance over two months. In this time studio sessions were utilized to come to grips with a new form of playing the guitar in relation to the altered structure. The player must learn to focus on the "shapes" as they emerge from the M4L applications. That requires a changed relationship to how one plays and improvises. The guitar lines no longer sit upon the comfortable diatonic base, the work must wrestle with quite abstract rhythms that change over time. Further one must make decisions about which rhythms work, and will make sense in terms of the improvisation, on the fly. Also: the diatonic harmony of the work is still present in the piece as a kind of echo that one must stay attuned to peripherally. The attenuated motion of the harmony is still present and it still requires some thought in relation to the improvisations.

The ideas that accompany artifact CT would suggest that the "shapes" arranged in space (that is representing a "constellation") would take up a positive gestalt or background pattern. The breaking up of the chords and reshaping them actually leaves the improviser with a task related to the "gaps" in the tonal forms. This makes sense in terms of past experience in the present case, to play meaningfully one must accommodate the other members or elements in a work. This experience is analyzed in more detail below.

Handel describes the manner in which a group must play in the gaps and spaces between the strict metric divisions (Handel 1989, p. 214). This is necessary to allow each instrument to be heard separately but it must not be too accentuated. Too much variation in onset times will be heard as "out of time" or a sloppy performance (p. 214). The present case is slightly different but it has some interesting parallels. The experience of playing with the "shapes" and kick drum in the present work is marked by one stand out component. The shape must be organized within the mind clearly before one can react in a meaningful way to it. A research diary entry describes the effect in terms of "fitting in with the shape" (Research diary: 22/3/2016). In the experience it is akin to following and flowing with the shape before one "dares a crossing" (Research diary: 22/3/2016). The description "dares a crossing" accurately captures the feel of the playing, the working alongside a shape and the *expressing* of tentative points of contact and the slow merging of the patterns. The "crossing" is the point at which one understands the relationships between the parts and now moves through the entire shape but in a manner that is present to an aesthetic perception. There is small room for error in such complex merging – the way one approaches the shapes of the work with the gestural content of the instrument must be managed in terms of a complete comprehension. The comprehension cannot fall back onto the purely metronomic character of the kick drum – this would be easier but it is not an option. Rather the kick drum is there, an anchor to the shape, but other considerations must be worked in.

Elaborations in relation to the various takes on the basic criteria are present on many levels. The use of different algorithms for each section within the work for example points to a purely experimental and aesthetic relationship to the process of representing the metaphors (or creating the blended space). Indeed changing the way the shaping process is realized adds to the player's interest and keeps the work moving along. There are of course many ways to realize the basic criteria of the philosophical metaphor. The elaboration element allows different components to be realized and also allows new ways of working that leave behind the basic metaphors. This is the development of the blend, or it can be described as "running the blend". As noted above there is a cross-pollination between computer process and instrumental gesture. This will be detailed in section 6.2.3.

It is important to reflect on the performance itself and fix on passages that one found "successful". Such passages can then be used again in recording and further elaboration. One such component that found its way into the recording was a sequence of complex chords played during movement 3 of the performance. The aesthetic of the juxtaposition of complex chords (some triggered and some played on the guitar) provided textures that were felt to be worthy of repetition. The use of those chords can now be found in movement 3 of the recorded works (link: artifact_CT).

The structure of the piece is ternary, but the same criteria in terms of manipulating the rhythms are applied to each of the sections. The score details the three different sections in terms of notation. The same criteria is utilized for all three sections of artifact CT but the piece makes use of multiple designs in relation to the M4L applications. A rundown of these different applications is the task of section 6.2.4.

The rationale of improvising and the manner in which it is undertaken can vary enormously from practitioner to practitioner. The present study has not confined itself to one mode of operation. The most important facets of the practice are aligned

to improvising with instrument and improvising with algorithmic tools. One of the outcomes that emerged from the performance (practice sessions included) were the new possibilities of interacting with the instrument. The gestural content of improvisation changes in relation to the music that it accompanies and this must be "practiced". That is to say practice sessions required the player to re-structure the approach usually taken to improvising.

Some author's have organized improvisation into categories, namely "pure improvisation" and "applied improvisation" (Smith & Dean cited in Keep 2009, p. 127). Applied improvisation is described as the kind of work the performer does to experiment with the piece, to find out what works (p. 127). It can be a preparation for a performance as it allows the performer to understand the kind of areas that make sense. This kind of approach was (is) favored in artifact CT.

In the present case the guitar and computer were understood to be tools that would allow expressive capabilities to emerge that the artist had not previously discovered, and these could become part of a model of practice that highlighted such elements for other practitioners. The actual result will vary for each user but the general idea is retained: the use of the metaphors, the running of the blend, these are expressions that can re-orient the *way of playing*. Formally it can be described as a development within the various aspects of the artifact. The philosophical metaphor structures algorithm, then this algorithm changes the manner in which the guitar lines are put down.

Elaborations undertaken since the initial performance include: (1) longer delays on some of the apps; (2) putting in recall buttons for all of the apps, and; (3) actively focusing upon the creation of "foreground / background" of the work.

Point 2 allows one to work between different states and to interpolate between states (with a dial). Point 3 alludes to the accentuation of the different planes or levels within the work.

6.2.5 Description and use of M4L applications

In this section the applications designed for the performance of artifact CT are described and evaluated. The performance highlighted some aspects of use that demonstrate functionality and also possible modifications and developments.

There are in the present case 5 applications required for the entire performance. Figure 30 shows the basic schematic of the applications. The chords are input on the left – the chords are either input via midi or through a stored array. Both ways of working are utilized, the use of midi makes it trivial to synchronize multiple instances of the work. The use of an array is useful for manipulating the data in abstract ways. The use of a "Coll" object (Max/MSP) to store the array, makes it possible to synchronize the array to the DAW's clock in Ableton.

The chords are split into single notes by the "chord splitter" (see dotted line figure 30) Each note travels to the delay, and the note can be muted en route. The delay is applied to the individual notes – a delay of 1000 ms (for example) applied to all of the lines will put the notes back into alignment as a chord with a 1 second delay. Staggered amounts will lead to the distribution of the notes along the temporal axis of the work. Some of the M4L applications are organized as "ticks" (480 ticks is equal to 1 quarter note).

Chord splitter

Input: Chords

Toggle: ON / OFF — Delay 1

Toggle: ON / OFF — Delay 2

Toggle: ON / OFF — Delay 3

Toggle: ON / OFF — Delay 4

Output: new distribution of notes
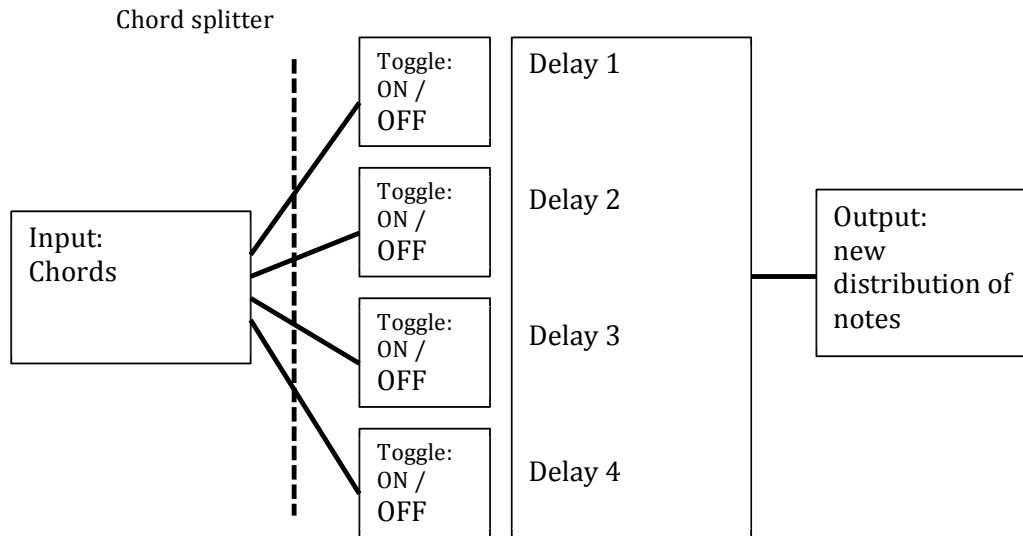
Figure 30 Basic schematic

The *Stepper 3.3* app has a maximum of 10000 ms delay. It functions in a manner similar to the basic schematic shown in figure 30. It is the most extreme of the applications in that it produces such long delays for the incoming notes. As an example of this consider that a note from bar 16 can theoretically appear in bar 24 mixed in with notes from bar 18. This new distribution of notes begins to construct an entirely new harmonic form. *Stepper 3.3* has a simple interface and does not allow interpolation between stored settings (see figure 32).[15] For interpolation between settings the application *Stepper 2* exists (see figure 33).

---

[15] A later iteration incorporated stored settings and interpolation.

Multi-Slider
16 dials

Chord splitter

Toggle:
ON /
OFF

Toggle:
ON /
OFF

Input:
Chords

Input of notes is passed to the
delays: cycling
between 16 delay times

Toggle:
ON /
OFF

Output:
new
distribution of
notes

Toggle:
ON /
OFF

T

T

x4

T

T
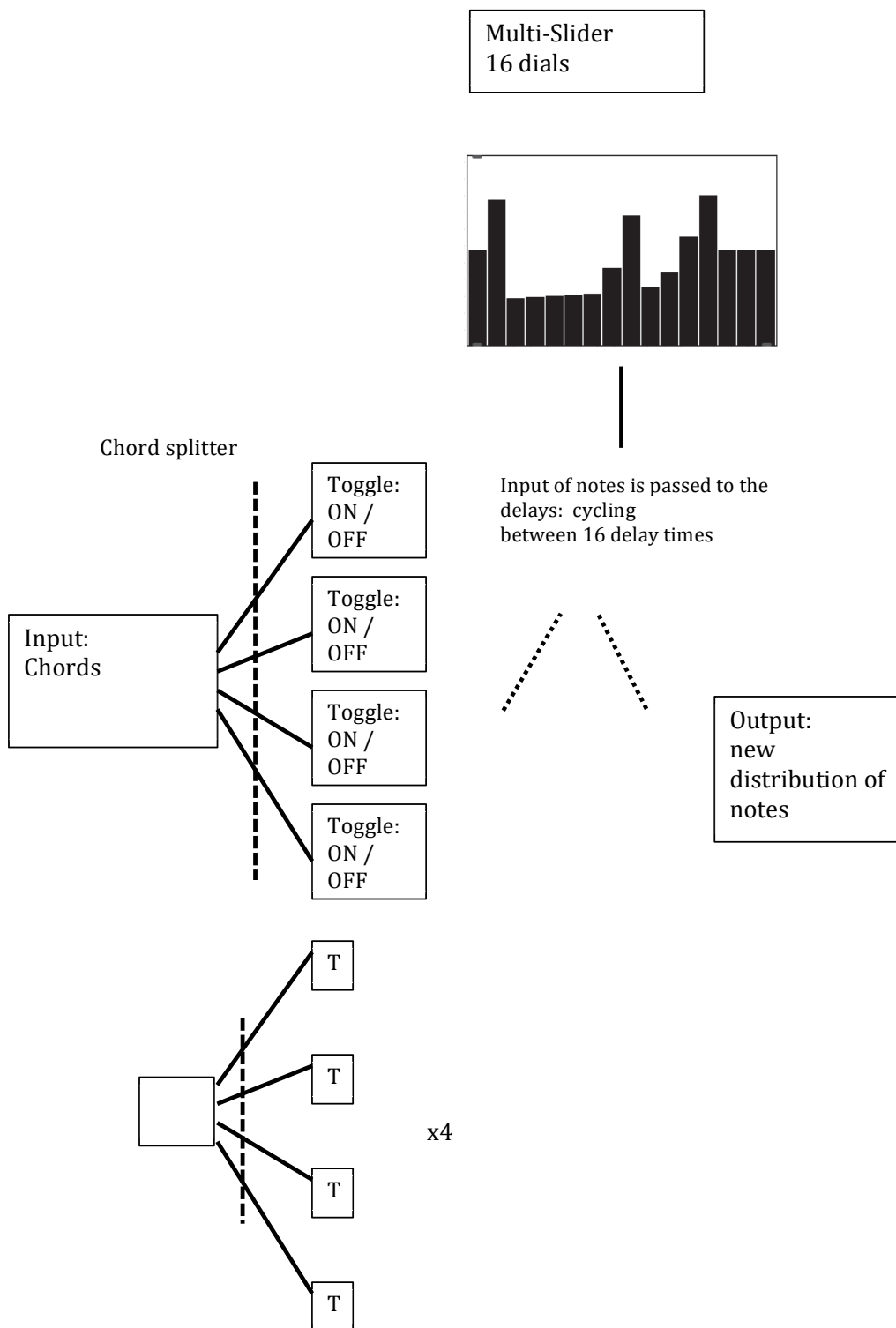
Figure 31 Delay Cycle

Stepper 3.3 is structured so as to go through a sequence of 4 bars with a different delay time assigned to each note that occurs. The app's internal metronome and the DAW clock are synchronized but run at different rates. The 16 multi-sliders set the times for 16 delay lines. The notation calls for a chord every 4 bars, however the *Stepper 3.3* app produces a mirror of the chord every bar until the next chord (at bar 9). These mirrors are then subject to splitting and delay, the delay being set by the 16 multi-sliders (thus running in a cycle of 16 different delay times attached to 16 different notes (over the course of the 4 bars). If a user wanted to have 1 repetition of the chord, 1 per 4 bars, and set the internal metronome to a speed of one beat per 4 bars that also works. It is more aesthetically minimal but in tests it was deemed acceptable in terms of the composer's criteria of expression. A user might also actually include the 4 chords in the notation, and midi file, and synchronize the clocks. Changes could be introduced to the intervening chords. As it stands the flexibility of moving between the minimal and more full versions of the work vindicates the use of two clocks.

Figure 32 *Stepper 3.3* **M4L application**

The *Stepper 2* allows interpolation between the different saved settings (see figure 33). The maximum delay is 6000 ms and it is therefore not quite as abstract in its production of the shaping process. Another version of the application is shown in

figure 34. This structures the delays in terms of note values and ultimately "ticks" (480 ticks per quarter note). This is another way of organizing the elements and it can also be sped or slowed in an overall manner by choosing a note value speed (1n to 16n).
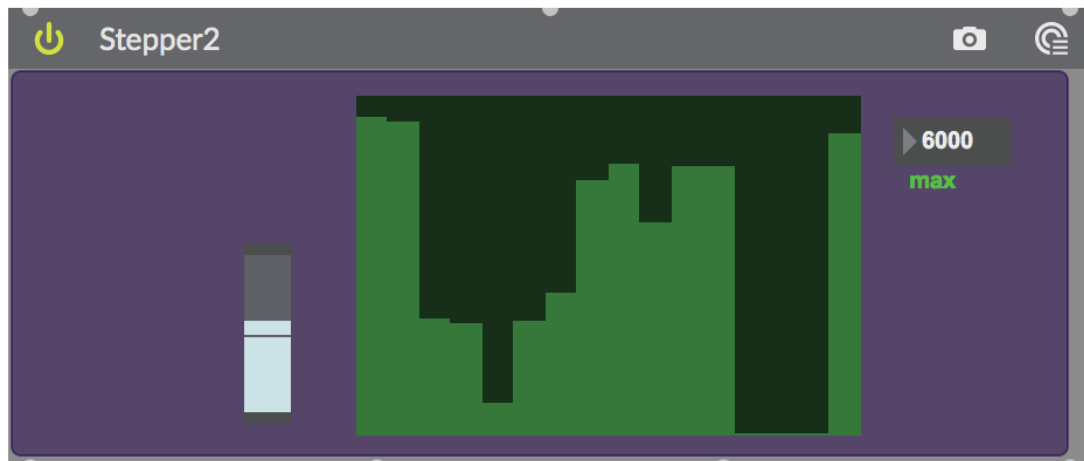
Figure 33 *Stepper 2* **M4L application**

In different versions of the stepper applications more eccentric and "glitchy" designs are also possible. In performance the use of different applications that talk across channels in the DAW were used to create a network of interfacing components and triggers. Multiple sounds and processes being triggered from one master midi file allow for quite chaotic results. One such process occurs in the first section of the piece.

A constantly updating number box (reflecting a random number trigger with each beat of a synced metronome) is sent to neighboring channels and the value of the note is set cycling through a loop. There are 32 possible exits from the loop some are open most are closed. The speed of the cycle is set through the metronome information, the notes being output governed by the open exits in the loop. A glitchy and rhythmically asymmetrical set of notes is the result.

Figure 34 *ComplexShape* **M4L application**

The complexity of controlling the different components and applications across the three sections of the piece requires practice on the performer's part. The three sections must be split into "folders" inside the DAW, this in order to allow an overview of each set of individual channels. Without this the complexity can overwhelm the performer. There is also a problem with CPU if one neglects to turn off applications in one section before moving to the next. A single folder for each set of channels makes this an easier task.

In terms of evaluating the applications during the performance some points stand out. Purely from a practical point of view there are some components that could be made more user-friendly. Thus the fact that the metronome for the *ComplexShape* app begins outside of the first beat of a bar if one does not engage it *on the beat* is considered slightly inconvenient. This app utilizes an array to store the notes and is thus not synchronized exactly with the DAW in terms of an overall bar position. This speaks to making use of midi as the primary tool. For some uses that is not always appropriate, in the present case it could be accommodated.

The internal logic of the piece was not satisfied fully in the artist's estimation by the initial performance. The basic criteria were satisfied but further theoretical reflections, outlined above in section 6.2.1, foreshadowed elaborations on the emerging structures. In particular the emerging of the temporal dimension in relation to perceived overall harmonic content was identified as essential. This required some fine tuning of the apps. Adding a longer delay time was a simple adjustment that

works well in terms of pushing the harmonic content out of the picture and emphasizing the shaping process. Another adjustment is to allow both forward and backward delay of the sound. This requires the work to be pushed forward as a whole along the temporal axis, and a delay time always present in terms of the notes. The mapping of the "present" delay from 1 bar to "0" on this axis then allows one to go "backward" (albeit only seemingly).

Another perceived problem in the realization of the metaphors with the M4L apps concerned the "fragmentation" component. The *ComplexShape* app can descend into chaotic fragments when very short note values are chosen. A completely random and atonal "stream" is produced. This was not utilized. Instead the "fragmentation" metaphor was dropped from the initial performance. A new and more sophisticated algorithm involving a granulation process was tested in an artwork in the Wenzhou Biennial 2016 (Link: Wenzhou_work). This granulator was put to work on the recordings of the three movements and provides a more acceptable result for the aesthetics of the piece.

6.2.6 Recording and development notes

The performance and the recording of the artifact CT are two separate and quite distinct entities. Some elements that exist in the score are bypassed in the recording or they are utilized out of order. This can be shown through a brief look at the first 8 bars of movement 1 (see figure 26 above). This "introduction" is left out of the recording – that is to say until the re-capitulation (at about 7 minutes into the piece). In the performance this element was utilized at the beginning of the work and again in a second movement. The order of the movements changes also – during performance the performer is free to choose a different route through the three sections. The "open" nature of the piece is underscored by this kind of transgression.

The strict version of the score can be transgressed as the preceding discussion makes clear. The work should include moving around in the various sections, searching for good passages. The score is only a guideline and it is used in the recordings and preparation for recordings as such. In the actual performance the score was augmented extensively. Some passages were extended and some were swapped around in terms of order. Alternative ways of doing things can be imagined and put into practice: the work is to be understood as "open" in precisely this manner. For example a "straight" version of the notation could be used in a section of the performance or recording – this was done in the performance in Glasgow.

The guitar work takes a lot of "thinking through" in terms of the approach that is being implemented, and this in turn takes physical practice. The way through the very abstract parts is not obvious. Some testing is necessary in order to find a "fit" and this can be more or less difficult depending on the particular M4L application being applied. The *stepper 3.3* is certainly the most interesting of the apps – it is however extremely difficult to improvise along with. The playing "patterns" that emerge as effective in relation to each shape are, in general, both "learnable" and also quite "individual" (they must accommodate each harmonic / rhythmic shape). There do seem to be some general ways to approach the playing – listening to the shape a few times is essential. This "listening" involves also a "feeling out" process in terms of the guitar playing. The playing structure that emerges from such processes has less leeway than with standard metric soundings. A note from the research diary is relevant here:

The mind picks up fragments of the original harmony – one can react to these if only in a limited way (Research diary 5/4/2016).

The guitar sound itself was experimented with:

Use of particular sounds for the guitar lines was identified as aesthetically important. Some sounds that were auditioned did not fit into the general scheme of the work. The practice sessions often took the form of identifying the right guitar sounds for the right section of music

1ˢᵗ section use the polyver *synth and the prepared piano samples. 335 sound on guitar amp. For the stepper 3.3. try a version of Jazz close* (Research diary 5/4/2016).

Test 4 April: working through a practice for recording. Some points: the guitar should change tone often. Future development should include some type of augmentation of the guitar (Research diary 4/4/2016).

In relation to the M4L applications the *stepper 3.3* was deemed "difficult to control" so a few modifications were added to it. These modifications occurred as an elaboration on the Glasgow performance (as a prelude to recording the work). One of the modifications takes the form of a series of "presets" designed with a geometric series in mind: some circle, half circle and different applications of a formula based on a unit circle multiplied by the length of the delay time. 10000 ms is equal to 5 bars at a tempo of 120 BPM. Arranging the multi-slider (16 discrete sliders in all) – from 0 to 10000 (in precise steps formed around a geometric series) is equivalent to delaying the signal according to note divisions.

Recording the first section of the piece some reflective comments are offered. The first performance (Glasgow) was utilized as a testing ground for various ideas. These ideas were developed further during the first recording. As noted above the M4L applications were changed after the Glasgow performance. The recording of the first section of CT (0:00-4:06) made use of the new applications. The first passage (0:00-1:12) is a playing of the notation with no shaping applied –(see notation figure 26).

The shaping process using *stepper 3.3* can be heard from 1:13 on the recording of movement 1 artifact CT (the kick drum percussion enters at this point also).

A note from the research diary dated July 24th describes the recording session of July21-22. The description points to the change at 1:13 in the recording:

The logic of the piece is such that the breaking up of the chords leads one to question whether the first set of chords are being repeated. Is this the same progression? Difficult to say...The guitar work enters and forms a melody of sorts with the split chords at 1:50 (Session notes July 24th 2016).

The newly arranged progression takes on a logic of its own – some of the former (notated) harmonic content can however be recognized. As noted in the session notes quoted above it is difficult to pinpoint whether or not the harmonic content is related to the initial statement. This logic is a continuation of the performance model – the delaying of comprehension in relation to the chord progression. This idea was discussed above in more detail in the section on "temporality". The notion that one can play with the foreground and background structure of a work, changing the listener's perception of the piece is part of the criteria of the work.

Recording the second section some further comments are offered. The second section was recorded on July 25-27th 2016 at the CCS studios. The basic structure of the second section was kept very simple – one pass through the live set from an Ableton Live file was made. Simple presets were used for the piano and harpsichord sounds: this accords with the criteria of the piece. Nothing about the sounds as such was part of the effective process being implemented. The shaping of the piece through the M4L applications and the new harmonic and rhythmic forms that are created is the main focus. Further considerations about "interesting" sounds and other aesthetic evaluations were conceived to be irrelevant for the meaning of the piece.

The guitar work in this section holds together the very broken-up piano chords – this was perceived as necessary to the movement. The "fragmented nature" of the chords can become aesthetically taxing. When however the guitar parts are added (improvised triads) they smooth over the broken and fragmented components. This process seems to return some of the harmonic logic that the shaping process disperses. As can be seen from the score the key changes to E major in this section (before returning to A minor in the final movement).

The structure of the "shapes" generated in movement 2 is more regular. In movement 1 the notes tend to form into "blobs" whereas in movement 2 the form is more of a regular fragmentation. This reflects how the processes were applied to the generated tones. In movement 2 different settings stored in presets were applied to the multi-delays. These settings were more regularly spaced in relation to notated divisions.

Different "planes" were identified within the elaborations of the work, a different set for the live and recorded structures. The emphasis in the recorded work is focused upon a more controlled and sedate experience. The live set was more involved with a "searching" aesthetic and a "chaotic" experience. However the central aspect of the piece appears in both expressions: the temporal dimension of the work changes and the harmonic content as notated becomes less readable in both expressions. The guitar work must form itself in new ways to accommodate these changes. The different expressions point to other possible permutations. More controlled variations (such as represented by the recording of the second movement) point to the possibility of cloaking particular passages – cadences of example – and deferring meaning over metric divisions. The recording process clearly revealed this type of permutation to the researcher as possibility. The success of such ideas requires more work – the basic criteria of the work was satisfied at the present level.

6.3 Artifact: On the philosophical idea of the beautiful

The artifact *On the philosophical idea of the beautiful* (hereafter "artifact OB") is part of phase three of the thesis as set out in the timeline. The score to the work is reproduced in appendix 1. The artifact itself is formed from 10 discrete levels, all of which are organized around a central theme. The central theme, as notated in the score, is a very simple "seed" from which a work is grown. In the present study it was decided that ten levels would be produced, however it is not essential to have precisely this number. As stated in the score the piece can have between 4 and 10 levels. A more sophisticated thematic development is possible if all ten levels are utilized.

The piece is an "open" work that allows the performers leeway in interpretation and performance. Nattiez describes Stockhausen's *Klavierstuck XI* as the first "open" work. He defines "open" as moving the identity of the work away from a particular canonical aesthetic form towards the signifier of the name of the composer (Nattiez 1984, p. 87). Thus "openness" signifies the production of a score that will shift ground aesthetically from performance to performance. Ultimately however the work is still tied to a particular composer and its meaning is formed through this relationship.
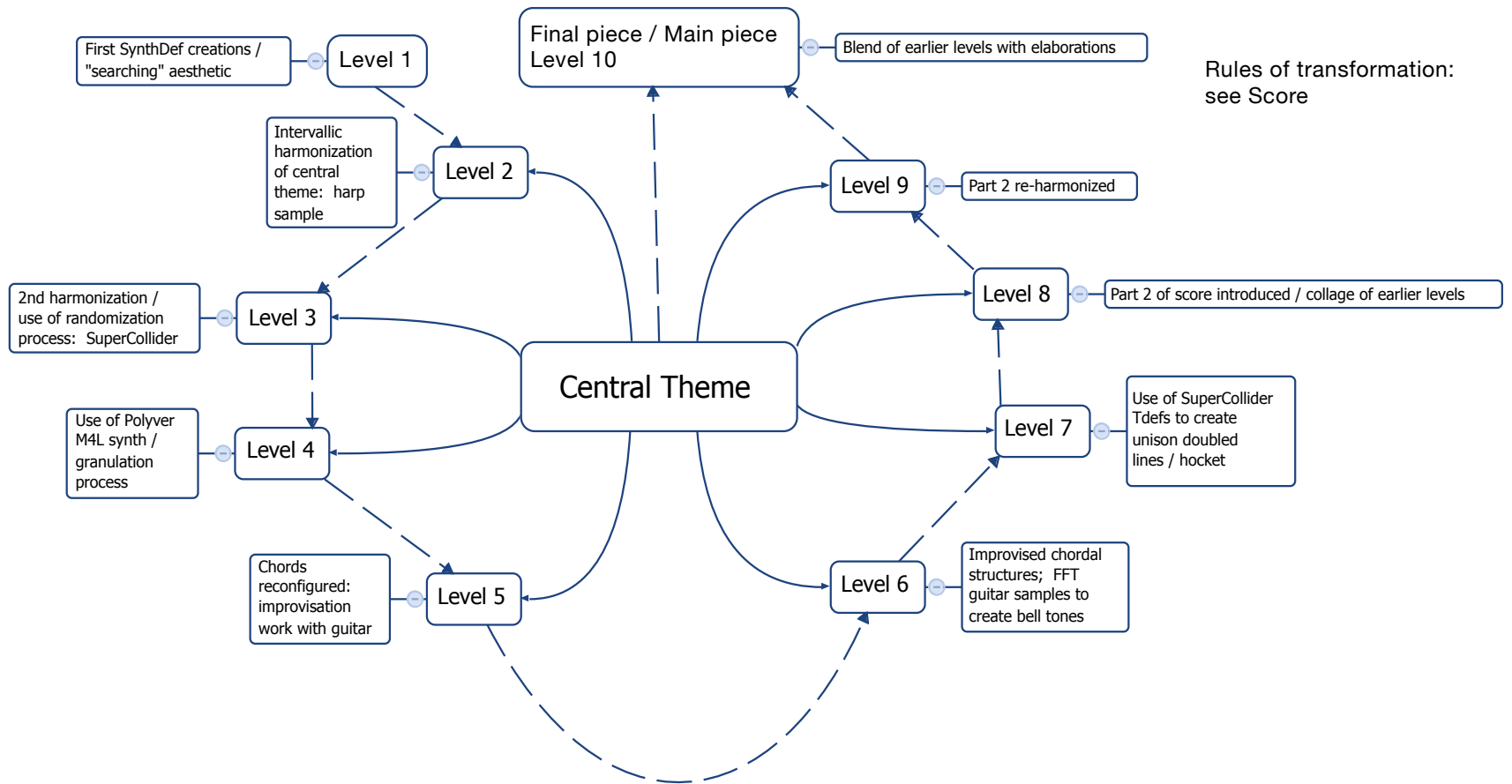
Figure 35 Artifact OB

Figure 36 Central theme to artifact OB

The artifact is based upon a synthesis of philosophies connected to a description of the concept of the "beautiful". Artifact OB conforms to the general structure of artifacts produced through the present study. It is therefore formed from three primary elements, the score contains the thought form, notation and the short program.

The artifact is structured according to the general logic displayed in figure 35. A cursory survey of the figure reveals that the central theme is a component within all of the levels. According to the "rules" contained in the score the central theme cannot appear within any of the levels until the final level. This requirement makes of the central theme a type of hidden key, it is a force that exists within each level but is not perceived *in itself.* Each level becomes a harmonization of the central theme in one mode or another. Some levels are conceived as harmonious counterparts to the central theme (hereafter "C theme") some depart from a direct relationship. The departures are conceived in terms of a localized compositional development that transcends the global influence of the C theme. This distinction between global and local in relation to the different levels will be shown through a close analysis of the artifact.

The metaphors that artifact OB utilizes are connected to the philosophical idea of the beautiful as formed in relation to the thought form (see score). The thought form itself is a synthesis of various ideas, and is articulated as a schema that provides a platform for developing compositional ideas. Further, the schema is an invitation to dialog, an opening onto discourse in relation to the thought form and the conceptual themes.

Artifact OB began in a kind of dark timbral space (see description of harmonic partial programming below) and moved towards equal temperament (ET) and more traditional harmonic structures as it progressed through the levels. Yet even as diatonic harmony became the dominant formative element, the piece seemed to retain something of the earlier movements. The guitar playing in level 5 for example takes on a kind of "dark" spectral palette. This is discussed in more detail below in relation to the individual level.

Sources: Kant, Shaftesbury, Cassirer, Baumgarten

Metaphorical components formalized

Metaphor 1: Non-sensuous component of the beautiful =Central theme (notated)

Material to be modified

Metaphor 2: Beauty as becoming =10 levels of transformation

Performance / Artifact / Composition

Performer / Composer / Instruments / Software

Mechanism

Rules of transformation: See score

Figure 37 Diagram of process

The primary metaphors in the work can be read off the table in figure 37. Metaphor 1 is the "non-sensuous component of the beautiful" and it is represented by the C theme (figure 36). The C theme makes its way into every level as a representation, or symbolic representation, of the non-sensuous aspect of the beautiful. There is no formalized attempt to create "beauty" as such here – the various components are to be read as standing in for elements of the thought-form. Metaphor 2 is the idea of "beauty as becoming" and it is represented by the 10 levels of transformation. Beauty as *becoming* is discussed in the thought-form (see score). Shaftesbury saw the beautiful as a concentration upon the act of becoming: that is to say the surface of the beautiful in nature is not to be imitated, rather the "immersion" in the process of becoming is that which produces beauty (Shaftesbury 2004; Cassirer 1951, p. 317). One mimics the creative forces not the surfaces that are produced by the creative forces.

These two primary metaphors are the starting point for the work. Metaphor 1 is organized as the "C theme" and is the material that will be formed into musical

311

expression. Metaphor 1 is already represented by musical material itself (the C theme), it becomes the structuring background of the different levels through an engagement with this *material*. Metaphor 2 is to be read as a principle that organizes the overall form of the piece. Yet it has a less formal component also: it is a kind of creative ideal. The work refers back to "metaphor 2" as a principle that makes sense of creating always in terms of the *process*. The surface is to be formed through a concern with the process over the result.

The mechanism of modification, the bubble at the bottom of the figure, is the performer or composer. The software and instruments that are used to form the material also belong to this category. The mechanism is brought into play through a relationship to the score and the "rules of transformation" therein. The "rules" are not to be taken as absolute, one of the rules actually states that the others may be broken. The rules offer a way of entering into a relationship with the piece.

The output of the work is represented in the figure by the left bubble. The output can be a performance or a recording or a complete artifact. A complete artifact is represented here by thought-form text, short program-text and musical structure.

Figure 35 shows the actual form of the recorded version of the piece done for this study. The different transformations are shown moving around the graphic from level 1 to level 10. Each level can be seen relating to the C theme in the center. The open nature of the work means that every performance and recording will have a different realization.

In relation to the notated score of the C theme we can see two main parts. Bars 1-16 form the first section or part. A transition for four bars is followed by part 2 notated in bars 20-36. Part 2 has a time signature change from 4/4 to 3/4. The key changes from E major to E minor at bar 29. This change is to be read as a musical device and is not located at the boundary between part 1 and 2. This change of key is still

contained within "part 2" of the work. Thus *part 1* is 16 bars in length, the *transition* is 4 bars in length, and *part 2* is 16 bars in length.

Relating the score to the main graphic (figure 35) the first 7 levels are focused upon the first section of the music (bars 1-16). Part 2 of the C theme, represented by the change of time from 4/4 to 3/4 at bar 21, begins at level 8 in figure 35.   The "transition" passage goes from bars 17-20 in terms of the notated score, and it appears once at level 8.

In most of the levels the "rules of transformation" contained in the score spell out how the work is to be done. The content of the artifact, the musical content, is not at every step organized by the rules of transformation. It is an aspect of the piece that the different levels contain "departures" from the way things should be done according to the score. This logic of departure and development speaks to a kind of dialectic between the C theme and its harmonization. The internal logic of a level can take over from the isomorphic mapping that the score requires, and this development of internal logic is acceptable. If a user overlays the C theme with a given level often the result will be harmonious, however dissonant and problematic relationships also appear. This practice of comparing a level to the C theme was made use of in the present study (where appropriate). Comparing the C theme to the unfolding elements of the levels was interesting and led sometimes to new thought processes. In some cases the result of comparison seemed to warrant a change, but making such changes was often aesthetically problematic.

The different levels of the work are the result of different *transformations* applied to the C theme. As laid out in the score 10 players perform the work managing one level each. It is also possible for less players to perform the work and they must divide the levels amongst them. The musical structure of the work is formed around the C theme.   Players create harmonizations that are in accord with the "rules of transformation" in the score. Transformation rule 1 is reproduced here:

Each player receives a "level" of the work. The "Central theme" (C theme) is harmonized by each player according to their desires. The C theme cannot appear in recognizable form on any level except for the last.

The rules of transformation state that the works are to be "complete" unto themselves – not sketches. However "complete" does not demand "perfect" – some imperfections can become part of a complete level. This would include harmonizations that departed from strict diatonic relationships. Furthermore, the overall conception of the piece includes an emphasis upon *process* and *becoming*, and the continuing re-organization and re-structuring of the work was therefore built into its DNA.

A brief description of the harmonization process is offered here. A more detailed analysis follows in a description of each individual level. Looking ahead to "level 2" of the work we can see represented in figure 40 a level harmonization. The C theme is the *background* to the harmonic form – it does not however appear itself. In level 2 the harmonization is "correct", that is to say one could play the C theme over the chords and they would be recognizably harmonious.

An example of a transformation that departs from harmonizing the C theme "correctly" is given also as an example. In the notated example in figure 38 the level 5 "harmonization" clashes with the C theme. The beginning of bar 5 is certainly "wrong" and subsequent developments also seem to arrange themselves haphazardly. The nature of the problems in the harmonization go beyond note clashes – the evolution of the level 5 chords is at odds with the development of the C theme.

In the context of the entire work however this departure is acceptable – provided, of course, that the progression is played alone. Under the "rules of transformation" within the score it is stated that one can move beyond a strict harmonization. In

general terms it can be described as moving beyond the context of the C theme in order to realize the internal logic of level 5.

Figure 38 Level 5 with C theme (incorrect harmonization)

6.3.1 Theoretical notes I_OB

It is integral to the models of practice in the present study that they reflect the procedure of delving into further theoretical considerations as the work progresses.

The C theme, as a central component of artifact OB, was an idea that became enriched through a further reading of theory while the creative process was underway.

The C theme is not to be taken as a kind of Schenkerian linear analysis in reverse. It is not an *Ursatz* upon which everything else is then constructed As will become apparent though the analysis of the individual levels the central theme is *reacted* to in the different levels. This "reaction" so-called is to be understood not as demanding some absolute conformity of harmony or rhythm. The reaction can be strictly harmonic or it can depart from the central theme consciously or indeed work without referring to the C theme explicitly. The theme is present, it makes a return at some points (the final piece), but it does not have the hegemonic power to enforce a seamless structural coherence.

Charles Rosen looks at the different ways that sonata form was utilized by artists through the classical era (Rosen 1971). He singles out the ideas of Beethoven as pointing to a process of thematic manipulation whereby the composer structured the manipulation according to unseen processes (p. 38). This relates to the concept of the C theme as the hidden "background" to the present work.

Dahlhaus too points to the fact that in Beethoven (referring to Op. 31, no. 2) there are "variations without an explicit theme" (19th Century Music p. 15). Dahlhaus sees this as a split between the tonal and gestural forms (in the present artifact such a split is often in evidence – for example making a chord out of the entire melodic line). Dahlhaus notes that the form of the music is "processual": "The theme is not so much the object of the musical discourse as a mere substrate of a process which imparts meaning to the music by providing that substrate with formal functions" (p. 15). This is in contrast to Meyerbeer where the "music is the showcase for a musical idea" (p. 15). It is easy to see that such critical descriptions and interpretations point to procedures that are similar conceptually to the present study's process.

6.3.2 Analysis of the levels of artifact OB

The scores offered in this section are to be understood as allowing a reading of the artifact during analysis. These scores are not complete performance scores and offer only the starting point for the processes the composer implemented. That said they are accurate representations of the harmonic content in the main. The "guitar" treble clef is used as this reflects the actual working practice. The use of notation is essential to the work in this study. In terms of the models of practice some might argue that standard notation might be considered a minor part of implementing metaphor and blending process in the electronic works. Regarding this it is posited that the models are defined as one possible way into the practice and offer one perspective on codifying and developing such blended-space artifacts.

Important for the series of works in artifact OB is the emphasis on evolving context or plane. The starting point for the series was organized around setting up some synthesizer definitions in Supercollider and searching for an overall *intonation* for the artifact. The beginning of the piece (as exemplified in the first three levels) began this tuning exercise through forming sounds and tone generators that included inharmonic partials. The early levels can be seen as precisely a searching for, and through, *sound ideas*. The changing of the harmonics, or overtone series, creates "dissonances" but it also creates a kind of overall *intonation*. This "overall intonation" – as it relates to a complete piece or passage - can be treated simply as a kind of anomaly that branches out from one sound. The other option is that the composer "attunes" himself / herself to this overall intonation. This will be discussed in more detail in the following analysis of the individual levels.

Level 1: Level 1 uses a Supercollider pattern that sequences a variety of synth definitions. The patterns make use of the pseudo-random number generators. This original level was conceived as testing ground for sounds and textures. The idea was to create a continually evolving sound palette, changing the synth definitions as each

317

level was formed. This operational procedure was deemed too restrictive after the first 2 levels. The concept of the synth definitions slowly changing with each passing level, the parameters of tone and texture being manipulated with the evolution of the levels is a valid way to proceed. Other modes of operation became more attractive and the "evolving palette" was reduced to a secondary objective.

```
(SynthDef(\zzphase,{arg freq=55.midicps;var n=40,env;

    Mix.fill(n, {arg index; var amp,z,xcc,e,za,xcc2;
        //index.postln;
        xcc=freq*(index+1);
        xcc2=freq*(index*1.66);

        //xcc2.postln;
        amp=1/(index+1);
        z=SinOsc.ar(xcc,0,amp*0.2);
        za=SinOsc.ar(xcc2,0,amp*0.02);
        e=Resonz.ar((z+za),XLine.kr(MouseX.kr(200,7000),300,4),Line.kr(1,0.5,
        5),mul:SinOsc.kr(Line.kr(0.5,4,2)* Line.kr(0.8,0,10)));

        env=EnvGen.ar(Env.perc(0.1,0.5,0.4),doneAction:2);

        Out.ar(0,Pan2.ar(e*env,FSinOsc.kr(MouseX.kr(0,6))))})}).add)
```

Figure 39 Supercollider SynthDef

Note in the synth definition (figure 39) the inharmonic partials represented by the array "xcc2". The fundamental is multiplied by the "index*1.66" this in combination with the more standard "xcc" gives a quite atonal harmonic spectrum. The "MouseX" function is used here to filter the sound and also change the position in the stereo field. As the filter moves down (to 200 Hz) the speed of the panning slows, as the filter moves up to 7000 hz the speed of the panning intensifies.

Let it be assumed for demonstration purposes that the fundamental of a triggered note (using the *zzphase* synth) is 100 Hz. In the figure above the fundamental is given as midi note 55, however 100 Hz is clearer for demonstration purposes. The first 8 partials of "xcc2" are: 166, 32, 498, 664, 830, 996, 1162, 1328. They are scaled according to the "amp" variable in figure 38. There are 40 partials for "xcc2" – the resultant waveform, added with "xcc", is complex and inharmonic. It still functions

in context tonally, and variations of this synth definition were used throughout the first 4 levels of the work. Chords making use of this definition are dissonant – the choice of register and context must be carefully monitored when chords are constructed.

Level 2:   This level made use of a notated reaction to the C theme.   The harmonization of the main theme utilizes harp samples passed through various APIs in Ableton Live. This allows for multiple equalized levels of a sample to move in an organic or dynamic fashion. The piece is recorded through midi guitar and the audio file is split onto 5 different channels. In this case the API settings create a type of *trembling* or *shakiness* in the samples. An electric guitar line is passed though a FFT in Supercollider and manipulated in relation to spectral content. It takes on bell-like texture and timbre. The C theme can fit quite naturally into the notation of level 2 (figure 40), however it must be slowed to half-speed.

The "trembling" of the harp sample is accomplished through programming API's (Application Programming Interface) in Ableton Live.   These API's automate equalization nodes according to the speed of various waves (set in the "Device Animator") that cycle through the designated target for a precise distance. This is similar to the way an LFO works, the difference here is that the wave is controlling a parameter (in this case an EQ frequency or amplitude). The harp sample is put on 5 different channels and then treated to 5 different dynamic modulations of the equalization. This accounts for the motion that is perceived as a kind of *trembling*.

Figure 40 level 2 OB

Level 3:   This level has a structure not unlike a "fantasia" or an improvisation in which bar lines are not strictly necessary.   If one looks at the original process score (figure 41) one can see that some passages have very little information (or in fact no information: see bars 31-32).   This is reflected in the experience of the piece as recorded in which one hears a quite languid and slow piece that inhabits 120 BPM in a quite sparse (eccentric) way.   There are numerous silences and gaps, and if one were to give some performance markings to the process-score "fantasia" would be the heading.

The level itself is a combination of: (1) some of the elements of the C theme organized into an array in Supercollider and triggered randomly, and (2) a sampled harpsichord playing the notation shown in figure 41.   The parts of the C theme are recorded into Pro-Tools and the audio file is then treated – processed and cut up and then re-assembled.   This collaged array of notes is made use of as a melodic line.   A sampled harpsichord plays the chords notated in figures 41 and 41a.

Figure 41 Level 3 OB

2

Figure 41a Level 3 OB (cont.)

Level 4:   The use of the modified *Harmonic synth* that started with artifact WO moved to artifact SPEC and now has a version as a M4L synth (titled: "*Polyver*"). *Polyver* is more controllable via API and DAW automation. It has less harmonic specs (only 6 harmonics) but all of the parameters of the harmonics are variable and open to automation. This adds a dimension of movement. Each synth is now capable of playing chords (not just a note) and this makes for a more versatile musical application. The chords of the piece can be broken down into harmonic components very easily – metaphors of fragmentation can be realized in the motion of the chordal structure.

In the earlier iterations of the application (i.e. the *Harmonic synth*) a user had to build up each chord note by note (fragmentation was not part of the criteria for the earlier artifact WO). With the *Polyver* there was an added criterion to move from chords to fragmented partials in a simple and viable manner. The triggered sounds were treated to more work with an FFT transform in SuperCollider. This allowed the individual bins of the sound to be pitch shifted – the Ugen "magshift" was utilized here. This process is shown in figure 42.

The earlier realization of level 4 was evaluated aesthetically and a new iteration was formed. The *polyver* had some useful functions in relation to manipulating the

322

produced sounds but other possible configurations were suggested by the evaluation. Two possible (inter-related) ways of working were sketched in: (1) the use of granulation Ugens in SuperCollider triggered by patterns; (2) the connection of the patterns to visualization tools in Processing. The visualization process, though not strictly necessary, was perceived as a way of adding a dimension to the listening process. The granulation made use of best-practice techniques as described in the *Microsound* chapter of *The supercollider book* (de Campo 2011). These coding techniques served as a basis upon which to build more individual aesthetic structures.

An important aspect of this level was the building of temporary GUI's that could help unlock the coded Synths. "Temporary" here designates that in the specific compositional practice that was being worked upon the controls were adequate, however no further application could be imagined. Thus we find in the first iteration of the SuperCollider GUI for level 4, various buttons for triggering and moving through specific patterns that are hard-coded into the GUI itself. This is not ideal in terms of moving the controller towards a more generalized functionality. For compositional purposes it works adequately.

The actual coding of the GUI, the tones (synth tones) and the patterns was formed around the GUI structure itself. The patterns and SynthDefs were called from within the GUI code, but the code for the synth definitions was located within another file. This way of splitting up the different functions and objects into different files is useful for keeping the code readable and manageable. This is a standard practice for many languages in terms of organizing code. In the present case the functions were called from different files through the use of directing "paths" that allow one to split the code up into various different categories. One file for the Synth definitions, one file for the GUI structure. The patterns were hard-coded into the GUI – one could shift those patterns into another file in order to make the code more versatile. In the present case that was not deemed necessary. The advantage to splitting up the synthesis structure from the GUI structure is purely organizational in nature. It could

be argued that creating classes based on the functions would organize the code further. In the present practice this was deemed to be to constricting: the definitions were constantly being worked with and thus the "split functions" style was more convenient. For discussion and examples of this way of working in SuperCollider see (Koutsomichalis 2013).

The studio sessions were governed by using the basic GUI to address an evolving Synth Def. SuperCollider writes over preceding Synth Defs if they are named the same, one can therefore create a series of definitions that have the same name (provided the user does not want to run them concurrently). This allows one to make changes to the basic structure of the synthesis engine while still retaining the basic name and internal arguments. This allows the GUI access to multiple synths (as one proceeds in the session) and it also allows one to retain the various basic argument parameters addressed by the GUI.

A series of Arrays were defined and called via the user interface – the arrays were populated with the notes from the notation to level 3 (brought now into level 4). In the implementation described briefly above the synchronous granulation frame that was utilized was triggered through the GUI. A note from the research diary of June 20th 2016:

The grains were too dense – cut back on the amount of harmonics – the density is not noticeably problematic until the duration is very short. When the grains run together the sound becomes "strained".

The note references aesthetic considerations in relation to grain density. The problem was caused by the fact that the SynthDef that was being utilized contained 8 harmonics. This amount was acceptable for individual grains but deemed aesthetically "strained" when the grains were run together. Some changes to the SynthDef reduced the number of harmonics resulting in a smoother sonic result. An

earlier note (June 12 2016) points to an alternate solution: "Change the durations / sustain so the notes don't smear". Some tinkering on various fronts eventually resulted in an aesthetically acceptable result.

A session note from Jul 6 2016 points to a combination of the two sessions as the eventual outcome of the level. The earlier work with the *Polyver* and the later SuperCollider work were combined as .Wav files in a Pro Tools session and mixed. The end result is a quite abstract piece that moves through the different experiments in a collaged manner.
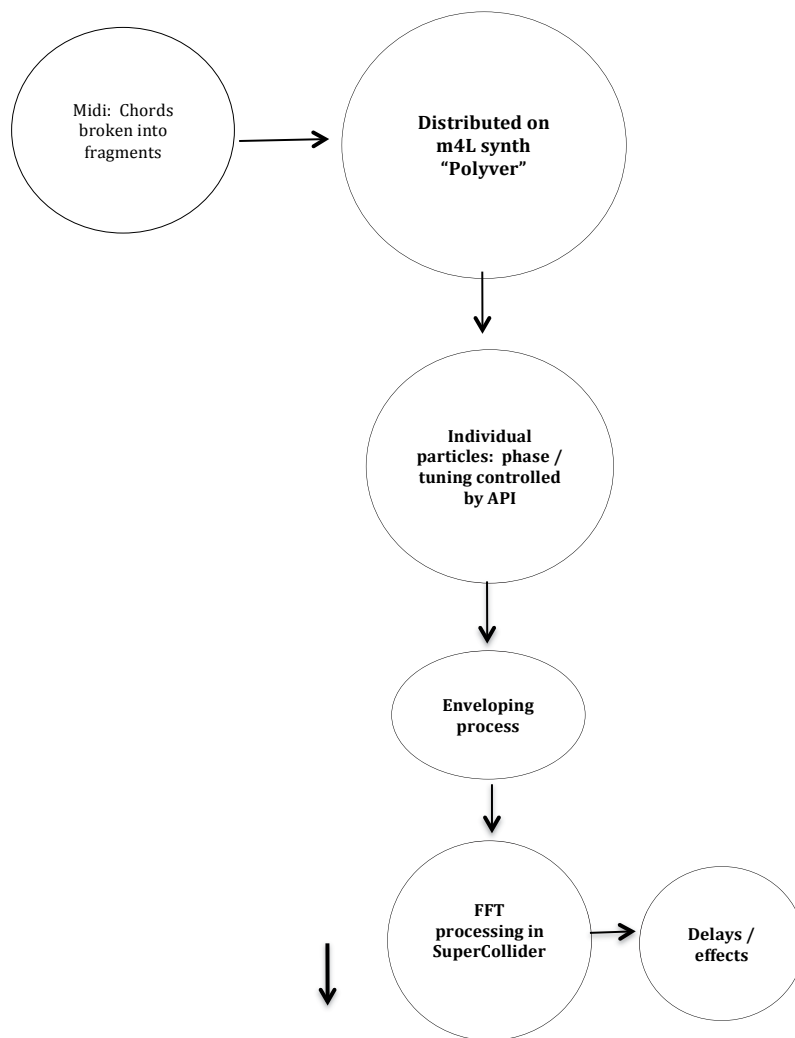
Figure 42 1 step in the process level 4

Level 5: The process score for level 5 (figure 43) contains the original structure of the piece as it was worked out in relation to the central theme. Not present on this score is the improvised guitar part which was added later.

As noted in the introduction to this chpater if one superimposes the central theme on this version of the score one will find that it *sometimes* fits in a "traditional" harmonic sense. There are however one or two chords and passages that are extremely dissonant and problematize the continuation of the harmonic progression. These have been left intact for aesthetic reasons detailed in what follows. Firstly, when they were removed the level became perceptually less interesting to the composer. The straying from the central theme's hegemony is a part of the work as a whole. The level contains a guitar improvisation – this improvisation was worked on in relation to the chords. Both elements were "composed" together. The improvisatory structure detailed in the research diary also formed the progression around itself. Thus the chords can be understood to have two masters in terms of the overall direction and content. The C theme and the re-organization according to the improvisation.

One take was utilized on the guitar part. It was an attempt to create a melodic line based upon improvisation, some of the notes for improvising from the research diary are provided by a link:
Link: https://sites.google.com/view/documenta-scott-simon/research-diary.

Some rehearsal was necessary to marry the chords to a moving melodic line. The progression demands or at least supports various scales as it moves: A major, E major, F# minor, Eb minor, E major, B major. The line must weave coherently though this progression while trying to create the gestural shape necessary. The tonal color or tonal shade of the work is dark: this analysis can of course be tied to any of the parts but it is certainly in connection to the guitar that it originates (forms itself). The atonal harmonics that are generated by the style of improvisation impinge upon a

clear view of the melodic contours. This "shades" the melodic contour in a manner that shields it, or makes it opaque.

This "darkness" of the guitar color reflects an aesthetic born in the origin of the piece in levels 1-3. In those levels the idea of using ET but of changing the ratio of the partials created a "dark" timbre or color. None of the notes from the Synth Defs produced in levels 1-3 sound particularly good in a chord - all were generated with SuperCollider according to the specifications described above.

Psycho-acoustically "fusion" in perception is an important element in harmonic ratio notes. Fusion will not occur as easily, or in the same way, with less harmonic (i.e. more dissonant) partials. The tuning of the SuperCollider notes for the early levels had a knock on effect in that these inharmonic components became formative of levels further down (in relation to the aesthetic). At level 5 the overall tuning of artifact OB reverted to quite standard representations in ET. This was the case at least superficially. The earlier more dissonant spectral composition of the tones, in evidence from levels 1-3, continued to have an effect on this level. The ideal of "darker" timbres came out in the instrument playing.

The creation of darker timbres on the guitar is either a job for changing the processing of the guitar or changing the playing style. In the present case, in relation to Level 5, the playing style is changed. The use of an "unmuted" string base allows for some inharmonic ringing to enter into the playing. Using the heel of the hand to mute strings while improvising will allow only the triggered note to play, while leaving these free produces various cross-currents and ringing. The use of this style will produce less transparent melodic articulation – a darker and more inharmonic timbre results.

Figure 43 Level 5 OB

The strictly metronomic form of the rhythm section in level 5 could be construed as overly rigid. The form could indeed be broken up in a more subjectively pleasing manner, allowing some motion into this part. However the metronome is taken to be an important factor in the meaning of these levels. The electronica or techno aesthetic is certainly present but it is more likely that the main target here is an aesthetic that I will designate "metronomic". Such an aesthetic is no more than the pulse of a regular

and undeviating mechanism against which the human gesture is set, and out of which this gesture emerges. This metronomic aesthetic allows the artist to work within a strict rhythmic configuration and to indulge in a type of gestural reaction to such.

One of the central metaphors of the piece is the concept of beauty as a mimicry of the *forces of creation*. The "10 levels of organization" in the piece are a metaphor for "beauty as becoming" (see figure 37). The other central metaphor is based on the non-sensuous, "hidden", component of beauty. Any given form or surface (encountered in the world as perceived) is governed by elements that are concealed within the form or surface that perception comes to. The structure of a very "simple" form may be one that is governed by multiple formative impulses. Any given worldly form may develop slowly over time, its appearance not revealing its history. These ideas are symbolized through the "C theme" and its formative influence on the work as a whole. However, as shown below, the C theme is not formative in any basic fashion.

These metaphors provide good starting points for working. They are not, however, ideas which will structure the artifact in any exhaustive or complete manner. The artifact, and the individual levels, must move beyond the confines of the basic ideas into more nuanced and sophisticated processes. To enhance an understanding of level 5 a brief foray into some of the real-world activities of the making process is advisable.

The genesis of level 5 can be described in three parts that developed one after the other. We find (1) that the C theme originally held the key to level 5, and then (2) that the guitar line made demands upon the chords, and finally (3) the chords were re-worked from the score even after the recording included in the study was finished.

The first stage (point 1) describes one aspect of the overall writing of the work: the development of the work according to the holding of the C theme in memory as a

transcendent principle. The C theme may conceivably hold some sway over the following stages also, insofar as divergence from the theme is understood to take place in a manner that is consistent. The C theme can be understood as a principle that structures convergence and divergence in the music as it is written, and also as it is perceived.

The second stage (point 2), shows that the guitar line comes to have an influence upon the chords of level 5. As noted earlier level 5 does not harmonize "correctly" with the C theme. It was written in section 6.3 that such divergences can be understood as a development of the internal logic of the level. The demands made on the chords by the improvisational make-up of the guitar line exemplifies such an "internal logic". In short, the guitar improvisation, the practicing of this improvisation with the chords of level 5, led to changes in the chord structure.

Stage 3 (point 3 above) shows that the chords for level 5 are still being developed. This development is based on an aesthetic decision on the part of the artist. However it accords with the process-based nature of the work. While playing through the piece notated in figure 42 (which includes only the basic harmonic structure) the ideas that had been generated through the development of the piece are present as "ideas". The piece itself however (with, it is true, a history of work that is reflected in the "ideas" of the past iterations) contains a logic that is mutable. A brief description of this continuuing process is warranted here as it gives insight into the manner in which the evolution of the piece takes place. The "re-working" of the chords according to the developing logic of main piece is put aside and the pure meaning of the progression itself is concentrated upon.

The "re-working" indicated by point 3 has a logic based on the temporal unfolding of the (chord) progression itself, the "in-time" structure of the piece (Frisk & Karlsson 2011). This is the "feel" that one encounters within the body of the piece as it unfolds that something has been said in a way that through the developing context of the work

is felt to be insufficient. Thus one passage in the work, say at bars 15 and 16 (see example) could be organized with some new harmonies. In actual fact the adding of a C and an E descending to Eb, was added to this bar. This continued development of the internal structure demands new ways of understanding those components that "come after" the changes (say in bars 32-34). Under what logic is one making such changes, and when do such impulses to change cease? These questions are perhaps outside the strictly researchable components of the work. It can be noted however that the structuring of artifact OB allows access to such questions in a manner slightly different to a merely tacit mode of operation.

In a piece concerning questions of "time and interaction" Frisk and Karlsson describe the manner in which the temporal nature of a musical work can also be understood as an "object" or "snaphsot" outside of time (Frisk & Karlsson 2011, p. 281). This idea points to the fact that one can understand the unfolding logic of a work with reference to a kind of template that one super-imposes upon it from above. This combination of *context-based* and *transcendent* logic is one that certainly plays a role in the present artifact. The listening to a passage as a performer / composer in which one is referring to a "recollection" (in this case of the C theme) creates new ways of understanding that passage. The coherence of the work in terms of this "recollection", is one that accomodates both convergence, divergence and other internal relationships. Discussing Husserl's notion of *retention* Frisk and Karlsson point to the "pushed back now" that remains nevertheless present for listeners and performers *as listeners* (p. 287). This retention of earlier forms creates an overall structure within which developing logics are *referred* to. When the work is structured around an idea such as the C theme the manner in which retention of this theme plays a role is subtle for an external listener. For the creator however "retention" of the transcendent C theme becomes a principle around which individual components are ordered.

Frisk and Karlsson point out that the memory of a past musical event that is retained is also "temporal" (p. 288). Utilizing Bergson they point to the fact that memory is not static and contains (receives) a constant stream of infromation from the "plane of existence" (p. 288). This stream of memory touches down on our interaction with the now of existence, and also on our understanding of music as it unfolds. They hold that Xenakis's position on a schema outside of the temporal might be questioned from this perspective. The "static" schema of a transcendent musical object is replaced by a transcendent *temporal* object. It is an object that is itself mutable, has events that unfold in time and it is organized by present activity as much as by its past constitution.

For present purposes the dwelling within the C theme as a retained "template" that orders each new interaction is directly relevant. However the focus of the more "interactive" relationship of listening to music and the jumps that go on between "now" and a retained passage is formed here in a more compositional manner. Will a listener hear the C theme in some way through the levels? Not in any basic or easily measurable way. Nevertheless the compositional work that is done with the C theme is based in a space directly related to this kind of listening.

Level 6: Level 6 starts with a basic bass line derived from Level 5. Guitar chords are played which have a quite chromatic structure and which do some work towards toppling the hegemony of the bass progression. The guitar chords give way to some more abstract sounds at 1:00 that were produced in Supercollider. The Synth definitions used here have a few aesthetic targets, one of which is that they continue the emphasis upon working with inharmonic partials.

The "guitar work" that now enters at 1:10 is based on a particular philosophical idea in tandem with a context / medium-driven concern with the "little bang" (Cipriani & Giri 2013). The guitar is heavily processed and has a "bell-like" quality. This section can be read as a kind of problem solving exercise by the artist – a philosophical idea

in tandem with a context-based model working together to solve a compositional impasse. The basic structure of this process is organized around the idea that two different sounds can be brought together in various ways that will organize the perception of the relation of the sounds. Thus we perceive some types of sound as being an "event" followed by a tail – often even with quite disparate components. A M4L application was created which generated a new series of harmonic partials within the guitar work – these partials could be moved in relation to the event and could thereby create events that have a different pattern to a traditional guitar envelope. This was accomplished by utilizing a "brickwall" eq that isolated individual frequenices as they appeared in the guitar work.

The sounds themselves may indeed have satisfied the criteria but were not aesthetically interesting to the artist. A further development was ordered through FFT processing in Supercollider. This may indeed have weakened the psychoacoustic aims of the guitar and FM synth tail, however it became more acceptable in the context of the piece. The FFT processing involved pitch shifting in supercollder and resulted in a bell like sound. This bell tone retains some of the original guitar work but it is now more integrated with the overall intonation of the level.

A research diary entry describes the importance of "attunement" and the idea that one must leave behind the concept of slavishly adhering to a systematic "key" (25/11/2015). The basic point is that the piece takes on its own "intonation" that must be understood. Thus we cannot reduce our comprehension of the work to a system of this tuning or that – a close aesthetic listening will allow the intonation of the piece to emerge. In artifact OB this "intonation" is strongly connected to the C theme and the structuring of the synth sounds with inharmonic components. Slowly this *intonation* begins to emerge from each level.

Level 7: Level 7 makes use of an external "intensification" of the material. The turn to a separate artifact (artifact GBD) as a way of working through ideas is described in

this sub-section and in section 6.3.4 below. The analysis contained in section 6.3.4 of artifact GBD gives details about the constitution of that artifact and the "solutions" it generated. The elements that were made use of in level 7 are described in more detail as to their genesis in what follows.

In relation to level 7 itself the basic structure is simple. The chords from a previous level are broken up into notes and plugged into an array in Supercollider. This array is accessed by a series of "task definitions" that allow one to layer the parts as they are triggered. The synth definitions and the manner in which they are triggered are governed by the experiment with the supplemental artifact *Glass bead* (artifact GBD). A representation of the process is shown in figure 44.
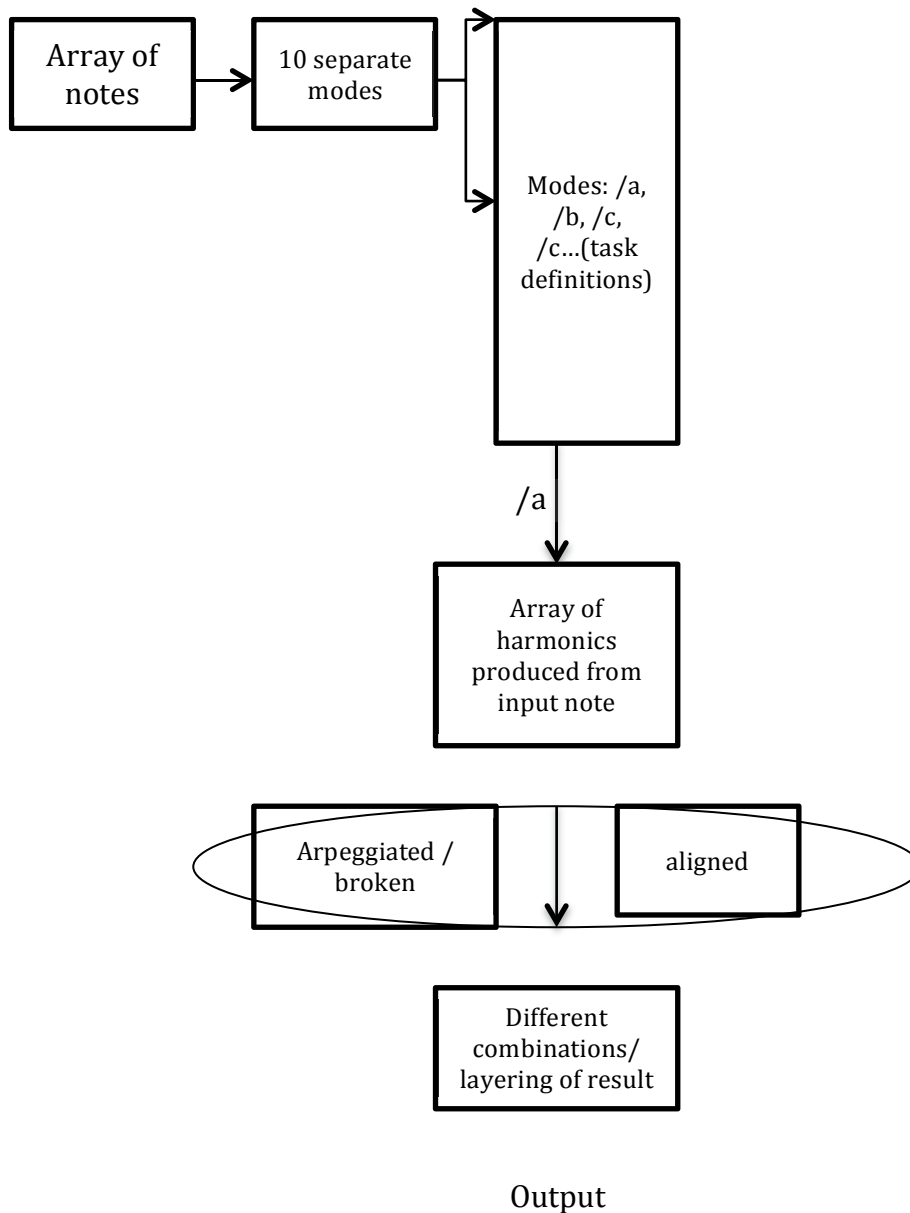
Figure 44 Level 7 layering of tones

Artifact GBD was originally understood to be a way of developing the musical component of the artifacts, a sharpening of the medium itself. Various ideas concerning "hocket" and "unison doubling" were set forth as the criteria of the artifact. Artifact GBD was in effect a supplemental artifact, made use of in relation to developing ideas central to the medium of music itself. The use of external, or

supplemental, artifacts that can inform a "primary" artifact is a useful way to solve problems and generate new aesthetic dimensions. In the case of artifact GBD the artifact was conceived originally in terms of developing the material and later as a component to inform level 7. The original impetus was to begin an all-purpose support tool (a GUI / synth) that could make itself useful in the researcher's work. This could eventuate over time. Artifact GBD is in any case a self-contained work, however it is not "philosophical" in the way that the central research is.

The original criteria concerning hocket and unison doubling were added to as GBD developed. An interest in the perceived spectral content, a kind of *Klangfarbenmelodie* (Schoenberg 1983) was added to the mix of ideas. The success of the experiment was tested at a seminar at CCS in 2016 and artifact GBD was auditioned. Once the overall sonic balance of the sounds was tested the ideas could be developed further in relation to level 7 of artifact OB.

The code for producing the tones is modeled around "Task Definitions" (the "modes" in figure 44) in SuperCollider. The code looks - in one of the nested lines - like this:

```
//z=Synth(\square);
Tdef(\a,{13.do{|x|(instrument:\zsine_10,freq:
((~notesz[~i-1]).midicps*(2*x+1)),
    amp: [1/(x+1)]*0.02,pan: 1.0.rand2;).play;
0.001.wait}});
```

Figure 45 SuperCollider Code

Six of these (\a through \f) are balanced at one time inside another Tdef. If one wanted to make a more general synth/tool out of this process (of the same kind as *Harmonic synth*) a few elements would need to be provided. The first element that would be required in a more general GUI/synth would be a more flexible approach to the overall amplitude (the multiplication after the "amp" scaling shown in figure 45). This would allow one to mix the end result without testing over and over the different

possible assignments (in the shown case the value is set to 0.02). Presets could be constructed and also the muting of voices on the fly would be possible.

However: the thought process that produced the creation of *Glass Bead* was effective insofar as it mixed graphic interface components and code. The open (improvised) process that forged the insights into instrumental line doubling and spectral complexity did not require a complete GUI at every stage. The code itself offered enough flexibility when it was mixed with the graphic interfaces from Processing. The resulting artifact contains (1) GUI related triggering from Processing (sent to Supercollider via OSC); (2) a mix of purely coded elements (including the snippet in figure 44).

The use of Tdefs allows the redefinition of a whole line (as for example the line shown in Figure 46) in one take. In a similar manner "node proxies" allow the artist to fade between one state and another. These possibilities require some text-based components to be functional – it is simply too difficult to trigger so many variables with separate controls for each.

The array of midi note numbers utilized is given here:

40, 44, 63, 80, 47, 57, 63, 68, 49, 54, 59, 42, 56, 65, 59, 64, 47, 54, 57, 45, 48, 54, 57, 45, 66, 76, 68, 76, 49, 67, 71, 76.

Figure 46 Notation level 7

This was the basic structure of the piece passed into the Tdef through a SuperCollider Routine. The decision was initially made not to change the order of the notes and to leave the logic of the changing of the timbre (the motion through new *instruments*) as the main impetus. This works up to a point and the change that occurs at 2:25 (a new bass line enters) in the recording is logically ordered by the previous repetition. A note from the session diary flags this relationship: *The change eventually shows an interesting side effect of the repetitions: the new bassline relieves the tension and "makes sense" of the preceding repetition.*

The point here is that the listener (the composer) finds that the repetition would have been excessive without the "meaning" that is generated by the new harmonic content entering. However although this compositional rationale was acceptable up to a point, the decision was eventually made to alter the repeating notes. The decision was based on an aesthetic listening to the piece.   The repetitions of the sequences were considered to be too prominent (the sequence of notes is not long enough to stop recognition that the sequence is looping). Thus changes were introduced. These changes have the effect of negating some of the effect of the final "epiphany" of the final change at 2:25. Yet the piece supports repeated listens now, the loops changing very slightly from section to section.

338

Research diary notes: 14/8/2016. *Some reflections on the process. Some elements of the level are still "in transition". As a prototype for an aesthetic the repetition is balanced by the changing timbre – however a more fluid and controllable interface would be ideal. A UI that allows (1) swift changes to the outputted notes, (2) moving between the timbres, (3) filtering of the output bus, (4) input / layering of spectral content "on the fly".*

Level 8: This level has some layering of chords and ideas from other levels merged into its form. The level showcases that the ideas from other levels can appear in a new level in a subtle manner, modulating and structuring the form and harmony. In the evaluation process of the work from the artist's perspective there are some points worthy of attention.

Research diary:

The use of ET can often be experienced as a kind of "strait jacket". The lack of a more fluid harmony can sometimes be a spur to move into more abstract and complex tunings. However level 8 solves the problem in a slightly different manner.

Level 8 is the first level to make use of the transition structure and second part of the C theme. The transition component is clearly identified in the piano work at the beginning of the level. The time signature changes to 3/4 here also (see C theme). The reference to ET and solving compositional problems in the research diary quote above is related to a couple of areas. Firstly: ET is made use of here but some layering of some chords from earlier levels "stretches" the intonation. The use of some very low amplitude chords complicate the basic arpeggio structure of the level (example 1:27-1:28). The example pointed to here is a more obvious and apparent implementation, however this type of strategy is implemented throughout the level.

Secondly: a removal of notes and tones at strategic intervals to create "gaps" in the unfolding of the harmony. These "gaps" can clearly be heard at 10-18 seconds into the level.

In combination these two strategies are made use of in order to move the level into alignment with the darker colors of the earlier levels. In terms of the making process the unfolding levels become – from the perspective of the composer / artist – a kind of guide that structures new levels. This guide can be utilized to solve problems – in this case the aesthetic perception (and evaluation) of a simplistic harmonic content. The breaking up of the basic harmonic logic of this level is accomplished by the two strategies described above, its success or failure are based in a close aesthetic listening, or *attunement*, to the guiding line of the earlier levels.

A couple of points suggested themselves as pertinent during the process (to the study as a whole) and are worth noting down here. The idea that a philosophcial idea can become a "place holder" as it were: a sequence of musical ideas is ordered around a philosophical idea and thus becomes "fixed" to a certain degree by the external, textual, notion. There will be less temptation to remove or change the sequence as it is tied to a philosophical idea. This however only goes so far: the research and purely a priori nature of such external mappings is also something that requires intervention based on aesthetic criteria and evaluation.

Level 10: Level 10 makes use of all the other levels and the C theme can be directly utilized. The C theme can clearly be heard in the opening sections of the piece. The basic structure of level 10 reflects an expanded version of the C theme. A point of interest in the level is the use of an "external" metaphor within the work to solve a compositional problem.

This intervention in which an external metaphor is made use of comes at 8:13 in the recorded work (Link: Beauty_L10). This use of an external metaphor is a way of

working that makes use of the system of ideas present in the research in a practical manner. Solving compositional problems can be approached motivically or harmonically, or it can be approached by applying some kind of metaphor. This kind of problem solving brings into play the "notebook" or diary of the reaearcher / practitioner. There must be a continuuing development of ideas and configurations that are part of a "toolbox" which can be made use of. This problem solving activity is described in more detail below (section 6.3.4).

As a piece the final level reflects an expanded version of the C theme with E major opening in 4/4, through change to E minor in the transition, through to E minor section in 3/4 in the final section. In actual fact there are many subtleties and changes which move the piece beyond this basic structure but one can certainly identify the key changes and tempo changes in the work.

In terms of harmonic content the final level does not merely repeat the earlier levels – but it does make use of them. The progressions that appeared as the basis of earlier levels are worked upon and changed to fit into the overall form of the last level. The C theme is also specifically invoked – something that did not happen in the earlier levels. The C theme can be heard throughout the first section and it is harmonized in various ways as it passes through these opening sections.

6.3.3 Developing planes; developing contexts

A formative idea for artifact OB is that of the *context*, the context within which various expressions are situated. In section 6.1.2 above this conception of "context" is formulated as "plane". Both the words "context" and "plane" will be made use of in discussing artifact OB in the interest of intelligibility. The C theme can be read as a "context" within which the 10 levels are situated, a context that creates and circumscribes the meaning of the different levels. The use of "plane" does not

capture this particular nuance as accurately, for this reason they will be utilized together.

The idea that the musical work is a series of intersecting contexts and planes of articulation can be explicated in relation to artifact OB. As noted in the introduction to this chapter the idea that music is a series of intersecting planes or contexts became increasingly influential in the creative process. Artifact OB reflects this idea in some of its aspects. In the discussion of level 5 the fact that the harmonization of the C theme was "incorrect" was presented. The motion between a "correct" or intelligible harmonization and a more abstracted and internally developed reaction to the C theme warrants more discussion.

The C theme can be read as a central form (gestalt) around which the levels must be organized. The working of the C theme upon the harmonization process, or upon a more abstract "reaction" to the C theme, is not always obvious. There is no way to know precisely, from listening to the levels, how the C theme is structured. That is to say, one could not re-constitute the C theme by backwards engineering the levels.

This fact however is not quite the entire story. It is part of the rationale of artifact OB that the C theme will structure the form of the different levels from below. This is supplemented by divergent logics of various types. The push and pull of these different aspects creates a tension. Divergence from the C theme is a divergence that can be, on some level, registered. The divergence can be notated, as was done in figure 37 above and drawn into the creative process. The "incorrect" harmonization can be corrected or it can be partially corrected or, as in the case of level 5, not corrected. As the levels progress the complexity available to the users is formed through such procedures. To make use of the level 5 chords in level 10 might require a bit of reformulating and re-writing. In fact the level 5 chords were used in level 10 and slightly altered to register some new aesthetic concerns. The push and pull of the

C theme and the different reactions and variations that emerge in the levels allows one to build up a complex palette with which to work.

The actual aesthetic content may reflect such notions and procedures in a quite subtle manner. Is the process one that can make a real difference in terms of how an artist, and ultimately an audience, can read a work? The point of the C theme is to create a purposive thread that brings the components of the work together. The aesthetic evaluation of the works might not recognize these subtleties, but it is the "weight of connections" that make the artifact *coherent* throughout itself. In terms of the artifact itself there is no claim to getting to the "beautiful" as such. It is merely a symbolization of a series of ideas represented in the thought form. The thought form is to be read as a "schema" within which certain ideas are put forward and creatively engaged.

The basic and most important plane / context in artifact OB is the C theme. This plane has various components. It is firstly a background element common to each level. Using the C theme as a formative device the user builds up a lexicon of meaningful utterances in the work. The work as it develops builds a growing number of chordal passages and melodies that become "available" to the composer / performer(s). If the work is being performed by a group this activity of cross-pollination is available as a way of deepening the elements. One user makes use of something from another level to enhance his or her own level. The final level, level 10, is a chance to make things happen within its boundaries that speak to the earlier levels. In general, the development of the metaphors (as practice) provides an entry point to a way of working that structures a *surface* according to a background *resonance*.

Some reflections from the maker's perspective in relation to the overall aesthetic of the work emerge at this juncture. Once the levels were completed there was a tendency to listen to each part as something that is located within the whole – this

leads to some interesting quandaries. Some of the levels offer particular aesthetic solutions that are "smooth" or at least aesthetically unproblematic. Other levels seem to demand further refinement – some solutions can be questioned as problematic. Two such points that seem worthy of attention exist within levels 7 and 10. Both levels offer extended passages that were experienced as overly repetitive. This repetition offers both positive and negative aesthetic components – some time has been devoted to this aspect of the work in relation to level 7 above. The following section unpacks these problems in some more detail.

6.3.4 Problem solving and elaborating in OB

In the making process of artifact OB there were various problems that required "solutions". The "problems" so-called are compositional and artistic. There are two such problems focused upon in this section.

(1) In artifact OB one "problem" was a relatively minor passage in level 10 of the work. An intervention was required in the piece during recording based on an aesthetic evaluation.

(2) A problem of working with the material itself was encountered in the work in direct relation to level 7. This was a problem based in the approach to working upon a particular level in a meaningful way.

Point 1 was a simple compositional problem that was solved through the application of a metaphorical form at a particular scale. The beginning of Level 10 makes use of the C theme directly, it appears in relation to various harmonizations throughout the first 3 minutes of the work. This was an engaging part of the creative process – the use of the C theme without mediation was a slightly different format to the preceding levels. However in terms of the piece the C theme was "overworked" through the first 2 sections of level 10. There was no simple way to remove it from the scene

entirely at the beginning of the problematic passage (1:36 in the recording of Level 10) – it was required to do work after this passage. The solution was to re-organize the passage according to an applied "tool" – an application of a metaphorical form that conformed to the right scale and focus. The metaphor was in process as something not necessarily related to artifact OB. The thinking that was informing the metaphor was one of "union" – the union of a state or individual as a set of integrated components of different "characters". The metaphor was easily recognized as musical form but had found no place in terms of use-value. In terms of a series of textual ideas becoming a series of musical ideas – the concept had already been brought forward as a theory. In relation to its suitability to a piece concerning the "beautiful" as a philosophical concept it was distantly related. As we have pointed out before the musical expression can move from one idea or metaphor along the temporal axis – this is conceived of as acceptable within the research's conceptual framework. Note: CBT allows the blending of two blends (one after another).

The intervention described here points to a solution of an "overworked" a theme within the level. However the tension that is released at 3:13 of level 10 as the stricter work upon the C theme gives way to a more freeform structure is a recognizable (prominent) component of the aesthetic. The solution to such aesthetic quandaries often comes down to the perspective of the artist. However the "weight" of the piece also demands some attention: changes to the passages that precede 3:13 would change the meaning of the "freeform" component.

Point 2 was a problem that focused upon a question of "material" or medium. In this case the medium was that of music. The "a priori" nature of the blending process, the manner in which one approaches a blend, is necessarily somewhat "external" to the expressive components within the field. This problem is compounded by the fact that the stress upon "habitus" points away from: (1) expressive configurations, and; (2) developing a purely musical logic. Nothing could be further from the truth in the

actual practice itself – expressive and music-based logic are important to the study overall.

In any case the rules of expression do not specify how transformations are to be approached and a "basic", or minimal, activation of the ideas can be implemented. Such a "basic" approach does not really satisfy the emphasis upon "process" in the criteria of the piece. The structure of beauty as "becoming" – the mimicry of the creative *process* in distinction to a mimicry of a *surface* – calls for a multi-faceted and intricate approach to the transformations. One can take this call up in many ways – there is no prescription offered in the present study. A description of how this call was answered in the case of level 6 is presented as one way to approach the work.

Firstly the expressive potential of the medium of music called for a more sophisticated set of controls. The approach was necessarily oblique: a secondary artifact was created that would work through some of the medium-specific ideas that were required. This cannot be claimed as forethought completely – the secondary artifact was created with the idea of "intensifying" the medium for some unspecified work. There were however various brainstorming sessions in which the findings of the experiment were related to the creative structures in artifact OB. The secondary artifact is named *Glass bead* (hereafter artifact GBD).

The importance of this kind of approach was initially misunderstood in relation to the basic meaning of the secondary artifact in the overall scheme of things. Yet it can be clearly articulated in terms of use-value. Having an idea about *intensifying* or *sharpening* the material requires a real-world implementation in order that its viability be assessed. Artifact GBD was an idea put into play that through a series of experiments and one performance, the artist felt confident in making further use of. The "idea" was thought through with the aid of various different contexts (musical and UI) culminating in a concrete expression. This use of music to "think" through a problem is relevant to artifact OB. It can also be regarded from the perspective of the

study as a whole: the structure of the blended-space artifacts requires that at some point in the process the *medium of music* be "taken up". A static or "a priori" logic that does not allow the composer or artist to engage with musical expression in all of its sophistication is not the aim of the research. In this sense working and developing the music within its aesthetic dimension, i.e. the experience that the composer has of the work as material, becomes significant.

In the case of artifact GBD a series of tasks was assigned to the creative activity. (1) The creation of a type of "unison doubling" GUI / synth that allowed for multiple components (i.e. synth voices) to be mixed together to produce one "reinforced" line. (2) Another component focused upon was the changing of timbre as a piece or line progresses, this is akin to a kind of "hocket". (3) A third focus of the artifact was a *reinforcing* of a spectral line, separate to the main melodic line. This could be read as a kind of *klangfarbenmelodie* (Schönberg 1983). The concept of "reinforcing" the spectral content of a piece does not make sense in terms of pure tones. The use of *sculpted* complex tones however can make the idea intelligible. The essential compositional orientation to a "spectral reinforcement" is one that organizes itself around the note (and its spectral content) *as perceived*.

A complex tone with another complex tone on top of it is merely a chord (actually it is dyad). The orientation that is required to think in terms of spectral reinforcement is one that works with the mode of perception that intuits (perceives) an element as spectral. This requires in the first instance a "listening" to the parts and the finding of forms that can be understood as "spectral" or "timbral". The next step is the activity of juxtaposing such found forms in a manner that will be perceived by a listener as a spectral component in the tones. The work artifact GBD is done in a psycho-acoustic space and is focused on: (1) the activity of producing a reinforced line that will also; (2) have a *perceived* reinforced spectral content with its own logic. Add to these 2 points a third: a shifting of timbres from one to the next, as one would shift from instrument to instrument in hocket.

The rationale of this structure was slightly different than the GUI / synth combination for artifact WO. As stated above the medium *itself* was to be worked with in artifact GBD, it was to be a sharpening of the medium. In the case of the *Harmonic synth* it was designed with criteria in mind that directly related to creating an artifact. Naturally the *Harmonic synth* became more than a "solution" – it also had aspects of musical utility that transcended the original purpose. However the process involved with creating artifact GBD was more focused on developing the medium of musical expression itself, a development that could be made use of when the appropriate opportunity arose. This new set of tools was put to work first with GBD as a test case and then applied to level 7 of artifact OB.

The work was done in artifact OB in Supercollider with some graphic / interactive work done by Processing. The reinforced lines were built up using task definitions in Supercollider – the original prototype however was a mixture of Processing and Supercollider.

6.4 Discussion and interviews (part 2)

The interviews that were conducted with 5 artists were discussed in relation to phase 2 and are now discussed in relation to phase 3. Questions 1, 2 and 3 of the interview (appendix 2) relate to artifact OB, questions 4, 5 and 6 relate to artifact CT. Questions 1, 2 and 3 make use of the process used in artifact OB in level 7. The participants are given two choices between a GBD processed passage (identical process to level 7 artifact OB) and an alternative which is a preset from Ableton live. The audio files are named GB_1-8.wav and GB_64_1.wav. The questions relate first to "aesthetically pleasing" (question 1). Respondents often noted that in terms of aesthetics the section from GBD (GB_1-8.wav) was "complex" in a way that the other passage was not (question 2 is specifically worded that way however). Often the

answer was supplemented with a description of what was brought to mind in the passage. Excerpts from this supplemental description: "…sounds like jazz or blues" (respondent 1). Respondent 1 also heard these tones as "solemn" and "sharp". Another respondent noted: "…I thought that I was in Germany listening to the bells" (respondent 2). These answers are more informative on the level of personal evaluation than the simple "complex" or "aesthetically pleasing" answers that the question sheet offers.

Not all respondents heard the GB_1-8.wav as more complex than GB_64_1.wav (though the 4 out of 5 did), but even those that do not offer a supplemental description about what the passage brings to mind. No respondent offered a supplemental description about the other passage in question 2 except to point out that it was quite simple (respondent 5: "a good ring-tone").

The "non-electronic" nature of the passages from GBD was reinforced by respondent 3: he noted that the alternative sound (the other passage offered in quiz) was more "modern". The implication here was that sounds of GB_1-8.wav are less modern sounding. This accords with "…sounds like Jazz or Blues" of respondent 1. The making process itself was formed around an intention to "double" melodic lines and enhance the spectral content of the lines. A complex timbre may lead to these type responses and to a perception that it is a less "electronic" sound. Respondent 4 preferred the GBD passage because the "background" was more interesting.

In any case the "complexity" that the GBD passage embodies satisfies some of the criteria of making. The same process was used in level 7 of artifact OB and a very similar aesthetic outcome was achieved. This process combines timbral complexity and changing timbre (hocket). It also makes use of unison doubling. These components were conceived as a way to intensify the material and focus on the musical material itself. The process is described in detail in the analysis of artifact OB (level 7).

Interview questions 4, 5 and 6 can be related to artifact CT. The focus in the interviews there is on identifying "whole" and "fragment" (both as concepts and visual representations). The offered passages are a filtered pad and a synchronous granulated passage. 4 out of the 5 respondents agreed on these questions. Question 4 elicited the same answer from all respondents. Respondent 4 however described the granular sound as also being a "whole" (questions 5 and 6). Respondent 4 saw the granular tones as being "part of a whole" made up of smaller parts.

In evaluating the interviews the study found that various subjective aesthetic evaluations were offered, even though that was not required. These evaluations can be described as useful in relation to gauging the aesthetic perception of others in relation to the work. However, the most important aspects of the interviews are: (1) to establish that the metaphors make sense to other artists in the same culture, and; (2) that a dialog relating to the music and the conceptual / philosophical components is viable. In relation to point 1 we can see by the responses that this is certainly the case. In relation to point 2 the interviewees were able to talk with good understanding, and in depth, about the subtleties of the sounds in relation to concept or image. So for example respondent 4 wanted to analyze the elements of a metaphor in more detail than the basic form of the question allowed. The interviews showed (1) that the metaphors and schema had plausibility in relation to meaning generation. It also showed (2) that discussion of *blending processes*, *established real-world image schema* and the *connection of music to philosophical text* are viable. All participants were able to understand the ideas contained in the questions concerning cross-domain mapping, and speak about the ideas in relation to the research and their own work.

Chapter 7 - Conclusion

The thesis of the study stated in the introduction: *new models of practice can be built which codify and extend existing practices of working between music and philosophical text.* This thesis is demonstrably true in relation to the perspective taken by the study. The new knowledge contained within this research is organized primarily formed around the concept of the "model of practice". The models as they are formulated herein allow other practitioners to follow a creative process in a manner that extends an existing "language".

The research outcomes of the study can be explicated through an analysis of the original thesis (re-stated above). The thesis states that there is an "existing practice", a practice that can be extended. The "existing practice" as it was identified in the body of the study relates to earlier creative practices that make use of music and philosophy. The *state of the art* chapter was a survey of different approaches taken by artists and theorists in relation to working with music and philosophy. The choice of artists and theorists used in the state of the art was necessarily a *perspective* on past practice. The chapter constructs a plausible lineage that can be recognized by other researchers and practitioners. This "recognition" is facilitated by a close analysis of the writings of the artists themselves in relation to the topic.

The survey of existing practice was then analyzed as to possible "gaps" in the knowledge. The last section of the state of the art found that even though many practices make use of philosophy in creative process, the codification and systematization of that process could be developed further.

Another aspect of the thesis, related to our discussion on past practice, was the concept of "codification". What precisely was codified within the study itself? The thesis as it is stated above was developed and explicated by the body of the research,

and the concept of "codification" was part of this general development. To codify "existing practices" might be understood to relate to the field of composition or multi-media practice as it stands. This would include the lineage of past practice and the manner in which it is implemented today. This is certainly the way the research was approached. The practices of artists were the focus of an analysis and interpretation that laid the different possibilities out for further development.

Equally important, in a practice-based research environment, is the existing practice of the researcher himself. Codification was also an important aspect of the analysis and interpretation of the artifacts and the process of making the artifacts. As an artist working within a defined cultural sphere one receives training and repertoire from that sphere. To develop an existing practice is to codify one's own relationship to the past and also to one's own practice. This codification was tackled in the analysis of the creative process contained within the models of practice.

The first words of the thesis are: *new models of practice can be built*…. This central aspect of the research is the pointer to the new knowledge that a PhD must provide. The word "new" in the thesis provides the signifier that the models as they are formed within the body of the study are a departure from earlier modes of working. In some respects it could be claimed that any model of practice will be *new*. An individualized narrative of a creative process will by definition contain aspects that are slightly different from other practices. Yet the significance of such practices and their descriptions in a research diary could not be vouchsafed ultimately. Significance of research outcomes is defined according to the manner in which the researcher has formed the practice, and corresponding analysis, out of a material recognized by a research community.

In the introduction it was stated that the research would offer insights into the "making process", and that such insights would be a contribution to knowledge of that process. Such a contribution is taken to be - in the context of the study as a whole -

one that offers a way into a practice that can be recognized and understood by a community of peers.

At this stage it can be pointed out that generalizing from the research narrative, as offered in the body of this dissertation, is bound to be a process that misses some of the essential components of the research. That is to say there can be no question of creating a complete general theory that can replace the models of practice. The models allow an entry into the practice in a complete and nuanced form. This cannot be replaced with one overarching theory. That said, there are certainly "key" components that occur again and again within the research. It is worth re-iterating these components as they will offer a useful guide for practitioners and researchers wishing to interface with the work at an upper level. It is important to stress that the manner in which the components are ordered within any particular process of artifact creation will change according to various complex heuristic variables. With this in mind the summary can only be an overview that makes complete sense to readers who have already assimilated and understood the body of the work. This overview can be read as a summary of essential components, and can provide additional external information in the form of reflection on the processes in a more general form.

In the following sections a brief summary of some of the key research outcomes is offered. The main outcomes cannot really be generalized in any final manner. The models of practice offer an entry point into working that cannot be bypassed with a summary or an abstraction. Some of the main points and themes of the models can however be described and brought forth here. This process will include an unpacking of some of the themes and concepts present since the beginning of the work. These themes can be shown to have grown and flourished, changing meaning and focus with the thesis as a whole.

7.1 Research questions and related outcomes

In relation to the research questions and the outcomes that were generated some key points of reference are offered.

Research question 1: How can the research extend and elaborate upon the lineage of the creative arts in relation to music composition and philosophical text?

This was described and explored in detail throughout the thesis. The development of a working process, described in the "models of practice", built upon an established language in new ways. In phase 1 the result was formed around *extending* (in a demonstrable form) the basic practice of blending music and ideas. Firstly, the extension of a prototypical structure identified in program music was undertaken. The present (extended) version described a practice which created emergent logic on both sides of the blended-space equation (music and philosophical text). This "result" was only fully theorized in phase 2, however in phase 1 the interpretation of artifact FR revealed the "emergent" content on both sides of the equation. Specifically, the thought-form in artifact FR was re-formulated in response to the musical expression. The first musical structure of FR symbolizing "virtualization" contained some recognizable sounds and synthesis techniques. As these recognizable components entered the composition at a later point a "new" interpretation of the thought-form was perceived. The "thought-form" was given a non-static (evolving) formulation, reflecting its re-direction through the prism of musical temporality.

The forming of a philosophical text with "musical traits" is the counter-balance to forming a musical expression with "philosophical traits". This type of relationship was plotted in a graphic in relation to artifact WO in chapter 5. Such a practice is understood to be codifying and bringing to light practices that exist in every artist's toolkit. As noted, the use of "program music" as a prototype was the first step. This first step involved the formation of a musical structure based on a *visualization* (on

the composer's part). Such a visualization is seeking correspondences between the text and the music. The end result was a description of a more *three dimensional* practice in which an iterative circle is entered, the practice forming (or shaping) the *music* and the *ideas* concurrently.

Research question 2: What are the processes that go into making artifacts that blend music and philosophy? In what manner can these processes be analyzed and further developed?

This 2 part question produced the particular strategies of working in all of the phases, and included all of the *reporting* of various components within particular creative processes. We can point to specific outcomes in relation to phase 3. Of particular significance was the construction of a way of working that produced "a priori" blended-space artifacts that were then combined with a training of the improvisational logic of the guitar. The concept "a priori" signifies here the notion that the construction of a musical form from a philosophical text (through metaphor) is a step that is not necessarily put through a real-world application and corresponding rich (multi-faceted) aesthetic evaluation. The use of the guitar to interface with the outcomes of the "a priori" component led to insights for composition and performance. (1) The guitar playing needed to be "re-formed" through training to account for the new gestalts produced by the shaping process in relation to artifact CT. This in turn re-formed the "shaping process" and changed the Max 4 Live application design. This iterative circle was described in detail in chapter 6.

Generalizing from the specific case described in chapter 6, the analysis allows researchers and artists to make connections between textual "a priori" formulations and more embodied and gestural expressions. To describe this process in detail (as we did in chapter 6) allows the practice to be "brought forward" into the circle of discourse. Such a "bringing forward" is a modest result for the research in terms of defining and codifying a practice in order that others may utilize it.

The process described here *produces* a habitus within which nuanced artistic activity can find a role and also a *language*. The use of the particular model described in chapter 6 may be out of reach for other artists. However, the concept itself, the generalized idea that can be formed in relation to this model, can provide resources to others. The models of practice are understood to have this role. They reveal a narrative of process that can provide a basis for further work (in the analysis and explication of the various components of the practice).

Thus we could ask of another researcher working between music and philosophical text: How does the produced musical form make sense in relation to an improvised piano part? Is there a protocol in place to re-design the *a priori*, blended-space, element in response to such gestural aspects? The present research offers resources for answering such questions. It also offers resources for defining new practice and the language for discussing such practice. To a certain extent the present research only offers *partial* solutions to the dilemmas that one might encounter in working between music and philosophy. However this is the nature of practice-based research. Solutions can only ever be partial because practice-based research offers information for people in similar but not identical contexts (see Griffiths 2011, p. 181).

Research question 3: What is the relationship between art objects and philosophy?

This question was answered in a pragmatic, constructivist form. The answer offered in the thesis is one that gives artists and researchers a "way of doing" and a "way of describing" in relation to philosophical text and music / art object. The ability to connect the framework offered in this research to other related frameworks is the goal.

Specifically, the framework that has been developed here offers insight into working between music and philosophy in a variety of low-level modes (the detailed *models of practice*). Yet it offers a higher-level formulation also that can be identified as an

outcome. This outcome is the identification of a *focus* in relation to the use of philosophical text with music. In this sense researchers and artists can, with the aid of the present framework, formulate discursively how the text will relate to a precise target. (1) A target that is "intervallic" would signify a focus of a "thought-form" upon the musical intervals in a piece. (2) A focus upon *compositional system* or *algorithmic process* would have the text serve as the precise criteria for the computation itself, these criteria eventually being formed as pseudo-code for that computational process. (3) A focus upon the overall structure of a piece would allow for the thought-form to construct the overall architectonic of the work.

Further outcomes:

(1)

Another result of the research can be found in the analysis of artifact WO. The expansion of the basic metaphorical structure into a more dialectical formulation is described in section 5.1.3. The construction of a software tool, the *Harmonic synth*, is used to capture the demands of the metaphorical structure (and its elaboration into a more "dialectical formulation"). The process of building a software application in relation to the blending of the domains is described. A series of steps was described: (1) The evolution of the concept (the thought-form), and; (2) the evolution of the ideas needed to represent the concept symbolically, and; (3) the evolution of the *Harmonic synth*. All of these steps are described in chapter 5. The research result is contained within the narrative itself that describes the growth of the work. The Deleuze and Guattari text is a point of contact that is returned to again and again – the understanding of the concept deepens as the work continues (on the other aspects of the artifact). The final iteration includes the fact that the researcher has used the process as a "form of cognition" that has enhanced understanding of a philosophical idea. This is partially an artist's internal logic – but for other artists in similar contexts it may provide information that is useful in constructing (accessing) such evolving thought patterns in relation to creation. The shifting between the different

areas, with emergent logic being created on all sides (in the musical form, the thought-form and the software tools): this is a key outcome. The inter-related structure of the process in which each area is formed in relation to the others is a development of earlier working practices.

It is important to note that Deleuze and Guattari's text is not "defined" or "fixed" by the process. The engagement with the text is one that produces a "thought-form" based on the particular perspective of the researcher / artist. Other philosophers or artists might question the result, but this is as it should be. The re-alignment of the text to accommodate other possible interpretations or deepening interpretations will lead to further iterations of the artifact. The collaborative, and evolutionary, nature of the process is encouraged by the present research.

(2)
A list of the stages involved in the realization of artifact CT with summary of key elements.

A. The forming of an original chord progression is the first step in the making process – this is the first plane of the work. The complete progression is notated in the score to the work.

B. To begin the blending process an "a priori" construction of a blend between *philosophical idea* and *musical form* was planned and applied to the original progression. This is the second plane of the work.

C. An interpretation of the music produced through step B determined the "successful" components. In particular the "shaping process" of the M4L application worked well (in various different forms) at first iteration. Other "unsuccessful" components were identified. In particular the implementation of the "fragmentation metaphor".

D. An aesthetic listening to the piece in its "a priori" form was undertaken and through this listening a new "plane" was identified. The third plane of artifact CT was conceived of as the *tension between gestalts*.

E. A further philosophical intervention in relation to this new plane was produced. In particular a theory of gestalts was formed, with particular reference to the description of such that Merleau-Ponty provides.

F. A series of practice sessions for improvised guitar and Max 4 Live applications were undertaken. This practice was done to train the gesture to accommodate and "work with" the musical forms produced by the M4L applications.

G. The changing of the harmonic landscape (through the prism of the philosophical concepts) demands that the playing (guitar improvisation) take a new "deferred" harmonic meaning into account. The word "deferred" signifies here the distance that a listener (and performer) must now travel in relation to capturing the meaning of the underlying diatonic harmony.

H.   Changes made to Max 4 Live apps to reflect the gestural input of guitar improvisation. Some changes to the software applications were made in response to the experience of improvising with the forms (or "shapes") being produced by the apps.

I.   Performance and *reflection on performance*.   The *reflection of performance* identified a "successful" component in the performance that "stood out" to the artist. Specifically this was a series of complex chords that were layered onto movement 3. This observation led to a similar series of chords being added to the recording of artifact CT.

J. Finally, the return of the "fragmentation" metaphor in a new form. Use of a Max / MSP Gen~ granulation patch tested with an interactive artwork produced for Wenzhou Biennial. The unsuccessful "fragmentation" component was re-introduced in a different more sophisticated form.

This list of elements points to a path into the use of philosophical text as metaphor. Important to the formulated list is a series of interventions and strategies that allow a sophisticated aesthetic to be built upon the "a priori" base. The process must accommodate embodied gesture, aesthetic listening and interpretation, and new temporal configurations (in relation to the perception of harmonic meaning). The practice summarized in the list is conceived of as a *three-dimensional* practice in relation to working between music and philosophy. For other users (researchers and artists) the practice (in its complete form as model of practice) offers more than a formalized lexicon, it gives a concrete example of incorporating improvisational logic into the blending process. By extension it shows that same improvisational logic in its (developing) association with the blended-space forms. The list also outlines a theory of making that allows for multiple levels of theoretical intervention based upon a series of (new) evaluations. The emphasis is upon identifying an emergent component within the aesthetic that can be "pulled out" and shaped with a further theory or text.

7.2 Summary of key concepts

In this section different components from the narrative of process are isolated and arranged. This exercise in generalization offers benefits to practitioners and researchers as a type of index. It cannot be claimed that the components so organized are the *process* in any absolute sense. The models of practice require a working through of the narratives as they unfold to gain a complete understanding. However organizing significant components in a manner that allows an overview is useful.

This overview can be read as a summary of essential components, and can provide additional external information in the form of reflection on the processes in a more general form. The main components are not of one "type", that is to say, the organization and overview must allow for a certain extended logic in relation to mode.

Habitus is defined in the study as the extended practical mode of operation in which theory, skills, research objectives and philosophical thought processes are arranged in a meaningful way. The word "meaningful" signifies in this context that there is an overall space of play within which one can relate the elements of the game one to another. A user becomes "acquainted with the habitus" or "dwells in the habitus" in the same way that a guitarist might become acquainted with the Jazz habitus.

Blending is defined as a process through which the user unites or connects different domains. The process of blending is one in which a text or idea can be related conceptually to a musical form or process. The outcome is a "blended-space" form or structure.

Scale is the heuristic description of the manner in which the blended-space structures are organized within the musical form as a whole. Thus we can speak of an intervention at the scale of 8 bars or we can speak of one that governs the overall structure of the piece.

Focus is a way of thinking about how the process of blending will be put into play, and the target of the process. Thus we might talk of the focus of the textual component (in its application to the music) as being "intervallic" or "spectral". The focus can also be "structural", this kind of focus would be found on the same level as the concept of "sonata" in classical music. The focus can also be computational or systemic. This would be a focus on producing a *system of composition* or an *algorithmic process* in relation to the text or thought-form. In this last type the

thought-form would play the role of guiding the formation of the artistic criteria (eventually becoming pseudo-code for the coding process).

Development of evolving logic is a phrase used in phase 3 to capture the idea that the *a priori* mode of operation described in the working between music and philosophical text must be supplemented by an aesthetic and compositional process. This development can utilize further theoretical insights, or it can develop the original metaphors into more nuanced diagrams. It can also encompass a purely aesthetic evaluation on the artist's part in which one elaborates freely upon the base of the research directives.

Planes of articulation are a development that extends the ideas contained within the *development of evolving logic*. The central idea here is that the work can be re-aligned according to a new "direction" or "impetus" that is revealed through either: (1) a careful listening to the work, or; (2) a new theoretical insight that allows an aspect of the musical structure to be revealed. Central to both cases is the move to the musical content itself as the main focus. The initial move in the creative process of the present work is an *a priori* gesture – this is counterbalanced by the next aesthetic iteration.

The concentration on the *planes* of a work might be considered to be a banal insight, something that is obviously essential to working practices in general. Yet the making explicit of a practice such as this allows one to organize the manner in which these planes are structured. Thus in a work such as Xenakis' *L'egende* the intersecting planes of architecture, composition, philosophy and lighting (to name 4 levels) all have a role that could be isolated and emphasized by the artist. Thinking purely in terms of one level or plane as encompassing all of the different media (the entire artifact) may be a good way to approach the work, yet to develop the planes consciously as different facets that can be developed autonomously and then re-integrated – this also has value as a working process. The proof of such an internal

artistic logic is understood to reside in the real-world practice that informs that logic: to work with a theory that produces an artifact without questioning the aesthetic dimension as it appears in perception is one-sided. To question the aesthetic dimension and find new possibilities within it is to uncover a new "plane" of the work – this emergent logic can be embraced or pushed aside. The present research finds in this logic a heuristic but generalizable component. The organization of "planes" can add to an understanding of the overall architectonic of the work and allow a development of the process that is more precise.

Iterative hermeneutics is the process of continuously interpreting the work as it evolves and allowing it to speak.

Shifting fulcrum is a phrase used to describe the fact that one cannot completely systematize the order and content of the processes described in the study. The *fulcrum* upon which each artifact is located moves (shifts) according to various heuristic and practical considerations. Thus one might begin a work based upon a computational algorithm suggested by an earlier work and through this develop and foster a philosophical idea. Or one may begin a work based upon solving a philosophical problem that slowly becomes an aesthetic problem.

Compositional cognition is the use of music as research tool, a tool that solves problems.

7.3 Discussion

7.3.1 The music of philosophy

Some general observations about the "music of philosophy" are warranted at this juncture. For Levinson there is "already"- within philosophy itself - a music of philosophy and it is only musical in a metaphorical sense. He writes: "The music of

philosophy would be the distinctive sound, melody, rhythm, and so on, of a given way of philosophizing, of theorizing the world and its meaning in a rational and systematic manner" (Levinson 2009, p. 123). Thus there would be a quite different *music* for Kant and Schopenhauer, even while they share "metaphysical premises" (p. 123).

Yet in terms of a *practice* and a *habitus* (a dynamic ecology) we might hope to foster existing connections between music and philosophy as material. The historical avant-garde (I am thinking of Duchamp here) certainly indicated this path. The importance of the discursive aspect of practice became essential to the work as a whole, the "expression" of the artist as virtuoso less essential. The present study takes on board these different modes of operation but it does not provide a single paradigmatic operative mode. Thus "virtuosic expression" (on one side) and art defined as a "form of cognition" (on the other side) can co-exist within a single artifact. Artworks are freely expressive of multiple frames and contexts.

In an essay by Jan Garden Castro *Art futurecast* (Castro 2013, p. 89) the question of art's future goals is broached. Castro writes that future art-forms must provide a re-calibration of the senses through new and complex ways of interacting (p. 87). He quotes sculptor John Crawford on how art serves the public. The sculptor takes the view that art must be, "…transformative, without the problems of Modernism, such as being too personal or too commercial" (cited in Castro 2013, p. 89). Its purpose must be to "…help all know the unknowable" (p. 89). This purpose for art is interesting in the context of the present study. The structuring of artifacts that have a dialogical component that goes beyond the merely expressive towards a way of re-structuring thought is transformative in just this way. An important research goal here is to create ways of working within a dynamic "habitus".

Purely "expressive" paradigms are - for some audiences and artists - lacking in the relational content that allows new understandings and ideas to be fostered. Philosophical ideas are fostered through internal and external dialogs as they relate to

the aesthetic structure of an artifact. Albrecht Wellmer notes that art's "truth" content is available only to the senses and any attempt to unlock this truth (as discourse or language) dissolves it (Wellmer 2007, p. 301). Conversely this "aesthetic content" *must* be made available to a philosophical interpretation that allows contact with the "truth". In Adorno's formulation (quoted by Wellmer): "Genuine aesthetic experience must become philosophy or it fails to exist at all" (Adorno quoted in Wellmer 2007, p. 301).

Finally a note from a purely compositional standpoint. One might argue that the aesthetically successful components that inhere in the finished composition are still intuitive. Compositional subtleties cannot be organized by simply thinking metaphorically and working out processes that will represent such thinking. However it is the building of intuitive processes upon cross-disciplinary blending, and / or application design based on philosophical metaphor and dynamic art-systems, that assembles aesthetic goals not available without such bases.

Strauss was careful to describe his work as being "inspired" by Nietzsche, and the title of his tone-poem includes the words "…frei nach Nietzsche". The music is conceived of as a "homage" to the ideas of Nietzsche (Williamson 1993). Furthermore Strauss organized the ideas of the program as a synthesis (see section 1.4). Nietzsche's work was not defined by Strauss, it was included as a component within a more general schema written by the composer (Strauss cited in Williamson 1993, p. 28). It seems significant that the composer did not attempt to claim that Nietzsche's work was understood definitively *by* the composer. Levinson's point is particularly relevant here: there exists already a "music of philosophy" and one must respect this from the outset.

7.3.2 Thought form

The thought form is an integral part of each of the artifacts. Yet to a certain extent it is opaque: it is difficult to define just what the "thought form" actually *is*. Certainly in research that is structured around contributing to the knowledge of "making" the philosophical and theoretical material might be considered anomalous. Nothing could be further from the truth. The process of *making* in the present context is one in which theory and philosophy are an essential component – indeed one might wonder if there really exists a "making" that is purely material (in the sense of material as medium). In the present case the making process is explicitly tied to a discursive thought process. This is, in one respect, a fact that makes the work easier to understand as research.

Schaeffer once described his book *Traites* as being a "thinking machine" (Kane 2014). The book took many years to write and it became a way for him to work between music, phenomenology and internal thought processes. This "evolutionary" configuration is one that resonates with the present study. The idea that one is making use of philosophy (Husserl's phenomenology) to refine the process of listening and also thereby composition makes of the work an internal process: it becomes a form of cognition. Schaeffer's actual practice was very different than the one outlined in the present study. Yet the notion that one keeps "open" the connections between ideas and music, never fixing precisely the final meaning, this is relevant.

Another example of a thought process becoming an explicit element within a practice is Duchamp's "green box". This connection was flagged in the introduction to the present study. Duchamp added notes to the *green box* over many years, and it was a component of the work *Large glass*. This process of producing an evolving text in relation to an object (creating an entire artifact) is also a central focus of the present research.

The "thought form" of the present research is in some ways a "notebook". This signifies that the ideas that are put down, jotted down, written down, are never complete. The function of the thought form as notebook is to keep track of a thought process. In no way should the thought form be perceived as a statement about this or that philosophy or philosopher as a *final word* (so to speak). Instead the thought form is an invitation to dialog, it is an inspirational text, it is a perspective based (mostly) on a *synthesis*. An insight into the structure of the *thought form* emerged after phase 1: *keep the ideas therein distributed over various thinkers*. This insight might seem to be insignificant. However, in some ways a piece of music attached to a text can be perceived as defining or delimiting. The gestures of synthesis, of incompleteness, of inspiration, of dialogical engagement – these must be emphasized in the thought form.

The "philosophy" that one engages with in a practice such as the present practice is only a way of interacting superficially with past ideas. Yet through a constant return to the ideas they grow and develop. This makes of the music a place that is both expressive tonal form *and* an enlightening internal dialog. The artist is brought again and again to an idea through its being placed next to the musical praxis. Furthermore, one imagines that in the art-form's "open character" other participants and practitioners could enter into the dialog, into the habitus, and sharpen and develop the basic ideas that form it. This can include expert musicians, composers, philosophers or it can include interested persons and "audiences" – the practice is not conceived of as a closed structure.

7.3.3 Transforming gestures

The thesis title contains within it the phrase "transforming gestures" and some brief discussion is warranted here. Under the sign of "transforming gestures" the entire study was conducted so it seems that it must carry with it some essential meaning. The phrase also became the title for the first artifact created in the study (artifact TG). What has this phrase come to signify through the course of the research? When one

comes to interpret an "original" element (present at the origin) it is often the case that it has taken on a life of its own, the "meaning" distributed over various competing possibilities. This is true in the present case – different interpretations can perceive a good fit for the phrase in a variety of roles.

Looking from the perspective of this conclusion the phrase can be connected to the manner in which the study as a whole "transforms" compositional practice from the ground up. From this perspective the emphasis is upon the fact that composition (and artifact creation) is re-formed according to its establishment upon a new *basis*. This observation is one that points to the fact that one need not exhaustively characterize a practice to create in a new key. Altering one or two basic components allows new intuitive and expressive gestures to find a path into the process. The transformation of the starting point for composition in the present case is structured around the codifying and developing of a musical grammar. The "blended-space" elements are brought into the light and developed more completely than is the case with earlier historical configurations. The evolving notebook of the thought form, the codification and theorization of the blended-space elements, the theory of how those blended-space elements are to be understood within the context of a complete composition – these are aspects which form a *basis* upon which a transformed gesture can be structured. The maxim: change the base upon which you work and the super-structure will alter.

The phrase "transforming gesture" began its journey with the first artifact in an, essentially, modest form. As noted the first artifact takes its name from the title of the thesis and the idea of the *transforming gesture*. The idea explored in the narrative "thought form" that accompanies the piece describes a fictional world in which change occurs through song. The concept of competing worldviews as competing *songs* is central to the thought form. The idea speaks of a transformative power, the power to transform the surrounding world through music. A world that was "sung" into being can be re-organized through new songs. These ideas are metaphorically

realized in TG3. An interpretation of that piece focused itself on this storyline, forming itself according to the guiding metaphors.

The guitar work in TG3 is split into two very obvious styles – two competing styles. The first style is metronomic and clipped – it forms itself around the metric timing of the piece in a strict manner. The second style breaks this strictness down into a more fluid and organic style. The metronomic beat becomes a kind of "garden stake" around which a more organic form entwines itself. Thus on a basic level the gestural content of the guitar work in the two sections is starkly contrasted. The metaphorical "organic form" that was identified in the second section was a structure deemed worthy of development.

This original aspect of the meaning of "transforming gestures" is very basic and, to some extent, banal. However it was an entry point for further elaboration. The interpretation of TG3 has an echo in relation to the artifact CT from phase 3. Artifact CT started its life as an *emphasis* of the shaping process identified in TG3. Furthermore the shaping process became a spur in relation to guitar *playing style*. In artifact CT the structure of the style, in relation to the guitar, becomes a component. It cannot be claimed that the style of the guitar work is completely altered – rather the concept of style appears on the radar in relation to the "shaping process" of artifact CT. The manner in which the fragmentation and re-forming of the chords in artifact CT change the way that one must approach the playing becomes an issue. The inspirational impetus for artifact CT came from TG3 with the interpretation of an organic "shape" within that earlier work. The idea of shaping structures within the context of a metronomic kick drum was born of that interpretation. The return of that first inspiration is that the guitar must then change in relation to the shaping process that is effecting the synthesizer sounds of CT. This is the focus on gestural content that is passed down through the phases of the research.

The two interpretations of the meaning of "transforming gesture" are related to the research as a whole, and on some level to one another. The phrase is no more than an inspirational spur, yet it finds its way into various aspects of the creative process and the research associated with that.

7.4 Future work

In the present study a particular set of artifacts were created in relation to the research questions. This allowed some significant and (personally) relevant solutions to be produced. The interaction of the improvised gesture with the shaping processes formed in metaphor was an important component of the outcomes. This "shaping process" in artifact CT was to a certain extent written into a user interface that the performer controls during performance. This could be extended into algorithmic, automated and generative logics. Some of the processes of artifact CT were automated and structured around the retriggering of a series of chosen "cycles" as the DAW triggered each midi notated chord. The choosing of the value of each stop in the cycles was achieved through user interface but it could be extended easily into the domain of automated process.

The thesis has produced one solid direction already in relation to the last two artifacts. The use of artifact OB as a way of producing complex variations on a basic theme was mobilized as a first step. A new version of the piece was produced. This notated score will then be utilized as the ground zero of a process of granulation. The granulation algorithm has been written in Gen~ and utilized in an artwork at the Wenzhou biennial. Link to that work here:

https://sites.google.com/view/documenta-scott-simon/interactive-artwork-wenzhou

The idea is to further develop the "fragmentation" metaphor in CT in relation to the diatonic harmony of artifact OB. The development of the algorithms in relation to the guiding metaphors of phase 3 retains the artist's interest, and the structure of the programmed components becomes more complex and sophisticated. The manner in which the improvised guitar component from these works will evolve is connected to this direction. Further efforts will be put into the analysis and augmentation of the guitar component.

In the paper *From philosophical meditation to compositional system: a working process* (Simon 2014) I applied the ideas from the research to the creation of an automated composition system. This seems a particularly interesting direction in which future work can move. In the paper a very precise "thought-form" ("philosophical meditation" was used in place of "thought-from" in the paper as readers would not have access to the definitions of language in the PhD) is formed as a type of pseudo-code. The meditation / thought-form describes a path through various philosophers in relation to "power relations within music expression". The idea has many connections to Cage's *Williams mix* but it also develops and furthers that idea in quite specific ways. A software application is designed in prototype in that paper and it could be developed further.

Something the thesis has brought to light for the researcher is the interesting connection between the visualizations and the musical expression. The use of programming to construct interactive visual elements leads to changes in the audio components. The construction of moving sequences that accompany the musical component can be delivered in galleries and through the internet and through mobile devices.

Bibliography

Adorno, T. 1997, *Aesthetic Theory*, trans. R. Hullot-Kentor, Continuum international publishing group, London.

Adorno, T. 1998, *Beethoven: the philosophy of music*, trans. E. Jephcott, Stanford University Press, Stanford.

Adorno, T.W. 1966, *Negative Dialektik*, Suhrkamp, Frankfurt

Albright, D. 2004, *Modernism and music: an anthology of sources*, University of Chicago Press, Chicago.

Andrews, I. 2013, 'Sonic practice as research', *New Scholar: an International Journal of the Humanities, Creative Arts and Social Sciences*, vol. 2, no. 1.

Andrews, I. 2013, 'Sonic practice as research: the problem of aesthetics', *New Scholar: An International Journal of the Humanities, Creative Arts and Social Sciences*, vol. 2, no. 1, pp. 69-82.

Antheil, G. 2003, 'Ballet mècanique', Music score, Schirmer, New York.

Aragon, L. 1924, *Le libertinage*, Nouvelle Revue Francaise, Paris.

Armand, L. 2013, *Jean-Michel Basquiat And "The Art Of (Dis)Empowerment"* American Suburb X.

Austin, L. & Thompson, M. 2001, 'Williams [re]Mix[er]: an interactive I Ching composing program', paper presented to the *International Computer Music Association*.

Bailes, F. & Dean, R.T. 2009, 'Empirical studies of computer sound', in R.T. Dean (ed.), *The Oxford handbook of computer music*, Oxford University Press, Oxford, pp. 473-90.

Barrett, E. 2007, 'Introduction', in E. Barrett & B. Bolt (eds), *Practice as research: approaches to creative arts enquiry*, I.B. Tauris, London.

Barzun, J. 2016., *Hector Berlioz.*, Encyclopædia Britannica Online, viewed 02 May 2016, < http://www.britannica.com/biography/Hector-Berlioz>.

Baumgarten, A.G. [1750] 2007, *Ästhetik*, trans. D. Mirach, Felix Meiner Verlag, Hamburg.

Beardsley, M.C. 1958, *Aesthetics: problems in the philosophy of criticism*, Harcourt, Brace & World, Inc., New York.

Beckett, W. 1968, *Liszt*, J.M. Dent, London.

Benjamin, W. 2009, *The Origin of German Tragic Drama*, Verso, London.

Bettleheim, B. 2010, *The uses of enchantment*, Vintage Books, New York.

Black, M. 1954-1955, 'Metaphor', *Proceedings of the Aristotelian Society*, vol. 55, pp. 273-94.

Black, M. 1962, 'Models and archetypes', *Models and metaphors*, Cornell University Press, Ithaca.

Blanchot, M. 1993, *The infinite conversation*, trans. S. Hanson, University of Minnesota Press, Minneapolis.

Bloch, E. 1998, 'Man and music', in E. Schwartz, B. Childs & J. Fox (eds), *Contemporary composers on contemporary music*, Da Capo Press, New York, pp. 40-7.

Bloom, M. 2005, 'Painterly music: on Baudelaire's vision of Wagner', in D. Johnson & D. Ogawa (eds), *Seeing and beyond: essays on eighteenth- to twenty-first-century art in honor of Kermit S. Champa*, Peter Lang, New York.

Boenn, G. 2008, 'The importance of Husserl's phenomenology of internal time-consciousness for music analysis and composition', *ICMC proceedings*, Belfast.

Bolt, B. 2004, 'Heidegger, handlability and praxical knowledge.', *School of creative arts, Melbourne University*.

Bonds, M.E. 2014, *Absolute Music*, Oxford University Press, New York.

Borgdorff, H. 2006, *The debate on research in the arts*, vol. 2, KHiB, Bergen.

Borgdorff, H. 2009, *Artistic research within the fields of science*, Bergen National Academy of the Arts, Bergen.

Borgdorff, H. 2010, 'Artistic research as boundary work', *CARPA 1*, Helsinki.

Borgdorff, H. 2011, 'The production of knowledge in artistic research', in M. Biggs & H. Karlsson (eds), *The Routledge companion to research in the arts*, Routledge, London, pp. 44-63.

Borgo, D. 2005, *Sync or swarm: improvising music in a complex age*, Continuum, New York.

Boulez, P. 1990, 'Aestheticists and fetishists', *Orientations*, Harvard University Press, pp. 31-43.

Bowie, A. 2013, *Adorno and the ends of philosophy*, Polity Press, Cambridge.

Bradfield, B. 2007, 'Examining the lived world: the place of phenomenology in psychiatry and clinical psychology', *The Indo-Pacific Journal of Phenomenology*, vol. 7, no. 1, viewed 23/10/2010, <http://www.ipjp.org/index.php?option=com_jdownloads&view=download&id=104:brucebradfield7e1&catid=29&Itemid=318>.

Brewer, J. & Hunter, A. 2006, *Foundations of multimethod research: synthesizing styles*, SAGE, Thousand Oaks.

Brown, A. & Sorenson, A. 2009, 'Integrating creative practice and research in the digital media arts', in R. Dean & H. Smith (eds), *Practice-led research, research-led practice in the creative arts*, Edinburgh University Press, Edinburgh, pp. 153-65.

Buchanan, B. 2008, *Onto-ethologies: the animal environments of Uexküll, Heidegger, Merleau-Ponty, and Deleuze*, Suny Press, Albany.

Bürger, P. 1984, *Theory of the avant-garde*, University of Minnesota Press, Minneapolis.

Cage, J. 1965, '4'33". Tacet, any instrument or combination of instruments', Music score, C.F. Peters Corp., New York.

Cage, J. 1978, 'Lecture on the weather', Henmar Press, New York.

Cage, J. 1951-1953, 'Williams Mix', Henmar Press, New York.

Cage, J. 1980, *Empty words: writings '73-'78*, Marion Boyars, London.

Cage, J. 2006a, *Silence: lectures and writings*, Boyars, London.

Cage, J. 2006b, 'Experimental music', *Silence: lectures and writings*, Boyars, London, pp. 7-12.

Cage, J. [1951] 1961, 'Music of changes', Music score, Henmar Press Inc., New York.

Candy, L. 2006, *Practice-based research: a guide*, University of Technology Sydney, Creativity and Cognitions Studio.

Candy, L. 2011, 'Research and creative practice', in E. Edmonds & L. Candy (eds), *Interacting*, Libri, Oxfordshire, pp. 33-59.

Carlos, W. 1987, 'Tuning: at the crossroads', *Computer Music Journal*, vol. 11, no. 1, pp. 29-43.

Carroll, N. 1944, 'Cage and philosophy', *The Journal of Aesthetics and Art Criticism*, vol. 52, no. 1, pp. 93-8.

Cassirer, E. 1951, *The philosophy of the enlightenment*, trans. F.C.A. Koelln & J.P. Pettegrove, Princeton University Press, Princeton.

Castro, J.G. 2013, 'Art futurecast: merging object with subject', in P. Baler (ed.), *The next thing: art in the twenty-first century*, pp. 81-94.

Castro, J.G. 2013, 'Art futurecast: merging object and subject', in P. Baler (ed.), *The next thing: art in the twenty-first century*, Fairleigh Dickinson University Press, Lanham, pp. 81-94.

Chion, M. 2009, *Guide to sound objects*, trans. John Dack & C. North.

Chua, D.K.L. 1999, *Absolute music and the construction of meaning*, Cambridge University Press, Cambridge.

Cipriani, A. & Giri, M. 2010, *Electronic music and sound design*, Con TempoNet, Rome.

Cipriani, A. & Giri, M. 2013, *Electronic music and sound design*, vol. 2, Con TempoNet, Rome.

Clifton, T. 1983, *Music as heard: a study in applied phenomenology*, Yale University Press, New Haven.

Collins, N. & d'Escrivan, J. 2007, *The Cambridge companion to electronic music*,

Cambridge University Press, Cambridge; New York.

Cook, N. 2007, *Music, performance, meaning: selected essays*, Ashgate, Aldershot.

Costello, B. 2009, 'Play and the experience of interactive art', PhD thesis, University of Technology, Sydney.

Coulson, S. & Oakley, T. 2005, 'Blending and coded meaning: literal and figurative meaning in cognitive semantics', *Journal of Pragmatics*, vol. 37, pp. 1510-36.

Dahlhaus, C. 1982, *Esthetics of music*, trans. W.W. Austin, Cambridge University Press, Cambridge.

Dahlhaus, C. 1987, 'Schoenberg and programme music', *Schoenberg and the new music*, Cambridge University Press, Cambridge, pp. 94-104.

Dahlhaus, C. 1989a, *The idea of absolute music*, University of Chicago Press, Chicago.

Dahlhaus, C. 1989b, *19th Century music*, University of California Press, Berkeley.

Dalí, S. 1931, *The persistence of memory*, painting, Museum of Modern Art, New York.

Davis, C. 2005, 'État présent: hauntology, spectres and phantoms', *French Studies*, vol. LIX, no. 3, pp. 373-9.

de Campo, A. 2011, 'Microsound', in S. Wilson, D. Cottle & N. Collins (eds), *The SuperCollider book*, MIT Press, Cambridge MA, pp. 463-504.

De la Fuente, E. 2011, *Twentieth century music and the question of modernity*, Routledge, London.

de Ridder, J. 2007, *Reconstructing design, explaining artifacts*, Delft University of Technology, Delft.

Dean, R. & Smith, H. 2009, 'Practice-led research, research-led practice in the creative arts', in R. Smith & H. Dean (eds)Edinburgh University Press, Edinburgh, pp. 1-40.

Debord, G. 1961, *Critique of separation*, Film text, viewed 26/4/2016, <http://www.cddc.vt.edu/sionline/si/separation.html>.

Debord, G. 1961a, *Critique of separation*, Short film, France.

Debord, G. 2003, *Complete cinematic works*, trans. K. Knabb, AK Press, Oakland.

Debussy, C. 1977, *Debussy on music: the critical writings of the great french composer Claude Debussy*, trans. R.L. Smith, Cornell University Press, Ithaca.

Debussy, C. [1909] 1983, 'Three Great Orchestral Works in Full Score', Music score, Dover Publications, Mineola.

Deleuze, G. & Guattari, F. 1987, *A thousand plateaus: capitalism and schizophrenia*, University of Minnesota Press, Minneapolis.

Delibegovic, N., 'Conceptual integration theory: the key for unlocking the internal cognitive choreography of idiom modification', *Jezikoslovlje*, vol. 8, no. 2, pp. 169-91.

Denzin, N.K. & Lincoln, Y.S. 2011, 'Introduction', in N.K. Denzin & Y.S. Lincoln (eds), *The SAGE handbook of qualitative research*, SAGE publications ltd., Los Angeles, pp. 1-20.

Derrida, J. 1993, *Specters of Marx*, Routledge.

Dhomont, F. & Bettelheim, B. 1996, *Forêt profonde*, CD, Empreintes Digitales, Montreal.

Dorst, K. 2003, 'The problem of design problems', *Expertise in design*, pp. 135-47.

Duchamp, M. 1915-23, *The bride stripped bare by her bachelors even*, Artwork, Philadelphia Museum of Art.

Edmonds, E. 2011, 'Art, interaction and engagement', in L. Candy & E. Edmonds (eds), *Interacting: art, research and the creative practitioner*, Libri, Oxfordshire, pp. 228-41.

Edmonds, E. 2012, *Differences between practice-based and practice-led research*, <http://www.creativityandcognition.com/research/practice-based-research/differences-between-practice-based-and-practice-led-research/>.

Edmonds, E. & Candy, L. 2011, 'The role of the artefact and frameworks for practice-based research', in M. Biggs & H. Karlsson (eds), *The Routledge companion to research in the arts*, Routledge, London, pp. 120-38.

Edmonds, E. & Fell, M. April 25, 2007, *D.C release*, Performance, Corcoran Gallery, Washington D.C.

Emmerson, S. 2007, *Living electronic music*, Ashgate, Hampshire.

Eno, B. & Fripp, R. 2004, *The equatorial stars*, CD, Opal Ltd., London.

Eno, B. & Frith, F. 1978, *Music for films*, CD, EG Records; Marketed by Caroline Records, New York, N.Y.

Eno, B., Hopkins, J. & Abrahams, L. 2010, *Small craft on a milk sea*, CD, Warp Records, Chicago.

Evans, F. 2008, *The multivoiced body: society and communication in the age of diversity*, Columbia University Press, New York.

Fauconnier, G. 1997, *Mappings in thought and language*, Cambridge University Press, Cambridge.

Fauconnier, G. & Turner, M. 1998, 'Conceptual integration networks', *Cognitive Science*, vol. 22, no. 2, pp. 133-87.

Fauconnier, G. & Turner, M. 2003, *The way we think: conceptual blending and the mind's hidden complexities*, Basic Books, New York.

Fauconnier, G. & Turner, M. 2008, 'Rethinking metaphor', in R.W. Gibbs (ed.), *The Cambridge handbook of metaphor and thought*, Cambridge University Press, Cambridge.

Fontana.

Fontana, A. & Frey, J. 2008, 'The interview: from neutral stance to political involvement', in N.K. Denzin & Y.S. Lincoln (eds), *Collecting and interpreting qualitative materials*, Sage, Los Angeles.

Ford, C. 2010, 'Musical presence: towards a new philosophy of music', *Contemporary Aesthetics*, vol. 8, <http://www.contempaesthetics.org/newvolume/pages/article.php?articleID=582&searchstr=cage>.

Foster, H. 1996, *The return of the real: the avant-garde at the end of the century*, MIT Press, Cambridge, Mass.

Friedman, K. 1998, *The Fluxus reader*, Academy Editions, Chicester, West Sussex; New York.

Fripp, R. & Eno, B. 1975, *Evening star*, CD, EG Records, [U.S.A.].

Frisk, H. & Karlsson, H. 2011, 'Time and interaction: research through non-visual arts and media', in M. Biggs & H. Karlsson (eds), *The Routledge companion to research in the arts*, Routledge, London, pp. 277-92.

Gerlach, R. 1966, *Don Juan und Rosenkavalier*, Haupt, Bern.

Gilmour, D., Mason, N., Parry, D. & Waters, R. 2011, *Pink Floyd: Dark side of the moon*, CD, EMI, London.

Goehr, L. 2008, *Elective Affinities*, Columbia University Press, New York.

Gor, G. 2012, 'Music and 'Weltanschauung': Franz Brendel and the claims of universal history', *Music and Letters*, vol. 93, no. 3, pp. 350-73.

Gray, C. 2007, 'From the ground up: encountering theory in the process of practice-led doctoral research', *AHRC Post-Graduate Conference*, De Montfort University & Loughborough Universities, UK.

Gray, C. & Malins, J. 2004, *Visualizing research*, Ashgate, Aldershot.

Greenberg, C. 1971, *Art and culture: critical essays*, Beacon Press, Boston.

Grey, T. 2011, 'Wagner', in T. Gracyk & A. Kania (eds), *The Routledge companion to philosophy and music*, Routledge, London.

Griffiths, M. 2011, 'Research and the self', in M. Biggs & H. Karlsson (eds), *The Routledge companion to research*, Routledge, London, pp. 167-85.

Griffiths, P. 1978, *A concise history of avant-garde music: from Debussy to Boulez*, Oxford University Press, Oxford.

Griffiths, P. 2008, *Olivier Messiaen and the music of time*, Faber and Faber, London.

Griffiths, P. 2010, *Modern music and after*, Oxford University Press, Oxford.

Grimbert, J.T. 2002, 'Introduction', in J.T. Grimbert (ed.), *Tristan and Isolde: a casebook*, Routledge, London.

Guervich, M. & Treviño, J. 2007, 'Expression and its discontents: toward an ecology of musical creation', *NIME07*, New York, pp. 106-11.

Habermas, J. 1983, 'Modernity: an incomplete project', in H. Foster (ed.), *The anti-aesthetic: essays on postmodern culture*, Bay Press, Port Townsend, Wash., pp. 3-15.

Hadjileontiadis, L.J. 2014, 'Conceptual blending in biomusic composition space: the "brainswarm" paradigm', paper presented to the *ICMC/SMC*, Athens.

Hamilton, K. 1996, *Liszt: sonata in B minor*, Cambridge University Press, Cambridge.

Handel, S. 1989, *Listening*, MIT Press, Cambridge, Massachusetts.

Hanslick, E. [1854] 1986, *On the musically beautiful: a contribution towards the revision of the aesthetics of music*, trans. G. Payzant, Hackett Indianapolis.

Harland, R. 1999, *Literary theory from Plato to Barthes*, St. Martin's Press, New York.

Hegel, G.W.F. 1975, *Aesthetics: lectures on fine art*, trans. T.M. Knox, vol. 2, Oxford University Press, London.

Helmholtz, H. 1954, *On the sensations of tone as a physiological basis for a theory of music*, trans. A. Ellis, Dover, New York.

Hepokoski, J. 2010, 'The second cycle of tone-poems', in C. Youmans (ed.), *The Cambridge companion to Richard Strauss*, Cambridge University Press, Cambridge, pp. 78-104.

Hewett, T., Czerwinski, M., Terry, M., Nunamaker, J., Candy, L. & Kules, B. 2005, *Creativity support tool evaluation methods and metrics*, Washington, DC.

Higgins, D. & Higgins, H. 2001, 'Intermedia', *Leonardo*, vol. 34, no. 1, pp. 49-54.

Hill, P. 2004, *Stravinsky: the rite of spring*, Cambridge University Press, Cambridge

Hoeckner, B. 1994, 'Music as a metaphor of metaphysics: tropes of transcendence in 19th-century music from Schumann to Mahler', PhD thesis, Cornell University.

Holmes, T. & Pender, T.M. 2012, *Electronic and experimental music technology, music, and culture*, Routledge, New York, <http://site.ebrary.com/id/10545404>.

Honour, H. & Fleming, J. 1984, *A world history of art*, Laurence King, London.

Horist, B. 2000, *Songs from the nerve wheel solo guitar improvisations*, CD, Unit Circle Rekkids, Seattle, WA.

Horist, B. 2009, *Covalent lodge*, North Pole Record, [Portland, Or.].

Houle, K. & Vernon, J. 2013, *Hegel and Deleuze: together again for the first time*, Northwestern University Press, Evanston.

Huron, D. 1992, 'Cognitive foundations of musical pitch. by Carol L. Krumhansl', *Psychology of Music*, vol. 20, no. 1, pp. 180-5.

Husserl, E. 1991, *On the phenomenology of the consciousness of internal time* trans. J.B. Brough, Kluwer Academic Publishers, Boston.

Husserl, E. [1901] 2001, *Logical Investigations*, trans. J.N. Findlay, vol. 2, Routledge, New York.

Husserl, E. [1936] 1970, *The crisis of the European sciences and transcendental phenomenology*, trans. D. Carr, Northwestern University Press, Evanston.

Hyde, M.M. 2003, 'Stravinsky's neoclassicism', in J. Cross (ed.), *Cambridge companion to Stravinsky*, Cambridge University Press, Cambridge, pp. 98-136.

Ihde, D. 2007, *Listening and voice: phenomenologies of sound*, State University of New York Press, New York.

Imaz, M. & Benyon, D. 2007, *Designing with blends: conceptual foundations of human-computer interaction and software engineering*, MIT Press, Cambridge MA.

Johnston, A. 2011, 'Almost tangible musical interfaces', in E. Edmonds & L. Candy (eds), *Interacting*, Libri, Oxfordshire, pp. 211-27.

Jorda, S. 2007, 'Interactivity and live computer music', in N. Collins & J. d'Escrivan (eds), *The Cambridge companion to electronic music*, Cambridge University Press, Cambridge; New York.

Kaliakatsos-Papakostas, M., Cambouropoulos, E., Kühnberger, K.-U., Kutz, O. & Smaill, A. 2014, 'Concept invention and music: creating novel harmonies via

conceptual blending', *9th Conference on Interdisciplinary Musicology CIM14*, Berlin.

Kane, B. 2014, *Sound unseen: acousmatic sound in theory and pracitice*, Oxford University Press, Oxford.

Kant, I. 2000, *Critique of the power of judgment*, trans. P. Guyer, Cambridge University Press, New York.

Keep, A. 2009, 'Improvising with sounding objects in experimental music', in J. Saunders (ed.), *The Ashgate research companion to experimental music*, Ashgate, Surrey, pp. 113-30.

Kelly, B.L. 2013, *Music and ultra-modernism in France: a fragile consensus, 1913-1939*, Boydell Press, Woodbridge.

Kim-Cohen, S. 2009, *In the blink of an ear: toward a non-cochlear sonic art*, Continuum International Publishing, New York.

Kincheloe, J. 2004, 'Introduction: the power of the bricolage: expanding research methods', in J. Kincheloe & K. Berry (eds), *Rigour and complexity in educational research*, Open University Press, New York.

Kjorup, S. 2011, 'Pleading for plurlaity: artistic and other kinds of research', in M. Biggs & H. Karlsson (eds), *The Routledge companion to research in the arts*, Routledge, London, pp. 24-43.

Koutsomichalis, M. 2013, *Mapping and visualization with SuperCollider*, Packt Publishing.

Krenek, E. 2004, 'What is called the new music and why?', in D. Albright (ed.), *Modernism and music*, University of Chicago Press, Chicago, pp. 330-7.

Krumhansl, C. 1990, *Cognitive foundations of musical pitch*, Oxford University Press, Oxford.

Kuenzli, R.E. 2006, *Dada*, Phaidon Press Inc., London; New York.

Kuhn, T. 1970, *The structure of scientific revolutions*, University of Chicago Press, Chicago.

Lakoff, G. & Johnson, M. 1980, *Metaphors we live by*, University of Chicago Press,

Chicago.

Lawson, B. 1997, *How designers think: the design process demystified*, Architectural Press, Oxford.

Lebaron, A. 2002, 'Reflections of surrealism in postmodern musics', in J.I. Lochhead & J.H. Auner (eds), *Postmodern music/postmodern thought*, Routledge, New York; London, pp. 27-74.

Levinson, J. 2009, 'Philosophy and music', *Topoi*, vol. 28, no. 2, pp. 119-23.

Lewis, G. & Mitchell, R. 1993, *Voyager improvised duos between human and computer musicians*, CD, Avant, Tokyo, Japan.

LeWitt, S. June 1967, 'Paragraphs on Conceptual Art', *Artforum*.

Lippman, E.A. 1964, 'Theory and practice in Schumann's aesthetics', *Journal of the American Musicological Society*, vol. 17, no. 3, pp. 310-45.

Lippman, E.A. 1994, *A history of western musical aesthetics* University of Nebraska Press, Lincoln.

Liszt, F. 1855, 'Berlioz and his "Harold" Symphony', *Neue Zeitschrift für Musik*, vol. XLIII, pp. 25-6, 40-6, 9-55, 77-9, 80-1.

Liszt, F. 1855, 'Berlioz und seine Haroldsymphonie', *Neue Zeitschrift für Musik*, vol. 43, pp. 77-84.

Liszt, F. 1856-57, 'Symphonische Dichtungen: für grosses Orchester: Dritte Band: Die Ideale', Music score, Breitkopf und Härtel, Leipzig, pp. 283-385.

Liszt, F. 1866, 'Faust', Music score, J. Schuberth & Co., Leipzig.

Liszt, F. 1900, 'Orpheus: symphonische Dichtung no. 4 für grosses Orchester', Music score, E. Eulenburg, London.

Liszt, F. 1950, 'from Berlioz and his "Harold" symphony', in O. Strunk (ed.), *Source readings in music history*, Norton, New York, pp. 847-73.

Locher, D. 1999, 'Unacknowledged roots and blatant imitation: post-modernism and the Dada movement', *Electronic Journal of Sociology*, vol. 0004.001, pp. 1-19.

Lochhead, J.I. & Auner, J.H. 2002, *Postmodern music/postmodern thought*, Routledge, New York; London.

Lyotard, J.-F. 1984, *The postmodern condition: a report on knowledge*, University of Minnesota Press, Minneapolis.

Magee, B. 2002, *The philosophy of Schopenhauer*, Oxford University Press, Oxford.

Maharaj, S. 1996, '"A monster of veracity, a crystalline transubtantiation": typotranslating the green box', in M. Buskirk & M. Nixon (eds), *The Duchamp effect*, MIT Press, Cambridge, Mass.

Mahnkopf, C.-S., Cox, F. & Schurig, W. (eds) 2004, *Musical morphology*, Hofheim, Wolke.

Mailman, J.B. 2013, 'Agency, determinism, focal time frames, and processive minimalist music', in M. Klein & N. Reyland (eds), *Music and narrative since 1900*, Indiana University Press, Bloomington.

Malins, J., Gray, C., Bunnell, K. & Wheeler, E. 1995, *Appropriate research methodologies for artists, designers and craftspersons: research as a learning process*, Gray's School of Art, Centre for Research in Art & Design.

Malt, J. 2004, *Obscure objects of desire: surrealism, fetishism, and politics*, Oxford University Press, Oxford.

Manning, P. 2006, 'The significance of 'techné' in understanding the art and practice of electroacoustic composition', *Organised Sound*, vol. 11, no. 1, pp. 81-90.

Manoury, P. 1984, 'The role of the conscious', *Contemporary Music Review*, vol. 1, no. 1, pp. 147-56.

Manuel, P. 1995, 'Music as symbol, music as simulacrum: postmodern, pre-modern, and modern aesthetics in subcultural popular musics', *Popular Music*, vol. 14, no. 2, pp. 227-39.

Marx, K., O'Malley, J. & Jolin, A. 1970, *Critique of Hegel's 'Philosophy of right'*, Cambridge U.P, London.

Masterman, M. 1970, 'The nature of a paradigm', in I. Lakatos & A. Musgrave (eds), *Criticism and the growth of knowledge*, Cambridge University Press, Cambridge, pp. 59-90.

McCormack, J., Eldridge, A., Dorin, A. & Mcilwain, P. 2009, 'Generative algorithms

for making music: emergence, evolution, and ecosystems', in R. Dean (ed.), *The Oxford handbook of computer music*, Oxford University Press, Oxford, pp. 354-79.

Mephista 2004, *Entomological reflections*, Tzadik, New York, NY.

Merleau-Ponty, M. [1945] 2005, *The phenomenology of perception*, trans. C. Smith, Routledge, London.

Meyer, L. 1956, *Emotion and meaning in music*, University of Chicago Press, Chicago.

Mogini, F. 2011, 'Alternative tunings with SuperCollider', in S. Wilson, D. Cottle & N. Collins (eds), *The SuperCollider book*, MIT press, Cambridge MA, pp. 505-36.

Mori, I., Patton, M. & Zorn, J. 2004, *Hemophiliac*, Tzadik, New York, NY.

Mountain, R. 2006, 'From wire to computer: Francis Dhomont at 80', *Computer Music Journal*, vol. 30, no. 3, pp. 10-21.

Mussorgsky, M. 1918, 'Pictures at an exhibition', Music score, Breitkopf & Härtel.

Nattiez, J.-J. 1990, *Music and discourse*, trans. C. Abbate, Princeton University Press, Princeton.

Nattiez, J.-J. 2004, *The battle of Chronos and Orpheus: essays in applied semiology*, trans. J. Dunsby, Oxford University Press, Oxford.

Neufeld, J.A. 2014, 'Musical ontology: critical, not metaphysical', *Contemporary Aesthetics*, vol. 12 (2014).

Newcomb, A. 1983-4, 'Once more 'between absolute and program music': Schumann's second symphony', *19th Century Music*, vol. 7, pp. 233-50.

Newman, E. & Kalisch, A. 1908, *Richard Strauss. With a personal note by Alfred Kalisch*, John Lane: the Bodley Head, London.

Niecks, F. 1906, *Programme music in the last four centuries*, Novello, London.

Osgerby, B. 1999, 'Chewing out a rhythm on my bubble-gum', in R. Sabin (ed.), *Punk rock, so what? : the cultural legacy of punk*, Routledge, London; New York.

Ox, J. 2014, 'Analogy and conceptual blending are part of a visualization toolkit for artists and scientists: introducing the cognitive space transfer', *IEEE VIS*

2014, Paris, France.

Paddison, M. 2001, *Adorno's aesthetics of music*, Cambridge University Press, Cambridge.

Parncutt, R. 1989, *Harmony: a psychoacoustical approach*, Springer Verlag, Heidelberg.

Patteson, T. 2010, *Cosmogony in sound: Iannis Xenakis' "The legend of Er"* viewed 1st March 2016, <http://acousmata.com/post/536583109/the-legend-of-er>.

Pearce, C. 2006, 'Games AS art: The Aesthetics of Play', *Visible Language*, vol. 40, no. 1, pp. 66-89.

Penrose, R. 1981, *Picasso: his life and work*, University of California Press, Berkeley.

Pereira, F.C. & Cardoso, A. 2001, 'Knowledge integration with conceptual blending', *12th Irish Conference on Artificial Intelligence & Cognitive Science AICS 2001*.

Pereira, F.C. & Cardoso, A. 2002, 'Conceptual blending and the quest for the holy creative process', *Workshop of ECAI '02*, Lyon.

Plato 1968, *The republic*, trans. A. Bloom, Basic Books.

Potter, C. 2003, 'Debussy and nature', in S. Trezise (ed.), *The Cambridge companion to Debussy*, Cambridge University Press, Cambridge, pp. 137-52.

Richards, A. 2001, *The free fantasia and the musical picturesque*, Cambridge University Press, Cambridge; New York.

Risset, J.-C. 2003, *The perception of musical sound*, <http://web27.cc.utexas.edu/cola/insts/france-ut/_files/pdf/resources/risset.pdf>.

Risset, J.-C. & Wessel, D.L. 1999, 'Exploration of timbre by analysis and synthesis', in D. Deutsch (ed.), *The psychology of music*, Academic Press, San Diego, pp. 113-70.

Roads, C. 1996, *The computer music tutorial*, MIT Press, Cambridge MA.

Roads, C. 2004, *Microsound*, MIT Press, Cambridge MA.

Roads, C. 2012, 'From grains to forms', *Xenakis: the electroacoustic music*, ed. M. Solomos, University of Paris.

Roads, C. 2015, *Composing electronic music: a new aesthetic*, Oxford University Press, Oxford.

Roald, T. 2015, *The subject of aesthetics*, Koninklijke Brill NV, Leiden.

Rodgers, S. 2009, *Form, program and metaphor in the music of Berlioz*, Cambridge University Press, Cambridge.

Rolling jr., J.H. 2010, 'A paradigm analysis of arts-based research and implications for education', *Studies in art education: a journal of issues and research*, vol. 51, no. 2, pp. 102-14.

Rosen, C. 1971, *The classical style*, Viking Press, New York.

Rosenfeld, M. & Lewis, G. 2010, *Sour mash*, CD, Innova, St. Paul, MN.

Rowe, R. 2001, *Machine musicianship*, MIT Press, Cambridge, MA.

Saffle, M. 2002, 'The orchestral works', in B. Arnold (ed.), *The Liszt companion*, Greenwood Press, Westport CT, pp. 235-80.

Satie, E., Plato & Cousin, V. 1919, 'Socrate; drame symphonique', Music score, editions Max Eschig, Paris.

Schachter, D. 2007, 'Towards new models for the construction of interactive electroacoustic music discourse', *Organised Sound*, vol. 12, no. 1, pp. 67-8.

Schaeffer, P. 1977, *Traité des objets musicaux: essai interdisciplines*, Éditions du Seuil, Paris.

Schaeffer, P. & Henry, P. 1972, 'Symphonie pour un homme seul', Music score.

Schaeffer, P. & Henry, P. 2000, *Mix 02.1, Symphonie pour un homme seul, Le voyage*, CD, Universal Division Mercury Antony.

Scheunemann, D. 2005, *Avant-garde/Neo-avant-garde*, Rodopi, Amsterdam, <http://site.ebrary.com/id/10380136>.

Schoenberg, A. 1983, *Theory of harmony*, trans. R.E. Carter, University of California Press, Berkeley.

Schön, D. 1983, *The reflective practitioner*, Basic Books, New York.

Schön, D. 1985, *The design studio: an exploration of its traditions and potential*, Riba Publications, London.

Schönberg, A. 1950, 'The relationship to the text', in D. Newlin (ed.), *Style and idea*, Philosophical Library, New York, pp. 1-6.

Schopenhauer, A. 1958a, *The world as will and representation*, trans. E.F.J. Payne, vol. 1, Dover, New York.

Schopenhauer, A. 1958b, *The world as will and representation*, trans. E.F.J. Payne, vol. 2, Dover, New York.

Scott, J.T. 1998, 'The harmony between Rousseau's musical theory and his philosophy', *Journal of the History of Ideas*, vol. 59, no. 2, pp. 287-308.

Scrivener, S. 2011, 'Reflection on interactive art and practitioner research: establishing a frame', in E. Edmonds & L. Candy (eds), *Interacting: art, research, and the creative practitioner*, Libri, Oxfordshire, pp. 60-72.

Scrivener, S. 2015, 'The production of unprecedented events', paper presented to the *ACM Creativity and Cognitions conference*, Glasgow.

Scruton, R. 1997, *The aesthetics of music*, Oxford University Press, Oxford.

Searle, H. 1954, *The music of Liszt*, Williams and Norgate Ltd., London.

Searle, H. 1980, 'Franz Liszt', in S. Sadie (ed.), *The new Grove dictionary of music and musicians*, Macmillan, London:.

Sethares, W. 1992, 'Relating tuning and timbre', *Experimental Musical Instruments*, vol. 9, no. 10.

Shaftesbury, A.A.C.E.o. 2004, *Characteristics of men, manners, opinions and times*, vol. 1, Kessinger Publishing.

Shanes, E. 1991, *Dalí*, Parkstone Press, New York.

Shaw-Miller, S. 2002, *Visible deeds of music art and music from Wagner to Cage*, Yale University Press, New Haven, <http://site.ebrary.com/id/10217110>.

Silverthorne, D.V. 2014, 'Wagner's Gesamtkunstwerk', in T. Shephard & A. Leonard (eds), *The Routledge companion to music and visual culture*, Routledge, New York.

Slager, H. 2004, 'Preliminary workshop, art and method', in A.W. Balkema & H. Slager (eds), *Artistic Research*, vol. 18, Rodopi, Amsterdam.

Smalley, D. 1997, 'Spectromorphology: explaining sound-shapes', *Organised Sound*, vol. 2, no. 2, pp. 107-26.

Smuts, T. 1997, 'Marcel Duchamp: between art and philosophy', *South African Journal of Philosophy*, vol. 16, no. 4, p. 166.

Spitzer, M. 2004, *Metaphor and musical thought*, University of Chicago Press, Chicago.

Spitzer, M. 2006, *Music as philosophy: Adorno and Beethoven's late style*, Indiana University Press, Bloomington.

Stewart, R. 2000, 'Practice vs praxis: constructing models for practitioner-based research', *ACUADS conference*, Adelaide.

Stockhausen, K. 1969, 'Telemusik', Music score, Universal Edition, Wien.

Stockhausen, K. 2001, 'Gesang der Jünglinge: elektronische Musik: 1955-1956, Werk Nr. 8', Recording, Stockhausen-Verlag, Kürten.

Strauss, R. [1915] 1993, 'Alpensinfonie', Music score, Dover Publications, Mineola.

Strauss, R. & Nietzsche, F.W. [1896] 1979, 'Also sprach Zarathustra : tondichtung für grosses orchester : frei nach Friedr. Nietzsche = thus spake Zarathustra : tone poem for large orchestra : freely based on Friedrich Nietzsche', Music score, Dover Publications, New York.

Stump, P. 1997, *The music's all that matters: a history of progressive rock*, Quartet Books, London.

Sullivan, G. 2005, *Art practice as research: inquiry in the visual arts*, Sage Publications, London.

Taruskin, R. 2005, *Oxford history of western music*, vol. 3, Oxford University Press, Oxford.

Travis, T. & Fripp, R. 2008, *Thread*, CD, Panegyric, U.K.

Varèse, E. 1959, 'Déserts', musical score, Colfranc, New York.

Wagner, R. 1881, 'Lohengrin', musical score, Breitkopf & Härtel, Leipzig.

Wagner, R. 1892, 'Art and revolution', *Richard Wagner's prose works*, Kegan Paul, London, pp. 69-215.

Wagner, R. 1972, 'On the application of music to drama', in C. Dahlhaus (ed.), *Wagner's Aesthetics*, Edition Musica Bayreuth, Bayreuth.

Wagner, R. 1983, *Richard Wagner: my life*, trans. A. Gray, Cambridge University Press, Cambridge.

Wagner, R. 1995, 'On Franz Liszt's symphonic poems', *Judaism in music and other essays*, University of Nebraska Press, London.

Wagner, R. 1995, *Judaism in music and other essays*, trans. W.A. Ellis, University of Nebraska Press, London.

Wagner, R. [1860] 1973, 'Tristan and Isolde', Music Score, Dover Music Scores, London.

Wagner, R. [1870] 1903, *Beethoven*, trans. E. Dannreuther, William Reeves, London.

Wagner, R. & Voss, E. 1992, 'Tannhäuser und der Sängerkrieg auf Wartburg: romantische Oper in 3 Akten: WWV 70', B. Schott's Sohne, Mainz.

Walsh, S. 2007, *Stravinsky: the second exile: France and America, 1934 - 1971*, Pimlico, London.

Webb, D. 2009, 'If Adorno isn't the devil, it's because he's a jew', *Philosophy & Social Criticism*, vol. 35, no. 5, pp. 517-31.

Wellmer, A. 2007, 'Metaphysics at the moment of its fall', in S. Jarvis (ed.), *Theodor W. Adorno: critical evaluations in cultural theory*, vol. IV, London, Routledge, pp. 226-40.

Werbeck, W. 2003, 'Richard Strauss's tone poems', in M.-D. Schmid (ed.), *The Richard Strauss companion*, Praeger, Westport (Conn.), pp. 103-44.

Wicks, R. 2011, *Schopenhauer's 'the world as will and representation': a reader's guide*, Continuum, London.

Williamson, J. 1993, *Strauss: Also sprach Zarathustra*, Cambridge University Press, Cambridge.

Wishart, T. 2007, 'Sound symbols and landscapes', in S. Emmerson (ed.), *Living electronic music*, Ashgate, Hampshire, pp. 41-60.

Wobble, J. & Parker, E. 2001, *Passage to Hades*, (CD), 30 hertz Rec., G.Britain.

Xenakis, I. 1985, 'Music composition treks', in C. Roads (ed.), *Composers and the Computer*, William Kaufmann, Los Altos.

Xenakis, I. [1963] 1992, *Formalized music: thought and mathematics in music* Pendragon Press, Stuyvesant.

Xenakis, I. [1977-78] 1995, 'La légende d'eer: 8-channel electronic tape', Auvidis France.

Yardley, A. 2008, 'Piecing together—a methodological bricolage', *Forum Qualitative Sozialforschung*, vol. 9, no. 2.

Yee, J. 2010, 'Methodological innovation in practice-based design doctorates', *Journal of Research Practice*, vol. 6, no. 2, viewed 23/10/2016, <http://jrp.icaap.org/index.php/jrp/article/view/196>.

Young, J. 2015, 'Imaginary workscapes: creative practice and research through electroacoustic composition', in M. Dogantan-Dack (ed.), *Artistic practice as research in music*, Ashgate, Farnham, pp. 150-66.

Zbikowski, L. 2002, *Conceptualizing Music: Cognitive Structure, Theory, and Analysis*, Oxford University Press, New York.

Zbikowski, L. 2008, 'Metaphor and music', in R.W. Gibbs(Jr.) (ed.), *The Cambridge handbook of metaphor and thought*, Cambridge University Press, Cambridge, pp. 502-24.

Zbikowski, L. nd, 'Aspects of Meaning Construction in Music: Toward a Grammar of Music', <http://zbikowski.uchicago.edu>.

Zorn, J. & Frith, F. 2010, *Late works*, Tzadik, New York, NY.

Zorn, J., Patton, M., Dunn, T. & Baron, J. 2006, *Astronome*, Tzadik, New York.

Appendix 1: Scores

Score 1: Transforming gestures

Score 2: Meditation: On the philosophical idea of the beautiful

Score 3: Constellation theory of knowledge

Score 4: Stopping the world

Score 5: Wasp and orchid

Score 6: Fragmenting reality

Score 7: Spectrality

Score 1

Title: Meditation: On the philosophical idea of the beautiful

Score to performance

Contents

1. Thought form

2. General notes

3. The rules of transformation

4. Performance notes

5. Notation

6. Short program

For up to 9 Players / Instruments. A combination of electronic and/or traditional instruments.

1. Thought form

The title of § 45 in Kant's *Critique of Judgment* (COJ): "Beautiful art is an art to the extent that it seems at the same time to be nature" (Kant 2000, p. 185). The first sentence in that section states: "In a product of art one must be aware that it is art, and not nature; yet the purposiveness in its form must still seem to be as free from all constraint by arbitrary rules as if it were a mere product of nature" (Kant 2000, p. 185).

Cassirer on Shaftesbury: Art is not imitation of surface.....it imitates the act of producing....to immerse oneself in this process is what the genius who produces beauty does (p. 317).

The surface that we generate will be founded upon the model of a "world" (it is purposive) – the world will have its internal logic – we simulate the logic through levels that are connected to each other through some internal process and generate our "surface".

Schlegel: all the sacred games of art are only remote imitation of the infinite play of the world, the eternally self-creating work of art. P. 372 Aesthetics.

The piece will mimic the piece of literature that has a history written about each character – a whole lineage that can be consulted when one adds a new sentence (or surface) to the piece.

1) The musical "surface" is informed by depth. The word "depth" designates here a series of levels that are analogous to evolutionary motion.

2) A surface has a "purposiveness" but no actual purpose. In nature "purpose" exists on every level. In art "purposiveness" is the form that has a (seeming) freedom from

arbitrary rules. The artist plays the role of creator and builds a logical structure into the artworks.

The artwork is free from arbitrary rules but it is bound to its own internal logic. To be "bound" here is not to be forced - instead the signification is one of moving freely amongst a coherent logic. For the purposes of this piece we will say that an internal logic exists within the artworks field of play, and the artist's gesture moves within this field. (The artwork is free of arbitrary rules but bound by an internal logic. The artwork moves within this internal logic in a lyrical mode.)

"For we can generally say, whether it is the beauty of nature or of art that is at issue: *that is beautiful which pleases in the mere judging* (neither in sensation nor through a concept)."

A "beautiful" work must be something that has a meaning that we cannot read off reductively: it must have a depth which appears as a surface resonance. The artist plays at creator - the parts must organically arise from a coherent structure that is objectively related to the work itself.

The concept "beauty" shall signify here: that hidden component that speaks through the surface (as one perceives it) and imparts a structure that is not reducible to sensual enjoyment or satisfaction of worldly desire. Metaphorically: the Central Theme.

It was Kant who first drew attention to the importance of "purposiveness without a purpose" a position which can still shed light on our manner of working. In *The Critique of Judgment* §46 he notes: "(I)n a product of art one must be aware that it is art, and not nature; yet the purposiveness in its form must still seem to be as free from all constraint by arbitrary rules as if it were a mere product of nature" (Kant & Guyer 2000, p. 185). For our position this quote hits the mark - the ideal of an artwork in which there is a depth of structure, a "purposiveness", which is however entirely

divorced from the natural world. The artwork as alternate reality that can simulate or inhabit a space that seems to have the complexity and depth that a "natural" reality contains. This "ideal" of art is posited here as the rationale for the C theme.

Artifact OB seeks to create a surface resonance that is based upon a complex - perhaps esoteric - structure. This will be in keeping with a kind of evaluation that will recognize in the simplest gesture a content that makes of that gesture something of *meaning*. As an example of this let us imagine a book or a movie - when a book has been researched in such a manner that every word, every sketching-in, every description, partakes in an exhaustive knowledge of the terrain then some few words will be adequate to bring that terrain before the reader's eye. Whether that terrain is real or imagined, physical or psychical, a landscape or a soul, it is the depth of understanding that allows the surface of the artwork to resonate beyond the gesture itself.

Does the work allow us to enter into a new space and is it presented to us in a way that our cognitive faculties are engaged with the same dimensionality as if we were engaging with a "reality"? Think in this context of Tolkein's *Lord of the Rings* or Beethoven's symphonies in which a world is given to us not merely as what is presented but also in the research that acts upon what is presented in order that it have a weight of connections that underlie it coherently and at depth. Each artwork is an attempt to create a world - the artist takes as a model the phenomena of nature and attempts to create an alternate version. Certainly the world as a phenomenon is dynamically interactive - a "symphony" of sorts - and it is this symphony that we will take as a blueprint for creating the artworks.

2. General notes

- The work involves from 4-10 musical levels. Each level is a discrete piece. All the levels are based around the *Central Theme* (hereafter C theme). The C theme is notated in figure A0.

- The C theme is divided into section 1 (bars 1-16) and section 2 (bars 21-36). The bars 17-20 are the transition.

- Ensemble: each player in the ensemble chooses a level (depending upon the amount of levels [4-10]). A "level" is defined as a response to the C theme in either the first or second section. It is admissible to create a musical response to another level (with or without reference to the C theme).

- Individual: work on the levels in order.

- The player(s) shall discuss (reactivate) the *thought form* (section 1 of score) and the ideas contained therein at a rehearsal or through a dialog.

3. Rules of transformation

1) Each player receives a "level" of the work. The "Central theme" is harmonized by each player according to their desires. The C theme cannot appear in recognizable form on any level except for the last.

2) The musical response can take any form. It can be improvised or notated. It can involve one of the players or all. The response can focus on any plane of the sonic structure: intervallic, spectral, rhythmic (in any combination or juxtaposition).

3) Some levels should refer to the first section of the C theme (bars 1-16) and some levels should refer to the second section (bars 20-36). The balance is decided by the player or players.

4) No level except the last level makes use of the C theme directly.

5) The player responsible for a level can enlist other players to accompany them (in performance). Rhythmic accompaniment for each level is advisable as a means of integrating the different levels.

6) The last level is a musical performance in which all the levels are utilized. The ensemble or programmer must create a soundscape that makes use of the other levels in a way that satisfies the entire group.

7) The player(s) may break any rule if it is deemed necessary to do so.

4. Performance notes

- **The performance will include all the levels and the last level. In the last level all performers or instruments sound. Standard levels duration: 1-5 minutes. Last level duration: 8-10 minutes.**

- **The *poetic* text is the program to a performance (printed / projected / visualized creatively / spoken). The player(s) may modify or change it in any way they see fit.**

- **Suggested minimum instrumentation for ensemble: 1 bass instrument, 1 percussion or rhythm instrument and any combination of other electronic or traditional instruments.**

5. Notation of central theme

Figure A Central Theme

6. Short program

A series of forms – each with a surface inscribed from underneath.

Rising globes gather upon the surface – a structure begins to take shape. Like an echo of a hidden light.

Guide the hand that works upon the water – deep blue or azure haze. Slowly an outline twisting and moving. Formed and crafted by the silver links – now hidden from the eye, now an intuition.

Score 2

Title: Constellation theory of knowledge

Score to performance

Contents
1. **Thought form.**
2. **Notated score**
3. **Performance notes**
4. **Program text.**

1. Thought form

Proust's description of "love" is one in which many different aspects observed or imagined by the author are allowed to exist side by side. There is no definition of "love" per se, only a constellation of moments (Bowie 2013, p. 70).

Adorno writes:

By themselves, constellations represent from without what the concept has cut away within: the "more" which the concept is equally desirous and incapable of being. By gathering around the object of cognition, the concepts potentially determine the object's interior. They attain, in thinking, what was necessarily excised from thinking (Adorno 1966, p. 160).

The notion of the constellation is in the present context one that defines itself against the "system". Systematic thought is taken to be that which creates a surface which partakes in an illusion of completeness. A system must fragment and fall apart before it can reveal its truth content (Adorno G. & Tiedemann 1997). The restructuring of the fragments points to the importance of some of the ideas and thought processes that were embedded within the system. *System, fragmentation, re-organization as constellation.* The constellation is arrayed around an object of cognition but it does not emerge purely from observation - the constellation emerges also from the debris of earlier philosophies.

Proust writes:

A pair of wings, a different respiratory system, which enabled us to travel through space, would in no way help us, for, if we visited Mars or Venus while keeping the same senses, they would clothe everything we could see in the same aspect as the things of Earth. The only true voyage, the only bath in the Fountain of Youth, would

be not to visit strange lands but to possess other eyes, to behold the universe through the eyes of another, of a hundred others, to behold the hundred universes that each of them beholds, that each of them is; and this we can do with an Elstir, with a Vinteuil; with men like these we do really fly from star to star (Proust 1993, p. 343).

References:

Adorno, T. *Negative dialectics.* Frankfurt: Verlag, 1966.

Adorno, G. & Tiedemann, R. "Editor's afterword" to Theodor W. Adorno, *Aesthetic theory,* ed. Gretel Adorno and Rolf Tiedemann, trans. Robert Hullot- Kentor, Minneapolis: University of Minnesota Press, 1997.

Bowie, A. *Adorno and the ends of philosophy.* Cambridge: Polity, 2013.

Proust, M. *In search of lost time v. 5: the captive.* New York: Random House, 1993.

2. Notated score

3. Performance notes

The notation represents a level within the work. It will be de-structured and restructured, used and abused, according to the dictates of the metaphorical structures, the algorithmic processes and the improvisational whims of the artist.

Input the notated score into a DAW for manipulation. An improvised guitar line appears in all three parts. Guitar improvisation can begin any time after bar 16. Kick drum patterns are the basic structure. The "shaping process" is governed by the metaphors of "system, fragmentation, constellation". The basic schematic for the splitting of the notated chords and subsequent re-assembling is contained below.

Each synthesizer part requires a different synthesizer tone / sampler. Thus notated score 1 = prepared piano sample. Notated score 2 = electronic keys. Notated score 3 = Ambient pad. There are no restrictions on sound substitution.

Notation of guitar and kick drum are shown in notated score 1 only. Continue the pattern established there into notated scores 2 and 3.

Notated score 1: play the first 8 bars three times through. Play bars 17 to 60 three times through.

Notated score 2: play through 2 times. The envelope can be shortened in the synthesizer / sampler. Each chord can be "mirrored" so as to appear once per bar or it can be left as notated.

Notated score 3: play through 3 times. A further algorithm can be used here that takes the chord input and outputs harmonics 6-10. Harmonics are played as notated in terms of metric timing.

The notated score is to be reorganized through the shaping process detailed in schematic 1. The "basic process" is detailed in the schematic. For actual performance various permutations of the delay structure can be utilized. Interpolation between "shapes" generated by the delay is advisable. The kick drum is the anchor around which the generated shapes are organized.

Schematic 1:

Chord splitter

Input: Chords → Toggle: ON / OFF → Delay 1, Toggle: ON / OFF → Delay 2, Toggle: ON / OFF → Delay 3, Toggle: ON / OFF → Delay 4 → Output: new distribution of notes
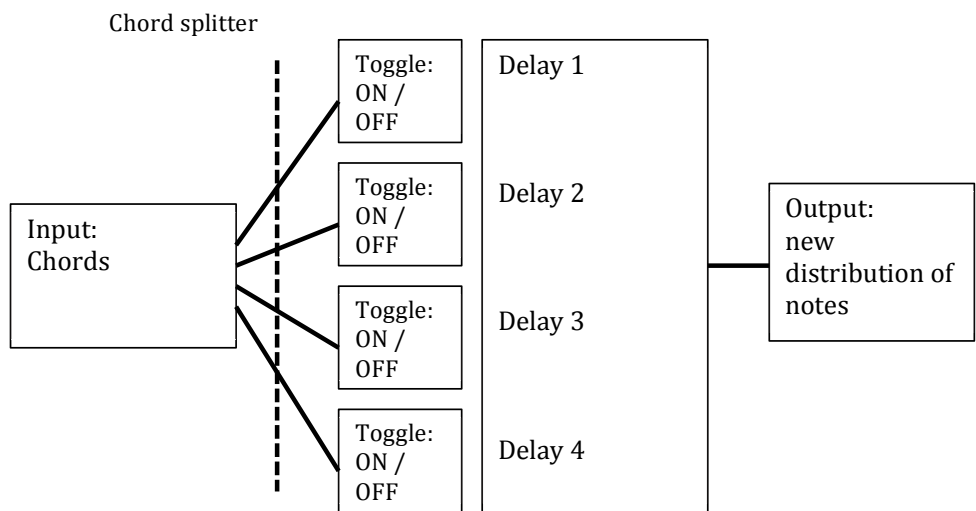
Delays do not include the original sound. Only the delayed sound is utilized. Up to 10 seconds of delay (10000 ms) can be utilized. The "toggle" indicates a way in which individual lines can be muted. The delays can all be set to different values, a series of delays (up to 16) can be used to create different shapes and forms.

4. Short program

The whole crumbles, and falls into ruin.

Emerge from the dusk...

Half-light; structure; illumination.

Particles whipped up to fall again.

Distance now articulated.

Score 3

Title: Transforming gestures

Score

Contents

1. Thought form

The short program narrative of this artifact speaks of a world in which change is accomplished by song. It speaks also of transformation as a conflict of different "songs". "Song" is defined in this first narrative as a mythical refrain. The "world" is defined as a structure that has music as its DNA. Questions posed by this narrative: "how does change occur in this imaginary world, and how can one go beyond fated destinies?"

To enter into our text I will offer an interpretation of a piece of literature. It is a narrative told in the form of a myth: *The Silmarillion*. *The Silmarillion* by J.R.R Tolkein offers, in part, a myth of creation that has music as a central component. The story concerns the music of the Ainur - the gods before Arda (the earth of middle earth) - the gods of the void. These gods are instructed in the ways of music by the One, the creator of all other gods: Eru. His instruction concerns the creation of a celestial music within which the Gods will play a role (each will contribute a voice or part). In order to put this celestial music into practice each God must master a different element.

In the beginning each God sang alone in a faltering and experimental way while the others listened. They then made further singular attempts or joined in together: "As they listened they came to a deeper understanding, and increased in unison and harmony" (Tolkien 1987, p. 15). Eru (Iluvatar) then intervened in this process. He expounded a great theme that the Gods would sing together. At this stage Eru does not reveal anything besides the wondrous theme itself but its obvious beauty and power is sufficient to make the Ainur bow their heads in regard. The individual gods will be free to adorn the grand theme with their own "thoughts and devices" (if that is their wish) (Tolkien 1987, p. 15). Thus the great theme is, at its inception, an unfinished symphony that will require some input by the participants. Chance and individual expression will play a role within its unfolding. In exactly what manner

the theme will become actualized, and the final form it will take, are hidden from the participants.

It is well known that the theme of the gods in Tolkein's myth is destined to be more than a mere theme. It will be firstly a music and it will then be given form within the "void" as a planet. This planet will of course contain all the deviations and adornments of the individual gods as well as the grand theme of Eru. Born from a free expression of a grand theme the world will contain within its heart the many voices and textures of the harmonizing Gods. Perhaps some of the history of this world would be penciled in for (or understood by) the individual Gods - yet within this history, born of the God's voices, there will also be shadows and unknowable areas. As in the expression of the original theme so in the physical world itself. Contained within the world different life-forms will arise - the meanings of which are hidden from the lesser Gods by Eru.

The original song is only a "foreshadowing" of the history of Arda it must still be "achieved" (p. 22). Yet the original song is also felt as "fate" to all the inhabitants of Arda with the exception of man (p. 41). It is also written that "...in every age there come forth things that are new and have no foretelling, for they do not proceed from the past" (Tolkien 1987, p. 18). We can see that there is some oscillation in regards to how history will unfold and whether all is determined by the ur-song.

Let us posit that the grand theme of the Gods unfolds as the history of Arda in a manner which is not wholly determined. "Not wholly" here signifies that we are in an area that is open to interpretation, and also that we are in a potentially conflicted space.

Earlier we observed that the Gods had some leeway in the singing of the different voices and harmonies of the celestial music. Each God was free to adorn the music and extrapolate from the master plan. Let us imagine that this leeway also exists in

relation to the inhabitants of Arda. Just as the grand theme was adorned by the expression of the lesser gods, it is also the case that the unfolding of the history of matter - within which the grand theme is locked and which it is the physical expression - can be adorned also by those beings that inhabit that world.

This point is illustrated in a passage from Chapter 19 *Of Beren and Luthien* in which Felagund a king of the Noldor strives with Sauron in song (Tolkien 1987, p. 171). This song takes the form of a battle, a battle to reveal or conceal Felagund's group from Sauron as they attempt to pass through his domain. On Sauron's side is the song of "piercing, opening, of treachery, revealing, uncovering, betraying" and on Felagund's side we have a song of resistance and "battling against power". In Tolkein's words Felagund's song is one of, "resisting, battling against power, of secrets kept…..of snares eluded, broken traps, the prison opening, the chain that snaps" (p. 171). We can see in the language of this conflict the power that is accorded to song in Arda - such songs are like spells which can re-orient destinies. We might perceive these conflicting songs as representing an attempt to force change into the musical DNA of Arda. A world that has at its basis a musical theme is, in its temporal unfolding, open to a re-alignment from within - a re-playing or re-singing of fated paths. To reorient the grand theme of Arda one must make use of the harmony of matter - but such uses encounter resistance.

The music of Felagund is described as stretching out and touching the natural world. It is written that his song allows one to hear the birds singing afar in Nargothrond, to hear the sea sighing upon distant shores (p. 171). A song within which one hears a distant and resonant nature - or at least attunes a listener's ears to hear such - this is Felagund's power. It is the power of the song that attunes itself to harmony and peace.

In this case however Sauron's song runs along a theme that searches out and reveals a chink in the armor of Felagund's people (the Noldor). Bearing witness to a keen sight

Sauron's song reveals a tiny imperfection that undermines Felagund's song. The treachery of the Noldor in the slaying of their own kind (an earlier incident in which the Noldor stole ships to come across the sea from Valinor) is revealed by Sauron. With this revelation Sauron turns the game to his own advantage and Felagund is unmasked.

Sauron's song is, naturally, aesthetically different to Felagund's - it also excites different effects in the listener. Sauron's music emphasizes the "wailing" wind and the muttering of prisoners in their dungeons (p. 171).

Felagund calls upon the theme of purity and nobility but is betrayed by past deeds. One imagines that if Felagund were successful in his song of concealment he could have - figuratively speaking - taken a thread from the crystallized music of the Ainur and changed its harmony or rhythm in a manner that opened one path while closing another. Felagund would in such a case elude Sauron and slide invisibly past with his people.

The music of the Ainur is actualized as a world that Elves and men inhabit. Above we have suggested that this actualization is still open to re-alignment: it can be re-formed or re-sung. Tolkein seems to suggest in another passage that this is not possible for any but men. When speaking of the coming of men into Arda (arriving later than the Elves) he writes of Eru's labour:

Therefore he willed that the hearts of Men should seek beyond the world and should find no rest therein; but they should have a virtue to shape their life, amid the powers and chances of the world, beyond the Music of the Ainur, which is as fate to all things else... (Tolkien 1987, p. 41).

Looking at this passage it is clear that only Men (humanity) can reorient the music of the Ainur. However there are a couple of elements that contradict this position.

424

Firstly, the Elves are in a relationship with men and in this relationship they are surely part of the destiny and shaping of Arda. Secondly, there is the case of Morgoth (also called Melkor).[16] Melkor is one of the original singers of the grand theme. He sees many things of the future of Arda and his dissonant song at the beginning of days sought to destroy the harmony and unison of the whole. He covets the true physical realm of Arda and wishes to make it his own (Tolkien 1987, pp. 21-22). This coveting seems to suggest that Arda is not so fatefully locked down as previously quoted. Indeed we are told:

For the great music had been but the growth and flowering of thought in the Timeless Halls, and the vision only a foreshowing; but now they had entered in at the beginning of Time, and the Valar perceived that the World had been but foreshadowed and foresung, and they must achieve it (Tolkien 1987, p. 22).

The "great music" seems to be a kind of "vision" which slowly evolves into a more concrete form. The "achieving" of history will involve conflict just as the grand theme involved conflict. The music of the Ainur is fate and yet it must be "achieved" - this tension speaks to a world that is both a structured symphony and something that can be dwelt within and mastered. The grand theme never ceases to unfold - yet within this unfolding new counter-themes can reorient the symphony of matter as history.

We might get an insight into how this "achieving" might be accomplished, and how new themes and directions - new balances of power and mastery - might be grabbed from within Arda's history, by returning to the original singing of the grand theme itself. Tolkein writes:

---

[16] It is worth noting that Tolkein probably exempted the Gods from the locked down fate of Arda as we have described it above. The case of Melkor as one of the original singers perhaps gives him access to the same kind of freedom as men.

(Melkor) had begun to conceive thoughts of his own unlike those of his brethren.... Some of these thoughts he now wove into his music, and straight-way discord arose about him, and many that sang nigh him grew despondent, and their thought was disturbed and their music faltered; but some began to attune their music to his rather than to the thought which they had at first (Tolkien 1987, p. 16).

2. Short program

Within a world's DNA there existed a sequence of numbers that were the mark left by the original creative Gods. These Gods had played a game of divine music in which a world was born. The inhabitants of this world were sequenced with the numbers of the divine music and in their own creative efforts they concentrated upon revealing and arranging this harmony that remained like a faint echo within their hearts and the world at large. This game of music became an important part of the culture and social system. Battles were fought within the heart of the great artists, and music was a structure that could create a nexus of power and took the form of both key and chain. Some thought that the secrets of the divine song could change the destiny of the world itself - others maintained that a destiny of fate had been sealed into the very matter of the world.

Music is a structure that can de-synchronize the mind from the world - a place can be entered that is like a dream. Yet the dream in which the body is immobile and the soul has left it to move in other orbits must be maintained by thought. The regime of the everyday is like a chain - the chain must be questioned and the closures must be circled - circled and critically disassembled. The entry of others into the vehicle of music, the religious seduction, is unmasked - the internal mechanisms are exposed to the air and the form of the vehicle is stripped back to a glimmering steel husk.

Score 4

Title: Stopping the world

Score

Contents

1. **Thought form.**
2. **Program text.**
3. **Notated score**

1. Thought form

The program narrative for the artifact 1.1 *Stopping the world* finishes with the phrase, "bracket colonization". This makes clear a zero point for our analysis - we are looking at the space of the self within a broader context. It is obviously not a physical "colonization" that is referenced here.

The title itself is also a telling indicator: "stopping the world". This phrase comes from C. Castaneda's novel *Journey to Ixtlan* (1972). Deleuze and Guattari quote from this work in their book *A thousand plateaus*. They describe what it is to "stop the world" in terms of a psychology of self: stopping the world is the search for a "pre-signifying semiotic" (Deleuze & Guattari 1987). This search is to be understood as a kind of mystical use of philosophy - or even a practical use of philosophy. It is a search that implies a de-constructing or - perhaps more accurately - a bracketing of our everyday world and the interpretative mechanisms that order it. "Bracketing" is an activity within E. Husserl's phenomenology known as the "epoché". Husserl was the originator of the epoché an activity that became very important for other "phenomenologies" (cite). When we talk of "stopping the world" we are, in this text, also referencing the epoché

Deleuze and Guattari write concerning "stopping the world":

One of the things of profound interest in Castaneda's books, under the influence of drugs, or other things, and of a change of atmosphere, is precisely that they show how the Indian manages to combat the mechanisms of interpretation and instill in the disciple a presignifying semiotic, or even an asignifying diagram: Stop! You're making me tired! Experiment, don't signify and interpret! Find your own places, territorialities, deterritorializations, regime, lines of flight! Semiotize yourself instead of rooting around in your prefab childhood and Western semiology (Deleuze & Guattari 1987, pp. 138-9).

One can perceive straight away that "stopping the world" is to be understood as movement into a new field or "territoriality" and away from the pressing down of a constructed system (or systems). A change of atmosphere is the leaping off of the track that has been laid down and the finding of some "external" line of flight. But what can such "externality" amount to? Is not everything external always already defined? In short how does one "combat the mechanisms of interpretation"?

In the introduction to *Journey to Ixtlan* (1972) Castaneda describes what stopping the world is:

"Stopping the world" was indeed an appropriate rendition of certain states of awareness in which the reality of everyday life is altered because the flow of interpretation, which ordinarily runs uninterruptedly, has been stopped by a set of circumstances alien to that flow.....one had to learn the new description in a total sense, for the purpose of pitting it against the old one, and in that way break the dogmatic certainty, which we all share, that the validity of our perceptions, or our reality of the world, is not to be questioned (Castaneda 1973, p. 13).

So we can see this activity that Castaneda describes is a kind of battle between one interpretation and another. Truly we see also that it is precisely an "activity" in which one must immerse oneself for long periods before the older descriptive form can be overcome. The mechanisms that Castaneda reveals are connected to various kinds of sorcery that will allow the initiate to escape from the everyday world and into one that is not a perceptual construct of this "natural" or everyday world. The words "dogmatic certainty" are important here - they hint at another dimension to the equation. The certainty of our "eye" extends into the realm of making our world and not just the perceiving of it: it is a constructive eye not just a passive one.

E. Husserl's philosophy is a mixture of writing and activity, and it is the active component that makes it a philosophy that is radical. The "Activity" referred to here is the activity of "bracketing" or, said another way, the epoché. It is this that makes Husserlian phenomenology interesting in the present context. The active element of Husserl's philosophy makes it take a slightly different path than purely theoretical works. The activity of the epoché requires the philosopher to take steps into a way of being that is outside of theory - one must actually take part in the epoché as a living process. The outcomes of this activity are, in one respect, the overcoming of prejudice and historical sediment:

All things one takes for granted are traditional sediment of history a sediment which make our judgments suspect and prone to prejudice......Yet the task of philosophy must be to liberate oneself from this sediment so that one can be an autonomous thinker. Not just incidentally but actually as the task of philosophy itself (Husserl [1936] 1970, p. 72).

Hanna points to the manner in which Husserl's philosophy is tied into a tradition of mysticism that seeks an "intellectual seeing" that is not discursive knowledge (p. 43). The manner in which one can get beyond the many "references" that are entangled with the process of actually "seeing" the things themselves. This was of course Husserl's idea to "get back to the things themselves" (Husserl [1901] 2001). Phenomenology is a kind of praxis that allowed one to bracket the everyday interpretation and reflective practices that make up our connection to the world. One can see how useful this idea could be for many disciplines, disciplines that require an observer who has not been sullied by pre-conceptions. For example in the disciplines of Clinical Psychology and Psychiatry

The Phenomenological reduction emerges as the researcher's attempt to bracket off from awareness those knowledges - linguistic, cultural, historical, scientific, or ideological - which may prejudice or incorrectly inform their observations of the

phenomenon being described (Giorgi, 1970; Husserl, 1913/1972). This reduction, or bracketing, languaged phenomenologically as the epoché, is most specifically focused as an attempt to disconnect from the natural scientific attitude (ibid.) (Bradfield 2007, p. 1).

With this we can see clearly that what is at stake is a knowing or empathy with other minds and with our own that is not reduced to a simple formula. "Ambiguity and ambivalence" are important elements of our getting to the "things themselves" (Bradfield 2007, p.1).

For our purposes the epoché is strongly connected to the musical component of the present work. The epoché is an element within the compositional process. The compositional process is connected to ideas that change with each work - each piece utilizes different philosophical ideas and philosophical working modes. The epoché is crucial for a practice that seeks to work in a space "free" from the incursion of historical sediment.

2. Short program

Like lines that wither leaving crystalline structure: pushing into a new space. Stopping the world. Bracket colonization. The mind's breath fixed within its realm is released into another flow. The fixation and affirmation of a time and place. Beyond. No returning gesture....The wall that appears / the wall that cannot be breached / the wall that sets up its deadly resonance. Beyond the wall. The voices that now speak a different language - a guttural chanting.

Filter down chords…add bassline

Guitar improvisation…begin

bassline uses rootnotes of chords.

Guitar improv continue...

Score 5

Title: Wasp and orchid

artifact components

Contents

1. **Thought form.**
2. **Short program**

1. Thought form

In the present context the idea that formed the basis of the expression was very simple. A desire to capture a kind of diagram derived from the philosophical idea "wasp and orchid". In order to make sense of this "musical diagram" we must first give a brief description of what the philosophical idea means. We are not providing a complete analysis of the philosophical ideas here. We are looking for an entry point that allows a thought form to be articulated. To introduce the idea let us quote briefly from Deleuze and Guattari:

The wasp is de-territorialized, becoming a piece in the orchid's reproductive apparatus. But it re-territorializes the orchid by transporting its pollen (Deleuze & Guattari 1987, p. 10).

This quote highlights the symbiotic relationship existing between the wasp and the orchid. The relationship is defined in terms of "territories" that are ostensibly in flux. As part of this relationship we can add that the orchid can be seen to "imitate" the look of a female wasp in order to attract the male wasp. The authors address the question of whether we are talking here of "imitation" on the part of the orchid: "…something else is going on: not imitation at all but a capture of code, surplus value of code, an increase in valence, a veritable becoming, becoming-wasp of the orchid and a becoming-orchid of the wasp" (p. 10).

The words "de-territorialized" and "re-territorialized", part of our original quote above, need to be unpacked. These words are part of a descriptive model within which the two discrete "objects" (the wasp and the orchid) are described in terms of a primary and evolving connection in which "territories" are not fixed and well defined. Fred J. Evans provides a description of this evolving connection, noting that on one level the wasp is "becoming a liberated piece of the orchids reproductive system" (Evans 2008, p. 49). This description is enhanced by Buchanan who notes that the

wasp and orchid form a "block of becoming" that traverses territories (Buchanan 2008, p. 179).

We take from this that the Wasp and Orchid metaphor relates to the construction of evolving networks, networks that can be located in inter-subjective relations and in cultural transmissions.

 "Whenever there is transcoding, we can be sure there is not a simple addition, but the constitution of a new plane, as of a surplus value. A melodic or rhythmic plane, surplus value of passage or bridging" (Deleuze & Guattari cited in Houle & Vernon 2013, p. 58).

The joining of dissonant structures - searching for points of contact which allow smooth integration of dissonant elements. The word "dissonant" then becomes ambiguous - the smoothing over of the roughness of dissonance.

2. Short program

Restratify – groupings around a network

Seeking out code and points of contact

Connective use values

Reforming reformulating

Within structure a new vision

Seek concretion

Score 6

Title: Fragmenting reality

Score

Contents

1. Thought form

Guy Debord noted in his film Critique of Separation that we are living in a world marked by its banality. He notes: "...only a few encounters were like signals emanating from a more intense life, a life that has not really been found" ([1961] 2003). He points out the separation of our lives from these lived intensities. The separation takes place via the "spectacle". We give away our energy (our intensities) to the "spectacle" and the virtual.

The writer's position is one that seeks various modes of operation that can energize being and reclaim a life that we have somehow lost. The creative urge is not a pure expression it is an attempt to create a space within which one can live and breathe. The making of a film is the insertion of one's energy into the virtual space, the staking of a claim.

The living within our functional space - that is a world in which we are in reality "dissatisfied". The cinema that we consume offers us a "false coherence" a unity that we join with or that we identify with. We no longer take part in an "adventure" we now take part in that "sham" of history that the cinema transmits to us.

Thus Debord's gesture is one in which we see a taking in hand of the transmission of information. Philosophy is about more than representing some state of affairs or an idea. It is that which one utilizes in order to create a meaningful transmission of information. Where before we have only an empty sign given to us from "far away" we now make the sign conform to a present reality within which we are placed.

The core of our system is one in which the power relations divide one from the intensities of lived reality - the consumption of reality is connected to a giving up of actual experience. This is a position that leads us to become creative, to push ourselves into the realm of taking control. For we are living in a way that is "out of our control".

The temporal aspect of the music provides us with a philosophical interpretation that is also temporal. The philosophy moves and shifts like a stream of becoming, the concepts changing their meaning in relation to changing contexts.

2. Short program

The past appears to join these moments

and it is this element

that was cast aside

that now provides the deepest meaning.

Score 7

Title: Spectrality

Artifact components

Contents

1. **Thought form.**
2. **Short program**

1. Thought form

Abraham and Torok's work on "trans-generational communication" looks at the manner in which a "phantom" can emerge from the past and speak through the body of the living. Davis (2005) describes the "undisclosed traumas" of an ancestor that disturb the lives of the descendants.

The Derridean "specter" is a form of life that speaks from the future. A "voice" that attempts to form itself around that which has not happened.

2. Short program

A form that re-organizes itself – moving swiftly

Flowing: a hidden stream

Appearing briefly in sunlight

Ripples,waves,circles;

The form of…

Hardened like stone with internal distant shore.

Appendix 2: Interview questions

This section transcribes the slides used in the artist interviews. The text is exactly as represented to the participants.

- Listen to the two short passages
- Passage a: WAV: GB_1-8
- Passage b: WAV: GB_64

Question 1: Which is more aesthetically pleasing?

A   B   Neither

Different response:

Question 2: Which passage represents the concept "complex" better?

A   B   Neither

Different response:

Look at this picture:
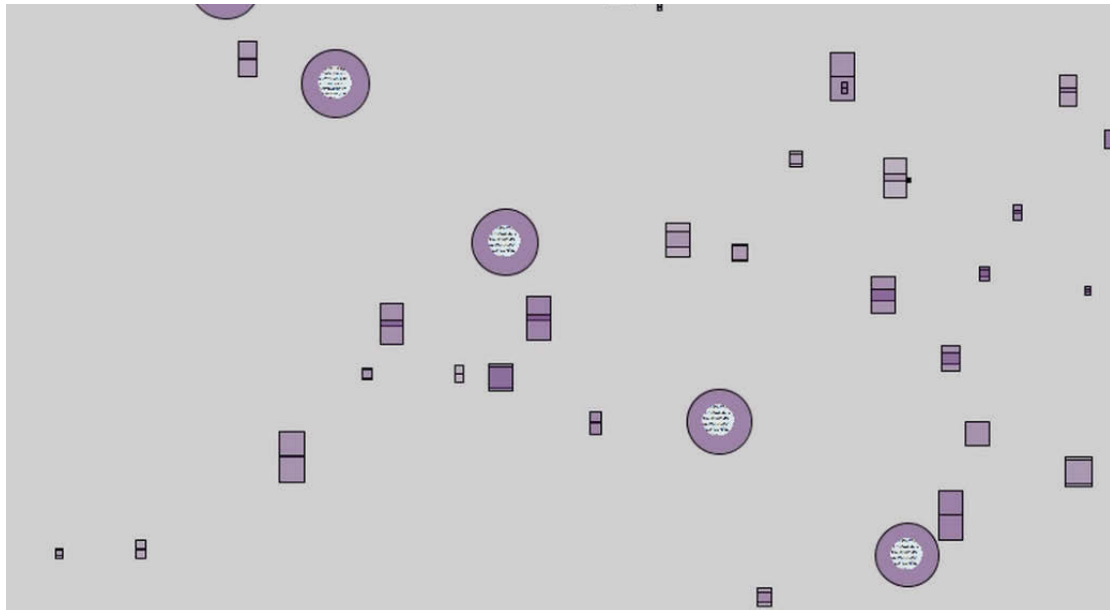
- Listen to two short passages
- Passage a: WAV GB_32-40
- Passage b: WAV Spec_1-8
-

Question 3: Which passage relates better to the picture in your opinion?

A   B   Neither
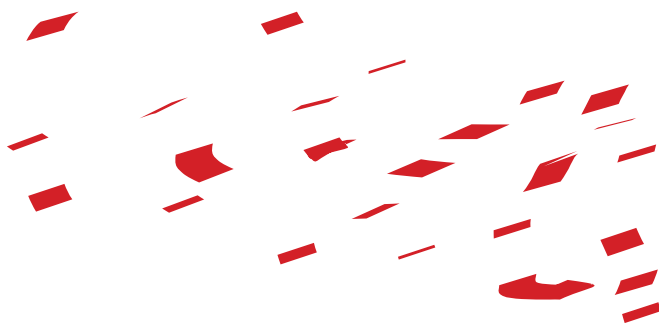

Different response:

- Listen to the two short passages
- Passage a: WAV L4_116-120
- Passage b: WAV SC_8-16
-

IllustrationA

IllustrationB

Question 4: Which picture belongs with which passage?

Question 5: Which passage represents the concept "fragment" better?

Question 6: Which passage represents the concept "whole" better?

- Listen to two chords
- Chord A: WAV_ChordA
- Chord B: WAV_ChordB
-

Question 7: Which chord is more aesthetically pleasing?

A   B   Neither

Different response:

Question 8: Which chord represents the concept "controlled" more?

A   B   Neither

Different response:

- Listen to two short passages.
- Passage a: WAV_WO
- Passage b: WAV_WO2
-

Question 9: Which passage better represents the concept "motion" in your opinion?

A   B   Neither

Different response:

Question 10: Do you think visual, auditory, philosophical or conceptual metaphors play a role in your creative work? Put another way: do you map music onto painting or text into music?

Question 11: If Yes: Is it largely tacit or can you bring an example to mind?

Appendix 3: Publications

Interactive Art, Autonomy and Evaluation

Scott L. Simon

Abstract   This chapter looks at interactivity and interactive art systems in relation to traditional aesthetic categories and artistic practice. Central to the chapter is an analysis of the tension between the autonomous artist and the interactive artist. Interactive art is theorized as belonging to a kind of practice which seeks to transcend, or at least refine, traditional categories such as autonomy. The author posits that the evaluation of interactive artworks must recognize the complex manner in which these artworks relate to the traditional social categories of art practice.

S.L.Simon

Creativity & Cognition Studios, School of Software, Faculty of Engineering and IT

University of Technology, Sydney.

Performance: *Constellation Theory of Knowledge*
Electronic Music and Philosophical Metaphor

Scott L. Simon
CCS / University of
Technology,
Sydney, Australia
scott.simon@uts.edu.au

ABSTRACT
This short paper describes a performance in the Artworks section of the Creativity and Cognitions conference 2015. The artwork makes use of the author's research into creating a dialog between the fields of music and philosophy. Specifically the artwork is a multimedia piece that structures a philosophical text as a metaphor realized as electronic musical shape and process. The piece is entitled: *Constellation theory of knowledge*. Utilizing the philosophical concept of the "constellation" (an idea that Theodor Adorno and Walter Benjamin both made use of) the work seeks to first describe the idea and then articulate it in metaphorical form. This process is an extension of earlier modes of composition that utilized ideas in music via symbolic abstraction. R. Strauss and R. Wagner both made use of this form – the procedure has not been developed further and offers interesting possibilities in terms of orienting motion processes within electronic music.

Author Keywords
Philosophy; Electro-Acoustic Music; Performance; Multi-Media Artwork.

Music and Philosophy as Transforming Gesture: Compositions for Guitar, Electronic Synthesis and Text.

Scott Simon
Creativity and Cognition
Studios, Faculty of Engineering
and IT, University of
Technology, Sydney.
scott.l.simon@student.uts.
edu.au

ABSTRACT

This thesis is concerned with the creation of unique artifacts and an analysis of the processes involved. The artifacts are built upon a three tiered model. The first level is a music composition with a title. The second level is a short program (about one page or less) that offers a poetic interpretation of the title. The third level is a more in-depth analysis of some philosophical or theoretical elements that are suggested by the title and program. These three levels make up each object. The musical compositions will consist of electronic synthesis and improvised guitar.

AUTHOR KEYWORDS

Music and Philosophy, Improvisation, Guitar, Fusion.

THESIS

PhD Research at CCS in Sydney (UTS). Main supervisor: Ernest Edmonds. Co-supervisor: Sam Ferguson.

PhD student: Scott Simon

The project is located within the fields of music and philosophy (cross-disciplinary). It seeks to create complex artifacts that utilize elements from these two fields.

The thesis is split into 4 main components or artifacts. Each of these main components will have 3 or 4 variations or movements attached to it. The first main component consisting of musical composition, program text, and extended text will be titled *Transforming Gestures (1)*. The 3 movements of this - each with the same structure as the main piece - will be titled *Stopping the World (1.1), The Dialectical Gesture (1.2),* and *Fragmenting Reality (1.3)*. The second main piece is entitled *Eros (2)*. The third main piece is entitled *Expressions of the Absolute (3)*. The fourth main piece is entitled *Affective Nature (4)*.

Each piece will be created using a three tiered model: musical composition, short program text and longer expanded text. This mode of working puts the work into a cross-disciplinary field, between music and philosophy.

The work is indebted to various artists and musicians even while doing things in a unique mode. Some music that made use of philosophy and text as a creative component is represented historically by the "tone-poem". Franz Liszt and Richard Strauss were exponents of this type of music. Strauss's 1896 work *Also Sprach Zarathustra* [4] is a tone poem that makes use of a philosopical text in conjunction with an instrumental composition for orchestra.

An Avant-Garde artist who has worked in the field of complex objects is Marcel Duchamp. His work is also of a cross-disciplinary nature and has some analogous qualities to the present project even while being in a different medium. His *Large Glass* of 1915-24 [1] makes use of a painted glass in connection with a box of notes, diagrams and philosophies. Duchamp sought with this box (*The Green Box*) to relieve the art object of its merely retinal existence and to bring a complexifying discursive component to the work. The notes are not always tied directly to the *Glass* as preliminary sketches but are also to be understood as having a meaning that is drawn into the nexus of the artifact as a whole. This emphasis upon complexity can also be witnessed in other artforms, for example movies. Movies however rarely offer extended written philosophical reflections in relation to complex musical improvisations - this is the domain of the present project.

There are many artists who work combining guitar and electronic synthesis, let us mention three in this context. Robert Fripp works with the electronic musician Brian Eno to create soundscapes that blend the guitar and ambient electronic music [2]. Fripp's guitar work can go from jazz inspired runs to more repetitive tones that complement the slowly evolving electronic soundscapes. Another guitarist who works with Eno is Fred Frith. The guitar work on "Two Rapid Formations" from the *Music for Films* album sounds abstract and organic, sometimes like whales and sometimes like distant sirens [3].

The style of the musical compositions in the present project will be varied moving from diatonic harmony into atonal and chromatic areas. The guitar will take its cue from the individual feel of each piece, some pieces requiring a sustained improvisation some moving into a more composed and fixed (notated) playing. An important facet

of the aesthetic is contained in the project's attitude to improvisation. Improvisation can, in some circles, be understood as a kind of aimless meandering through musically cliched ideas. Also suspect in relation to improvisation is the idea of the "solo". The present work seeks to create musically evolving parts from the improvisations which continue throughout the piece - an aesthetic in which a natural ebb and flow and musical dynamic appear in the guitar work. This is a conscious attempt on the part of the artist to escape from any two-dimensional representations and articulations and a move to play the guitar as, first and foremost, an *instrument*. While this may not always be immediately apparent to the listener this perspective informs the musical parts and lines within every composition.

"Philosophy", as a concept, is part of the title of the work and it requires some brief introduction. Philosophy can be simply the type of language that is utilized or the ideas that one has about the meaning of one's life in general. In the present context the word is connected to the ideal of a *transforming gesture*. This phrase is meant to point the philosophical element towards a kind of critical philosophy, a philosophy that seeks to deconstruct ideology. In the first main piece of music (titled *Transforming Gestures*) the philosophy that has so far been written deals with the notion of change within systems. Using literature, philosophy, and sociology, the question of how music transforms and seduces the listener are focused upon. Using the work of Max Weber, Deleuze and Guattari, Debord and Tolkein (to name some of works involved) the question of how music is located within a nexus that seeks to unlock new paths and dimensions via critical engagements is broached. The mythical dimension of change is described in piece 1 (*Transforming Gestures*), the dialectic between the spiritual vehicle and the anti-art of the avant-garde is looked at in 1.2 (*The Dialectical Gesture*) and the ideal of escaping the confines of the dominant interpretation or ideology is contained in 1.1 (*Stopping the World*).

BIOGRAPHY

Scott Simon is a composer and performer who combines electronic synthesis with guitar improvisation. He has an Honor's degree in Art History (ANU), Graduate research in philosophy (ANU), a Master's degree in Composition and Music Technology (EMU / Adelaide University), and is currently researching a PhD in Performance / Composition (CCS / UTS).

Scott has been involved with electronic music since 1990 and has written for film, television, and CD release. Scott has an extensive touring history in Australia and abroad. A full CV is available here:

http://goo.gl/RgeUY

REFERENCES
1. Duchamp, M. *The bride stripped bare by her bachelors even*, Artwork, 1915-23.

2 Eno, B. & Fripp, R. 2004, *The equatorial stars*, Opal Ltd., London.

3. Eno, B. & Frith, F. 1978, *Music for films*, EG Records; Marketed by Caroline Records, [S.l.]; New York, N.Y.

4. Strauss, R. & Nietzsche, F.W. 1979, *Also sprach Zarathustra: tondichtung für grosses orchester: frei nach Friedr. Nietzsche = thus spake Zarathustra: tone poem for large orchestra: freely based on Friedrich Nietzsche*, Music score, Dover Publications, New York.