



University of HUDDERSFIELD

University of Huddersfield Repository

Dahm, Robert

Framing Intention: Perceptual Agency in the Compositional Process of Recent Pieces

Original Citation

Dahm, Robert (2012) Framing Intention: Perceptual Agency in the Compositional Process of Recent Pieces. Masters thesis, University of Huddersfield.

This version is available at <http://eprints.hud.ac.uk/id/eprint/17535/>

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

<http://eprints.hud.ac.uk/>

**FRAMING INTENTION: PERCEPTUAL AGENCY IN THE
COMPOSITIONAL PROCESS OF RECENT PIECES**

ROBERT DAHM

A thesis submitted to the University of Huddersfield in partial fulfillment of
the requirements for the degree of Master of Philosophy (MPhil)

March 2012

ABSTRACT

In this thesis I explore the role of perceptual agency in the compositional process of four recent pieces. Perceptual agency is examined through the mechanism of the “frame” – a way of constricting or shaping the total field of possibility in ways that inform the perceptual ordering of the contents of that frame, altering their intentionality. This is seen to operate on multiple levels. Firstly with respect to the act of composition itself, which proceeds through a series of incremental stages, the aggregate result of prior stages informing the field of possibilities for – providing the frame through which to approach – each subsequent stage. In this way, the act of composition becomes a perceptual one in which arrays of possible intentionalities are gradually excavated. Secondly with respect to the choice of instrumental materials themselves, invariably chosen for their primarily *modulatory* capacity; that is, their ability to frame and be framed by their own context. The score, then, is an archaeological trace of the sedimentation of these layered processes, presenting (while not defining) a wide array of potential patterns of framing requiring processing and synthesis. The nature of the score engages the performer’s own perceptual agency through the learning process, analogous to the compositional process itself, as it is necessarily comprised of subsequent layers of framing.

The thesis commences with a general exploration of perceptual agency, frames and intentionality against a backdrop of phenomenological and ecological writing. Having essayed the conceptual territory surrounding these core terms, there follows a detailed discussion of the compositional processes and priorities employed in the pieces contained within this thesis, focusing on the three pieces composed in 2011, and the manner in which the multi-layered approach to composition continually reframes and responds to its own results. Particular emphasis is placed on the treatment of the temporal domain, as this represents the most significant compositional and theoretical departure from common notational practice. The final part of the thesis examines the ways in which perceptual agency is engaged on the part of the performer, and concludes with a brief consideration of possible future avenues of exploration.

LIST OF CONTENTS

Thesis:

Introduction	7
1. Perceptual agency: frames and intentionality	14
1.1 Framing and intentionality	16
1.2 Traces and transmission	21
1.3 Ecology and attunement	26
1.4 Redundancy	28
2. Compositional process as frame, score as trace	31
2.1.1 Process as frame	32
2.1.2 Material as frame, frame as material	34
2.2 Temporal structure	38
2.2.1 Metre – general comments	38
2.2.2 Metre – defining the numerator	41
2.2.3 Metre – defining the denominator	45
2.2.4 Tempo	51
2.2.5 Alternate metricities	58
2.3.1 Instrumental materials	60
2.3.2 Categorisation of instrumental materials	61
2.4 Formal characteristics	66
3. Performer as perceiver	68
3.1 Temporality of learning	68
3.2 Notational clarity, interpretive ambiguity	71
3.3 Notational historicity	74
3.4 Temporal layering	77

LIST OF CONTENTS (Cont'd)

4. The portfolio pieces	78
4.1 <i>schattenzeichen</i> (2010)	78
4.2 <i>imagines me into systems smeared along wires</i> (2011)	81
4.3 <i>in the honeycombs of memory he built a house for the swarm of his thoughts</i> (2011)	84
4.4 <i>maps living among the ice of the room</i> (2011)	85
Conclusion	88

Portfolio:

1. ***schattenzeichen* (2010) for bassoon and viola** 8 mins
composed for Ensemble Linea as part of the Fondation Royaumont *Voix nouvelles* programme, France
2. ***imagines me into systems smeared along wires* (2010-11) for bass clarinet and percussion** 9 mins
composed for the ELISION ensemble
3. ***in the honeycombs of memory he built a house for the swarm of his thoughts* (2011) for oboe, bass clarinet, horn, trumpet, trombone, violin, viola, contrabass** 13 mins
composed for the Nouvel Ensemble Moderne as part of the Domaine Forget *Rencontre de musique nouvelles*, Québec
4. ***maps living among the ice of the room* (2011) for alto flute and accordion** 6 mins
composed for the Moscow Contemporary Music Ensemble as part of the International Moscow Ensemble Academy, Russia
5. **Recordings:**
 - (a) *schattenzeichen* (Ensemble Linea: Antoine Pecqueur and Jessica Rona)
 - (b) *imagines me into systems smeared along wires* (ELISION ensemble: Richard Haynes and Peter Neville)
 - (c) *maps living among the ice of the room* (Moscow Contemporary Music Ensemble: Ivan Bushuev and Sergej Tchirkov)

Word Count (including endnotes and references): 22,443

COPYRIGHT STATEMENT

- i. The author of this thesis (including any appendices and/or schedules to this thesis) owns any copyright in it (the "Copyright") and s/he has given The University of Huddersfield the right to use such Copyright for any administrative, promotional, educational and/or teaching purposes.
- ii. Copies of this thesis, either in full or in extracts, may be made only in accordance with the regulations of the University Library. Details of these regulations may be obtained from the Librarian. This page must form part of any such copies made.
- iii. The ownership of any patents, designs, trade marks and any and all other intellectual property rights except for the Copyright (the "Intellectual Property Rights") and any reproductions of copyright works, for example graphs and tables ("Reproductions"), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property Rights and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property Rights and/or Reproductions.

FRAMING INTENTION: PERCEPTUAL AGENCY IN THE COMPOSITIONAL PROCESS OF RECENT PIECES

INTRODUCTION

Over the course of the years 2010-11, substantial changes have taken place in the way I conceive of musical practice, the act of composition in particular.

Foremost among these has been a shift towards the consideration and active engagement of perceptual agency on compositional, performative and auditive levels.

The term “perceptual agency” in the context of this thesis is necessarily defined as loosely as possible. I understand it to indicate an active harnessing of our capacity as *perceptive* (rather than simply *receptive*) organisms. It implies the formation of musical “meaning” through a constructive process resulting from engaged perception, rather than the (more or less adequate) recuperation of externally defined meaning. There is a substantial body of art in all media that addresses the perceptual agency of the audience and, to a slightly lesser extent, the agency of the interpreter in response to the text. The challenge my work has increasingly been responding to is that of embedding such perceptual agency within the compositional process itself.

This has largely been achieved through the use of what I am referring to as the “frame”, a term drawn from the writings of Peter Ablinger (2007).

“Frame”, here, relates to the manner in which the signification of any perceived phenomenon is dependant on (or at the very least informed by) the context surrounding it, and the possibility of, through consciously

manipulating that context (the frame), altering that meaning. Or, conversely, that the frame can imply a “demand to signify” upon information that is not yet signficatory (for example, a collection of abstract numbers). The phenomenon achieves signification through the act of being framed and examined.

The notion of the frame always comprises an interaction between data and context, but the precise nature of either of these components is highly variable. “Context” here may be social or circumstantial (for instance, the assumption that performer-produced sound in the context of a concert setting is “music”; or the culturally-dependant perception of the interval of a major third as “consonant”); or it may be more specifically musically local (for instance, the “function” of a given musical element or object being framed by the surrounding musical context, such as pitch function in a tonal context). In fact, the single prerequisite for the construction of a frame as I am employing the term is the quality of perceptual *expectation*: it is constituted through either the active demand or passive assumption that the data viewed through the frame furnish the perceiver with certain *types* of information and behaviour.

Perceptual agency is engaged through the use of such frames at each level of musical process: during the act of composition, each new layer of process forms a gradually refining frame, shaping future decisions while refusing to concretely dictate the morphology of anything; during the process of performance, the interaction of notational elements is mutually framing, limiting the field of possibilities implied by any given notational constellation while never defining the precise sonic outcome; and at the stage of audition, frames suggested by both local context and performance situation suggest qualities of intentionality and modes of listening. More detail on the precise

manners in which frames have been engaged in the compositional process are detailed in Chapter Two.

I see my role as composer as two-fold, the first being to engineer circumstances in which it becomes possible to access human agency of the sorts described above at the compositional, interpretive and auditive stages; the second being the seemingly more mundane activity of producing a score. This view places the majority of emphasis on the production of a score-based trace, a document that can be employed as the basis from which the realisation of a performance becomes possible. It also implies a certain quality of responsibility to the interpretive and auditive stages of the music-making process in terms of how that score creates contexts in which agency plays a necessary and foregrounded role.

The relocation of focus in my work towards human agency has implications on approaches to intentionality: essentially that the intentionality underlying musical materials is something that should be “discovered” (either actively or passively) rather than something “communicated”. Some composers (Antoine Beuger, Peter Ablinger) access this uncovering of intentionality through a minimalism of means. In Beuger’s case, a limitation of material – a refusal to provide corroborating “evidence” for what the function of any given element might be. In Ablinger’s, the limitation of the terms of any given piece of music places extreme perceptual focus on the shifting relationships between them. Other composers (such as Evan Johnson and Aaron Cassidy) access this through a paralysing superfluity of information, in which the performer must negotiate a dense forest of potential meaning.

Such strategies are united in their engagement with the concept of intentionality, understood as a loosely defined “meaning” or “function” attached to musical phenomena within a given piece. Broadly speaking, this engagement reflects a shift in the location of this intentionality from the composer (i.e. regarding musical phenomena as being fundamentally transmissive of a composer-defined “meaning”) towards that of performer and/or listener (i.e. regarding musical intentionality as something constructed at the point of reception).

In terms of my own compositional practice, the approach to this constellation of issues is most evident in my increasing use of the technical resources of an instrument purely for their *modulatory* qualities, rather than their expressive potency in their own right (i.e. elements that take on meaning only insofar as they are combined with other elements), and my treatment of the score as the resultant sedimentation of the processes that have led to its creation.

While, due to the sometimes extreme density of information on the page, my notational practices are frequently regarded as belonging to a modernist or “new complexity” tradition, it is primarily my encounters with composers belonging to perhaps more “experimental” traditions that have materially shaped my attitudes to musical practice over the past several years. Foremost among them the composers belonging to the Wandelweiser collective (particularly Antoine Beuger, Michael Pisaro, Manfred Werder, Burkhard Schlothauer), Peter Ablinger, James Saunders, Christian Wolff and John Cage, but also the problematised experience of large-scale structure in the late works of Morton Feldman and certain works of Bryn Harrison. The work of composers more readily associated with “complexist” ideals, such as Brian Ferneyhough, Richard Barrett, Aaron Cassidy and Evan Johnson have also

left indelible marks on my work, but in general I would note that it is the more experimental aspects of their work that has been stimulatory: Ferneyhough's accessing of creative compositional and interpretive impulse through the preponderance of points of resistance; Barrett's "poly-work" pieces, which achieve a charged formal ambiguity; Cassidy's reimagining of the relationships between choreography and sound; and Johnson's incorporation of superfluity and waste. The solo and small-ensemble works by Liza Lim, in which sound frequently inhabits transitional spaces, seeming to oscillate between potential identities have also been of significant influence.

My work is also deeply inspired by, indebted to, and exists frequently in response to, the compositional work of friends and colleagues too numerous to mention, but foremost among them being Benjamin Isaacs, Charlie Sdraulig and Timothy McCormack.

The philosophies of Deleuze (particularly), Derrida and Foucault are very important to me, although it is difficult for me to say whether my own thought has developed in response to their writings, or whether they simply espoused with a sort of incendiary clarity a view of the world that resonated strongly with my own consciously or unconsciously held attitudes. The same is true of phenomenological writings such as those by Edmund Husserl and Maurice Merleau-Ponty, which have informed my understanding of the object-making qualities of perception, as well as the more music-focussed writing of David Clarke. I have also done substantial research into connectionist models of musical perception, still a fairly young field of investigation, in which the way our mind entrains to musical stimuli is explored, as well as ecological approaches to music perception such as Eric Clarke's.

Beyond this, I find frequent inspiration in the work of other artists. In the visual arts, the works of Gerhard Richter and Agnes Martin resonate particularly strongly with me. The poets Simon Howard and Ulf Stolterfoht, whose work constantly circles grammatical and signficatory sense, while always staunchly avoiding it, has been pivotal in clarifying the qualities of “perhaps-ness” that I wish to imbue the human-trace relationships with in my own work. Similarly the novelists Alain Robbe-Grillet and his replacement of narrative with a primarily visual surface, and Mark Z. Danielewski, whose *House of leaves* replaces narrative with – as improbable as this sounds – a series of *literary* surfaces.

This thesis commences with a general consideration of the qualities of perceptual agency, framing and intentionality. This discussion is primarily focussed not on the concrete realisation of those concepts in my compositional work, but rather on the broader aesthetic background which informs it (discussions of these aspects specifically in relation to my own work are concentrated in Chapters Two and Three). That said, the chapter does provide a general overview of the sorts of priorities of interaction with sensory data with which the compositional work (both in terms of generating the piece, and in terms of structuring future interactions from performers and listeners) engages, and is a necessary background for the more technical discussions that follow.

Chapter Two provides a description of typical strategies employed in the compositional processes resulting in the pieces included in the portfolio of compositions. The nature of individual response to local circumstances during the composition of any given piece renders this somewhat of a fiction (the analytical replication of the precise method of composition of any of the

pieces included with this submission is literally impossible), but it provides a workable overview of the sorts of decisions being made, and the sorts of result that these decisions seek to privilege.

This is supplemented by a consideration of the interaction between the performer and the score, with a focus on the sorts of decisions a performer is required to make, and the bases on which these decisions might be made, as well as some comments on situations that actively preclude the types of performer agency that the score is attempting to instigate. The discussion will draw on my own experiences of working with performers one-on-one to realise interpretations on the pieces included with this submission.

The final chapter contains a brief, and somewhat more reflective, description of each of the pieces included in the portfolio, tracing the development of my practice and preoccupations throughout the course of this degree, as they increasingly reflect the concerns under discussion in this thesis.

1. PERCEPTUAL AGENCY: FRAMES AND INTENTIONALITY

There is a book by Luigi Serafini called the *Codex Seraphinianus* (Serafini 1981), in which an invented language is employed, along with illustrations of bizarre flora and fauna (and frequently hybrids of both). The book appears to take the form of a sort of encyclopaedia cataloguing the social, botanical, anthropological and architectural details and histories of an alien land. The degree to which Serafini's language contains translatable sense, meaning and grammar is unclear, and it may be considered (however provisionally and inconclusively) to be asemic. The book's original publisher – Franco Maria Ricci – states in his introduction to the first edition (the only text not in the strange, "Seraphinian" language):

After finding shelter and attending to his vital needs of nourishment and pillage, a Hun, a barbarian ignorant of the alphabet, makes his way to the library where he leafs with astonishment through an illuminated codex. I would like that the reader turns the pages of the *Codex Seraphinianus* like this warrior, or even like a child who doesn't yet know how to read, captivated by the visions that the images inspire within him. (quoted in Hurder [n.d.])

The sensation Ricci describes here, the feeling of the not-yet-literate child is a mystification in the face of an unknown signification, coupled with awareness that this is a system of signs that conveys meaning and significance to those who *can* read it. Hurder describes the book's composition as confounding Wolfgang Iser's reader response theory (Iser 2000) through its refusal to work with the reader to build meaning:

As comprehensible as it is as an encyclopedia, it is still presented to the reader encyclopedically; namely, as a finished product without an inroad to begin the work required to construct its meaning. Moreover, in being indecipherable, the *Codex* essentially tells the reader that it doesn't care if it is understood or not. As a result, it

stonewalls the collaborative process that Iser writes about; if the reader is to form any understanding of it, it must be exclusively on the reader's terms. Ricci's notion of "taking it all in" is flipped; the Codex entices the reader to understand it, but the reader is on his or her own in this process. (Hurder [n.d.]

The reader being "on their own" is, however, no insignificant thing. There is already, in the person of the reader, a significant body of literary experience: the reader's prior engagement with the written word in various forms allows them to presume that the text is encyclopaedic in nature, the combination with pictures allows the reader to begin to posit the subject matter. Indeed, the fact that it is a published text, distributed in the form of printed and bound pages, already suggests things about the purpose of the document. The *Codex Seraphinianus* eschews a situation in which the primary feature, or requirement, of the reader is an understanding of language, in favour of a situation in which the primary feature is the reader's own individual experience with the *act of reading itself*. Hurder goes on to suggest that "the Codex demands a new method of experiencing the text – one that focuses on the pleasure of the *almost-known*, rather than getting hung up on simply *knowing*."

The experience of engaging with the *Codex Seraphinianus* as reader, and the nature of the relationships this implies between author and reader, offers a cogent analogy to many of the priorities of my own compositional work. This first chapter explores the aesthetic background to my work – the questions that interest me, and with which my work engages. It does not address the precise manner in which these interests and priorities manifest in my work, but rather serves more as a necessary background for the more concrete discussions in Chapters Two and Three; to draw a more direct connection

between a general aesthetic world-view and the minutiae of my scores would be somewhat disingenuous. Rather, the ideas discussed in this chapter serve as a vaguely-defined but forcefully present rubric guiding the development of my compositional approach.

1.1 Framing and intentionality

The *Codex Seraphinianus*'s ambiguity – its identity in the face of semantic openness – is the result of various orders of framing. Firstly, and most obviously, it is a book (a fact reinforced by its title), and is therefore presumably to be read. From the outset, then, the reader is engaging with the *Codex* through the lens – the frame – of “the book”, assessing it in terms of the ways in which it does or does not fit within it. The *Codex* continues to build frames, although the contents of those frames exist at variance with what we expect: the arrangement of ideographs clearly frames the written word, despite its contents being asemic.

I understand the concept of the frame to refer to a type of contingent contextualisation. By framing perceived material in any given way, the possible meaning or identity of its contents is altered. Or rather, the infinite field of possible meaning of a single sensory *datum* is limited and defined by the succession of frames through which it is examined. I purposely define the notion of the frame as loosely as possible: it is any device or attitude that serves to constrict, partition or colour sensory data.

The nature of the frame conveys the possible intentionality of that frame's contents. By “intentionality” I refer to a kind of intended, unambiguous, univalent identity.

Thus, in the case of the *Codex Seraphinianus*, the frame of the written word leads the reader to engage with the “words” as words, the sorts of relationships between sense objects we search for are the sorts of things that might be important in written language: repeated letters, length of groupings of letters (i.e. words) and so forth. We simultaneously discard those elements that are, with respect to written language, unimportant, such as the precise physical relationship of elements on the page with respect to one another. In hypothetical absence of the grouping of the *Codex*’s ideographs into “words” (e.g. if the symbols were simply scattered randomly across the page), the “written language” frame may not be sufficiently constituted to be perceptually effective. Rather than treating these elements as letters, constituent parts of words, the reader might start to consider the elements on the page in terms of their correspondence in geometrical space, possible groupings or connections between visually similar symbols, and so forth.

The framing of intentionality, in both a global sense, such as the distinction between musical listening and environmental listening, and a local sense, such as one notated element framing and therefore informing the identity of another notated element, is the quality of framing that is of primary interest in terms of my own practice, as will be explored throughout the following discussion.

Peter Ablinger has described the frame as a constriction, a sort of filtering which changes the way we see the contents of that frame:

Our field of vision is too wide to see. Our life is too big to perceive. Vision and experience come only through constriction, enclosing. ... We know something as soon as we focus on the excerpt, constrict, observe a detail, and detail means setting a

frame. Framing can be a mode of thought, a method, a criterion – any type of filter...¹
(Ablinger 1995, p.3)

The frame of the performance situation effectively separates the musical content from its surroundings – it partitions a certain subset of total sensory input. It is also highly significant in that it provides both an implied function for the sensory data which comprise the music, suggesting a certain mode of listening, an implicit hierarchicalisation of the types of relationship that are privileged in such a context.

David Clarke describes music as a system of signs, pointing out that this is a characteristic common to all phenomena that we recognise as music (2009, p.111). It is precisely this characteristic that is designated by the performative frame. The presence of the frame implied by musical performance indicates to us that the signs present within the confines that performance constitute a single “closed” system. This reconstitution through framing of a collection of sensory data as a system of signs is crucial to the effect and function of a piece such as John Cage’s *4’33”* (1952). The qualities of musical listening implied by this frame (in other words, the toolkit with which we are invited to listen to this piece) are distinguished from everyday listening by Eric Clarke as involving “...attending to the qualities and properties of sounds in themselves, and their purely sonorous relations with one another. By contrast, everyday listening involves detecting the objects and events in the world that are specified by sounds.” (E. Clarke 2005, p.133). The environmental sounds enclosed within the frame implied by the performance are not music until they are heard as such, but once they *are* heard as such, their perceptual status is fundamentally altered. The very act of framing those sounds as music makes them so.

This is actually a relatively philosophically controversial statement, as evidenced by the fact that the status of 4'33" as a piece of music at all is still contested some sixty years after its premiere. Varèse's widely-quoted claim that "music is organised sound" (Goldman 1961, p.133) immediately raises the question "organised by whom?" While commonly assumed to indicate the necessity of a composer-author who organises the sound, Varèse's view does not necessarily conflict with the notion that "music is whatever people choose to recognise as such" (Nattiez 1990, p.48), a recognition that seems predicated upon some form of framing of intention.

Framing and intentionality are approached from a slightly different direction by Randolph Jordan. Discussing the work of sound artist Hildegard Westerkamp, he describes this sort of listening as a process of "re-composing":

Westerkamp suggests that, as children, 'listening and soundmaking (input and output, impression and expression) were ongoing activities, like breathing, happening simultaneously, always in relation to each other, in a feedback process'. This simultaneity of listening and sound-making is something Westerkamp would have us hold on to as adults. Westerkamp has an approach to ecology that reorders the ecological systems under observation in order to express their potential permutations in other contexts. Again, this is a model based on her notion of the soundwalk, which includes the practice of deconstructing the soundscape within our minds as we separate sounds that are often heard as one, and then sorting them into categories based on their pleasantness to our ears. The goal is to understand the soundscape as a composition so that we might compose better soundscapes in the future. This amounts to a psychological reordering of the heard environment that she emulates in her soundscape compositions. We've heard Derrida suggest that to read is to rewrite. For Westerkamp, to listen is to compose. (Jordan 2007, p.137)

Conceiving of the listener as actively composing (or re-composing) in response to sound stimuli sheds further light on framing and intentionality in *4'33"*. Through the soundscape's recontextualisation within the frame of a piece of music – the suggestion of its subordination to the sorts of relationships implied by the concept "music" – the literal significations of those sounds (car noise, the clearing of a throat) fall away, they cease to embody the functions to which we have become attuned and leave us with the resonance of their "potential permutations" in this reordered context. While Cage's oft-quoted maxim of "let the sounds be themselves" (quoted in Fuchs, [n.d.]) may seem to suggest that he is searching for a supposed "neutrality" of sound (particularly when combined with such a seemingly loaded term as "non-intentional"), in fact Cage is simply eschewing a model of musical transmission in which a "message" is transmitted, in as transparent and lossless a fashion as feasible, to a listener. In this sense, the term "soundscape" seems inapposite. *4'33"*, rather than describing the sound events of a given segmentation of time, renders, by suppressing or relocating the usual conditions of meaning-construction and identification through the mechanism of the frame, the sounds that it contains as charged possibilities, pregnant with potential intention.

Matthias Fuchs describes non-intentionality: "In the moment in which our activity engages in the process, we change it, and thereby distort it. ... 'Let the sounds be themselves' should not be interpreted as a move away from hearing (leave the sounds alone), but rather, on the contrary, sets the path for an un-dulled, attentive passivity (listen to the sounds as they themselves are)."ⁱⁱ

In pieces other than *4'33"*, such as *Music of Changes* – the compositional process of which is discussed in *Silence* (Cage 1968) – Cage's approach to non-intentionality was largely focussed on suppressing the intentionality of the compositional process (in Fuchs's words, to suppress the distortive qualities of the act of composition). However, chance compositional procedures don't necessarily lead to an audited musical construct that is any less "intentional" than a rigorously serial approach. It only sidesteps the implication that the compositional process itself can possibly be regarded as perceptibly intentional in its own right – it subverts the notion that intentionality is something originating exclusively with the composer. This paradox is highlighted by Ablinger (2007), who describes all sounds as being intentional, with that intentionality being something that needs to be "discovered" by the listener. I would phrase it differently: that *no* sounds are intentional, and that intention is *invariably* a property of the listener (Husserl, 1970), imposed through their own perception of sensory data through the contextually-dependant framing of that data. As David Clarke suggests, "as an intentional being I am constantly involved in forming internal representations of the external world from my sense data." (D. Clarke 2009, p.112), and it is this forming of internal representations that constitutes the uncovering of intentionality, the means of which is informed by the frame.

1.2 Traces and transmission

One image of musical practice is that it follows a sender-receiver model: the composer transmits information to the performer via the score; the performer then transmits the intentions of the composer to the audience via their performance. It is precisely this model or an unproblematically transmitted message that Cage's approaches to non-intentionality are attempting to

subvert. Such a conception, followed to its logical conclusion, implies a certain ethics of compositional practice: if the score is, at root, a transmissive document, it has, perhaps, an obligation to maximum clarity, maximum reproducibility. In other words, the score should be that which best guarantees that the performed result will maximally resemble the composer's conception of the sound of the music. Such a sender-receiver model gives rise to the possible interpretation that, ideally, the listener should "receive" the intentionality "sent" by the composer, with the act of performance being a variable to be managed, an inevitable "gap" in a communicatory chain that should be minimised as far as possible. For me, on the other hand, the opportunities afforded by what happens in this gap are a highly interesting feature in their own right.

Jean-Jacques Nattiez describes the semiology of musical practice very differently, through the use of the diagram shown in **Fig. 1**. He explains this diagram as follows:

- (a) a symbolic form (a poem, a film, a symphony) is not some "intermediary" in a process of "communication" that transmits the meaning intended by the author to an audience;
- (b) it is instead the result of a complex *process* of creation (the poietic process) that has to do with the form as well as the content of the work;
- (c) it is also the point of departure for a complex process of reception (the esthetic process) that *reconstructs* a "message". (p.17)

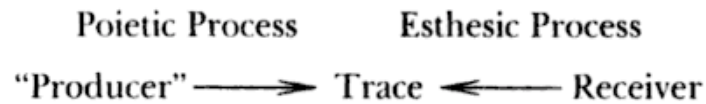


Fig. 1: semiology of musical practice (Nattiez 1990, p.17).

Nattiez's model, on a level of compositional practice, implies no particular value or priority for the score itself. The act of composition becomes concerned with the nature of the "trace" to be left, rather than concerned with transmission as such. The transmission model outlined above is not precluded, but it is reduced to being one of a potentially infinite number of approaches to the constellation of possible attitudes towards "the trace".

This dislocation of the fact of the trace from the intention of the composer also situates it in substantially more neutral terms than the transmission model, as non-intentional sensory source-material from which "meaning" can be formed.

The compositional processes and strategies I employ in my own practice are intensely concerned with the nature of the resulting trace, first as a score to be interpreted by a performer (on which more below), and secondly in terms of the sort of "probable trace" this performer-score engagement will result in through the act of performance for a listener. My approach, then, assumes the presence of two separate traces (the score and the performance) whereas Nattiez, at least in the summarised encapsulation above, conflates the two into a single "symbolic form". My music aims to create contexts in which the role of the performer is both poietic and esthetic, both productive and receptive.

Peter Ablinger describes his own relationship with the “esthetic process” as follows:

...the perhaps most essential – or to me most precious – aspects of art do not function after the sender-receiver model of message transmission. Better, perhaps, if we reverse the causal chain – which is naturally strongly forbidden! – and make the artist the receiver, and the perceiver the sender. Better even, if the reception, the receptiveness, the capability is itself made into a membrane, to be picked up through vibrations, as actual transmission is; if the transmission is not passed-on information (confirmation, fact), but rather the questioning of the factual and the softening of the calcified. So if nothing is passed on from the artist (no data), but rather, in the recipient, something like a new / undiscovered sense opens itself (something that itself produces data – just as if the perceiver applies new software), and the opening creates a place for sensation (sensory data), that can, much more than the artwork itself, take on the form of information, of a message. (Ablinger 2007, 5-6)ⁱⁱⁱ

What I find particularly engaging about this notion is that he makes no particular value judgement about musical “material” *per se*, but rather about modes of listening. Ablinger is expressing a preference for a musical trace that either permits or requires him to *interact* with the sensory data.

This sheds light on Ablinger’s own concerns in works such as *Parker Notch* (2010) for solo melodic instrument and CD, in which a literal transcription of a Charlie Parker solo is *almost* entirely obliterated by white noise, only the faintest vestiges of what is nominally “the music” being audibly available to the listener, or in *Music 4 Turtles* (2011) for four brass instruments, in which a rising microtonal scale is alternated with silence, the changing proportions (sounds gradually get shorter, silences gradually get longer) of which are driven to extremes across the course of the piece, changing the perceived

primary material from the scale itself to the increasingly charged and pregnant silences.

Music 4 Turtles sets up a context within which the boundaries of material framing become problematic. Here the frames implied by local detail (the proportional lengths of sound and silence) provide a context within which we “locate” musical significance. The piece commences with sounds (the scale), framed by silence. These silences grow longer, while the scale fragments grow shorter. At some point, the length of the scale fragments (at the end of the piece a fraction of a second in duration) in reference to the extended length of the silences (culminating in a silence of one minute or more), results in a situation where the sound is too short to constitute “material”, while the silences are too long to constitute “frames”. There is a reversal. The sounds start to frame extended durations of silence, and the silence, by virtue of being framed in such a way, takes on immense structural importance.

My own experience of hearing the premiere of this piece was of a gradual change in the “loudness” of the silences, as the piece progressed through an ambiguous transitional phase between the two different frames, culminating in a silence that was almost deafening. This was not Cage’s “silence”, in which environmental sound takes on musical significance. I perceived a kind of “digital” silence, in which I became acutely aware of my breathing, my heartbeat, my tiny movements, all the myriad ways in which I, however slightly, disturbed the stillness around me. The undifferentiated nature of the material (a single silence, about one minute in duration) became relentless and terrifying, while the temporal experience of that material rendered it intensely uncertain (the length of the silence cannot be ascertained until the frame is completed).

This is a highly personal response to that particular piece, and Ablinger's point in the quote above is that the mental change in software – including responses such as stark psychological terror, but more importantly the location and nature of the perceived change in frame – is located at the site of perception: the construction of intentionality is an individual thing, informed by the perceiver's own psychology.

This highlights an apparent paradox at the heart of the concept of the frame: the frame is something that implies ways of perceiving, but it is itself in large part constructed in reference to things perceived. This is where notions of ecological attunement become important.

1.3 Ecology and attunement

Individual experience's central role in shaping perception is central to ecological approaches to musical perception such as Eric Clarke's (2005), which treat musical sound objects as being like any other sound experienced in day-to-day experience, in that they take on signification through repeated exposure: that is, that invariant elements (such as harmonic behaviours in tonal music) are something we become *attuned* to, that there is a process of gradual, life-long enculturation allowing us to interact with music in a sympathetic way.

The sorts of frames we summon, and the facility with which those frames are constructed, are grounded in our entire prior history of perception. To most listeners, the frame implied by tonal musical behaviours comes readily to hand, at an unconscious level. Frames of such ubiquity, verging on the semiotically meaningful, are referred to in the ecological literature as "invariants", although it must be pointed out that in some ways this is a

misleading term, as the precise implications of such a frame will vary immensely from individual to individual. The point stands, however, that at a level of perceptual recognition such invariants have a meaningful impact, in the same way that, while individuals, when asked to picture a “chair”, may come up with any number of different variations on the chair, most would recognise an object belonging to the conceptual invariant of “chair”.

The role of experience is underscored in phenomenology by Husserl, who suggests that the perceptual assignation of indicators is based on empirical evidence, and is probabilistic – that is, that apprehension is a function of the *probability*, based on prior experience, that a given sensory datum belongs to one state of affairs, and not another (Husserl 1970).

To continue with the previous musical example, *Music 4 Turtles* relies for its effect in part on the tenuousness of the attunement to certain of its materials, and strength of attunement to others. We are highly attuned to the notion of the scale (even though it is here presented in microtonal, timbrally dispersed form between the four instruments). The fact that the scale continues across the course of the piece draws a direct line “across” the silences. It could be argued that we are, through our experience of the Western canon, attuned to musical silence as a point of rest framing “real” musical content, and the beginning of the piece indeed sits easily within such a conception. But the continuation of the scale frames the silence not as such a point of rest (as in between movements of a symphony) but rather as the “digital” silence alluded to earlier. It is framed not as a point of repose, but as a structural element within the piece, a possible intention that is subsequently reinforced through the continuing shifts in proportion during the piece’s duration. This

takes place because of the relatively weak attunement to intentionalities of silence when compared with the *invariant* represented by the scale.

1.4 Redundancy

The sensory “opening” that Ablinger (2007) describes is a result of a kind of *lack* of transmitted information from the work: a degree of insufficiency. This, perhaps, is related to Claus-Steffen Mahnkopf’s description of “lacunarisation of musical discursivity”, as a compositional method employed in what he rather taxonomically refers to as “musical deconstruction” (Mahnkopf 2004, pp.17-18).

The centrality of insufficiency here is relevant because of Ablinger’s belief that redundancy is central to the forming of information:

Information IS redundancy:

The tautology, according to Wittgenstein, says nothing about the world and holds no relationship at all to it (*Tractatus*). I believe, on the other hand, that the tautology is the grounding principle of language in general. More specifically, the grounding principle of the relationship of language and world. Every description, explanation, analysis, definition is exactly – in an analogous way – a doubling, repetition, or redundancy, just as the tautology itself is. Something similar also goes for “information”. It is not true, that information is that which stands apart from redundancies. It is much more the other way around, that information without redundancy is not possible at all. Redundancy has something to do with “frames”; repeating something means to get closer to it, to fix it, to cut it out from its environment, frame it. The same also goes for “meaning”: meaning and duplication or underlining, emphasis, are almost synonymous anyway. Meaning, information, understanding are all *redundancy-contingent* transformations of that that is. But that that is is the insignificant, not-informative, un-understood: the world, as it surrounds us and we in it. (Ablinger 1995, pp.2-3)^{iv}

In other words, it is precisely the qualities of the mutual reinforcement of signs, the resonant spaces between them, that give those signs meaning. David Clarke uses a Venn diagram to describe the process of giving meaning to signs:

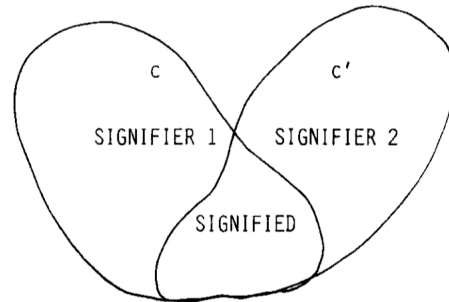


Fig. 2: David Clarke's depiction of signification (2009, p.127).

Clarke's image is intended to relate to the formation of perceptual objects in time. We hear a sensory *datum* c , and then the *datum* c' . They each have a field of possibility informed, as Eric Clarke and Husserl (1970) indicate, by our experience of similar data. The point of overlap between these two fields designates the perceived object. In other words, that it is the area of redundancy between these two signs that produces a defined object. I would add that, as a model of perception in time, it's important to note that c will frame our understanding of the possible significance of c' much more than the other way around.

As we turn our attention to how the foregoing concerns manifest in my own practice, we'll see that I am much more interested in the implications of *non*-redundancy. To continue with David Clarke's model, I am interested in situations where a relationship between c and c' is not reconcilable with the

relationship between c' and a hypothetical c'' . Or situations in which there is significant degree of incongruence between a strongly implied frame on one hand, and its contents on the other.

2. COMPOSITIONAL PROCESS AS FRAMING, SCORE AS TRACE

In the introduction I described the way I understand my compositional responsibilities as being twofold. The principal responsibility, the responsibility to which actual compositional process is subservient, is as the architect of specific types of interaction between the trace (manifested in both the score and the sounding result). In this sense, my work as a composer results in a document that, through its charged ambiguity, frames the means of its own interpretation, and the faithful execution of which (a matter of the nature of the engagement between performer and score, as much as literal replication of the notated elements) will result in a particular framing of the listener's perceptual interaction with the performance. My primary responsibility is to access qualities of performer agency and subsequently, in a deferred, delegated and diminished sense, listener agency.

The second responsibility is the production of the score itself, which is the focus of this chapter. This process is itself entirely reliant on subjective levels of framing in two important and distinct ways. The first is that the process comprises multiple iterations of processual framing, gradually moving closer and closer to a final result. The second is in the conception of material as being primarily modulatory in function; that is, material is selected for the ways in which it articulates a possible frame for its own context.

The compositional phase (and the processes that this entails) leads to the production of a score, a trace. While, in line with the responsibilities assumed by the process outlined above, a great deal of time is spent considering the ways in which the performer may interact with this trace, and ways in which listeners may interact with the subsequent performative trace, the score is a *de*

facto result of the sedimentation of framing processes, rather than a preconceived goal to which these framing processes are subservient. The interaction between performer and score, or between listener and performance, are not intentionally architected, but rather necessarily resultant from the process of composition.

2.1.1 Process as frame

To produce his large abstract paintings, Gerhard Richter begins with a canvas painted in large blocks of colour. Before the paint is completely dry, he employs large squeegees to smear and scrape those colours across the canvas. Once the paint has been redistributed in this way, the colours mixing and overlaying themselves upon one another, the process is repeated. Then the process is repeated again. Sometimes additional paint will be added. Sometimes, the uneven drying of oil paint before it is scraped in this way will produce a kind of “blister”, *lacunae* that reveal a layer of dried colour below. The resultant artwork is the result of layers and layers of paint (typically between thirty and fifty iterations of the smearing and overpainting process), bearing no resemblance whatsoever to the original starting point.

Aside from the utterly enthralling visual result, what I find most striking about Richter’s work is the nature of the process itself. Each of these layers of smearing and scraping is conducted in response to the results of the previous layer. That is, the previous layer provides a frame that shapes all subsequent action, despite the fact that the evidence of that frame may be entirely obscured after even a few further steps (Buchloh 2009).

My compositional process is in many respects very similar. What appeals to me about a working process such as this is the emphasis it places on the act of

discovery. At each stage, the task is one of uncovering the potential intentionalities of the material in its current, unfinished form. At a later stage, these intentionalities may be rendered invisible by my own subsequent compositional actions, but the response to them at that time necessarily affects the final makeup of the piece.

The compositional process is a process of constant framing, constricting the total field of possibilities embodied by the space inhabited by the sound. The particular nature of the frame at any given time modulates its contents. That constriction is, however, not a *compulsory* limitation, but rather the result of a perceptual act, a sort of compositional *listening* to the existing material.

The three pieces from *imagines me into systems smeared along wires* (2011) to *maps living among the ice of the room* (2011) were all produced with a single string of four numbers (3, 5, 8, 2). While I had certain very general ideas about the soundworld of each piece, largely informed by the instrumentations, I had no specific preconceptions regarding what the pieces would actually *do*. All material is derived in some way through processual operations performed on the data set present at each stage. Thus, the first stage of composition is undertaken with *only* those four numbers available, and the proportions and behaviours they seem to imply.

This limitation of means, combined with the retention of ordinal relationships (those four numbers, or their derivatives, are invariably presented in their original order) results in what Brian Ferneyhough has described in a lecture at the Abbaye de Royaumont as a “canonic” approach to material development (23 August 2010), on the basis that the same numerical materials are being utilised at different rates through time, although personally I find this

stretches the analogy to canon to the point of near-meaninglessness.

Certainly, however, some of the resulting patterns are much more meaningfully canonic (such as the pitch behaviours in *in the honeycombs of memory he built a house for the swarm of his thoughts* (2011)), leading to sorts of “normative” relationships and behaviours spanning the entire course of the piece (recurring intervals, patterns that recur through the ensemble, etc), which are subsequently subverted and problematised by their changing context. As Ferneyhough describes in his essay “Il tempo della figura”:

In fact, such considerations have little to do with neo-serial manias for order; rather, they reveal a path towards the redefinition of function through the context-bound deployment of local, informal parametric manipulation. The constant creation of ‘fuzzy parameters’ of this sort is the primary purpose of the figure, to the extent that it supports the deconstruction and subsequent opening-up of the self-enclosed organism in an indefinite number of possible directions. (Ferneyhough 1995, p.38-39).

Ferneyhough’s description of such “fuzzy parameters” point directly to the notion of frames, and the shifting intentionality of any given notated element as a result of the changing hierarchies between the frame and the framed in the light of such processual strategies. Furthermore, the “deconstruction and subsequent opening-up of the self-enclosed organism” is identifiable as the absence of redundancy (in the sense described in the previous chapter) that results from the decoupling of normally-coincident and co-dependent musical parameters.

2.1.2 Material as frame, frame as material

In some respects I find it difficult to discuss material in a concrete way, because of the ongoing difficulties I have discussing “material” without the compulsory addition of “scare-quotations”. In terms of my own practice, the

sorts of materials with which composition traditionally engages (pitch, rhythm, dynamics, articulations, etc) constitute valid material only by virtue of the manner in which their combination results in a defining of a musical space-time.

The “material” of these pieces is not the collection of notated pitches or rhythms, but rather the frame itself, as manifested firstly in the gradual shaping of context through the process of composition, and secondly in the modulatory qualities possessed by notated elements themselves, their propensity to frame and shape their surroundings.

In terms of notated elements, “material” only becomes material in its combination with other “materials”, with such a combination radically altering the identity of all component elements. For this reason, materials do not retain constant value: it is impossible to describe any given notated element as being “structurally significant” in the way we might be accustomed to describing the pitch material of a tonal (or, for that matter, strictly serial) piece. Elements have, rather, a transitory, modulatory value, rather than definition in and of themselves. A fingered “G” on the bass clarinet is not a concrete entity in itself, but rather a limiting field acting upon the other materials with which it coincides. Each notated element is, in effect, a frame that recontextualises all other materials.

The final line of the bass clarinet part of *imagines me into systems smeared along wires* (2011) is an interesting case in point.

Fig. 3: *imagines me into systems smeared along wires* (2011), bass clarinet, mm.121-125

The metric structure describes a steady reduction in the distance between impulses, but these pulses are articulated only in the “pitch” line of the bass clarinet, and almost completely obscured by the presence of ties across the bar line, relegating the function of metre to a deeply recessed organiser of temporal space, rather than something possessing a tangible identity of its own. Any sense of perceived metricity is almost certainly produced by the *sforzando* markings in the red layer, alluding to an alternate progression of time. The notated pitches themselves are destabilised by the constant trills, and in any event serve merely as a grounding “tube length” for the harmonic sweeps produced by the extreme changes in embouchure, the imposition of the teeth, and so forth. Any linear identity suggested by these elements is further undermined by the constant imposition of ornamental figures, diaphragm vibrato, *smorzato*, vocalisations and fluttertongue.

It is next to impossible to make categorical claims about what, specifically, the resulting sound objects will be, as this is so dependant on the individual performance, and even the order in which these layers are learned (a consideration of which forms part of the next chapter). The final production of

objects will necessarily result from the performer's judgement as to relative structural significance; that is, what frames what. The result will be different depending on, for example, whether the fingering patterns are regarded as the fundamental frame through which everything else is approached, or whether that honour goes to the shifting embouchure shape throughout the passage.

"Material", then, is the notated result of layers upon layers of aggregated compositional process (including the selection and combination of concrete instrumental activity), the sedimentation of which shapes the possibilities of engagement with musical space-time. Just as the instructions contained within the score are conceived as being primarily modulatory, so are the processes generating the piece itself, with each new layer of compositional activity modifying, elaborating or distorting the existing data set. This is all compositional material.

A consequence of such a constantly framed, constantly modulatory approach to the compositional process is the impossibility of anything but a highly postulatory composer-defined intentionality. No single element on the page can be truly and singularly intentional in its own right (it cannot assert its own, unproblematic signification) because of the invariably ambiguating context surrounding it; a context that necessarily arises as a result of the process of successive layering.

In order to better flesh out this conception of the process of successive framing as material in its own right, I will briefly step through a number of these successive layers of work, considering the sorts of modulatory qualities they exhibit, and the sorts of priorities with which they are treated.

2.2 Temporal structure

From *shattenzeichen* (2010) through to *maps living among the ice of the room* (2011), the temporal structure has been the first thing categorically defined by the process of composition. As with anything else though, the metric structure, tempo, and the coloured layers of rhythmic information are not treated as valid “material” in their own right, but rather as a series of certain qualities of potentiality that frame, contextualise, reinforce and undermine one another. The process of defining metre is, itself, the result of a series of different mutually informative processes, dealing first with numerators, then mapping zones of relative “dissonance”, followed by the selection of denominators.

2.2.1 Metre – general comments

It is worth making, before proceeding, some general remarks about metre, most pertinently with regard to the definition of the term. Mats Johansen offers a number of possibilities for a definition of metre:

1) Meter as a measuring device, specifying the temporal relationships between rhythmic units and levels (beats per measure etc.). 2) Meter as an imposed or inferred accentuation pattern (strong-weak-weak etc.). 3) Meter as an emerging property of the listener’s engagement with the unfolding music, implying that there is no pre-existing neutral grid in relation to which musical sounds are rhythmically structured. 4) A formulaic conception of meter: a stylistically coded (i.e. culture-specific) notion of sameness resulting from a continuously ongoing process of trying out different, but metrically equivalent, rhythmic designs. (Johansen 2010, p.41).

In general, I would subscribe to the third of these definitions of metre, particularly in the sense that by virtue of its grounding in perception, it is distinct from the first of these definitions, which is based more exclusively on time signature *per se*. I would go further, though, to suggest that metre, as a result of the origin in perception of the metric “grid”, has an important role in mediating the perception of the flow of musical time itself. Furthermore, such a definition also presumes the possibility of “protension” (Husserl 1986), a fact that becomes important later on in the compositional process.

An important qualification to this is, however, that the first stage of developing the temporal world of these recent pieces is limited to metre as recognised in the first definition above: a definition of time signature alone. All of my temporal processes (including definition of tempo and coloured time layers), limited as they are to the distributing of periodic impulses, are all designed to culminate in a number of simultaneously “potential” perceived metricities – a “multivalent” metricity (London 2001) – rather than actively composing an audible metricity as articulated in the third of Johansen’s definitions. So, when discussing how these processes result in metre, what we are really talking about is the definition of time signature with a view to its potential for subsequent expression as heard metre. Any *post hoc* analysis of the perceived metricity of a performance of my music would bear little resemblance to the notated metric scheme. In the following discussion, it is important to note that when perceptual qualities of different metric contexts are discussed, this is with reference to a hypothetical “categorically expressed” metric scheme, such as would be the case when listening to a click-track (of which extensive use was made when developing

my approaches to metre), rather than the far more obscure perceptual reality resulting from the final score.

With this in mind, my “metric” vocabulary comprises an extended collection of so-called “irrational” metres. The use of irrational metres was pioneered by Brian Ferneyhough, in pieces such as *Superscriptio* (1981) for solo piccolo. This notational technique has since been employed by a substantial number of composers, although it largely still remains identified with the so-called “New Complexity”. Briefly, the principle is the same as in standard time signature nomenclature, with the semibreve divided into an equal number of equidistant pulses as defined by the bottom number. Thus a 5/12 bar comprises five triplet quavers, a 3/28 bar comprises three septuplet semiquavers, and so on. The vocabulary I employ is limited to time signatures featuring the numbers 8, 9, 10, 11, 12, 13, 14, 16, 18, 20, 22, 24, and 28 as the denominator.

I employ metric changes in favour of tempo changes in part because it “hard codes” these changes in pulse density into the fabric of the score: they notate a proportional relationship between consecutive bars, rather than with reference to an external fixed point (beats per minute), and in part because it allows a further layer of tempo information to take an active role in the problematisation and modulation of this layer.

The following discussion will explain the procedure I developed for determining the metric scheme in recent pieces. This procedure comprises three separate processes, in which first the numerator is defined; then a scheme is developed whereby the changing degree of mutual metric

“interference” between successive bars is mapped out; and finally the denominator is defined in reference to that scheme of interference.

2.2.2 Metre – defining the numerator

As mentioned above, in the case of everything written since *imagines me into systems smeared along wires* (2011), the originating *ur*-material was a single string of four numbers (3, 5, 8, 2). Due to the fact that these numbers were going to be employed in a variety of ways to define a variety of things, they were chosen with a view to their possible manipulation with minimal redundancies, as well as their useable size (if larger numbers are required, these can be achieved through a process of addition), as well as the rich quality of the proportions existing between them.

This series of numbers constitutes the original frame through which all subsequent decisions are mediated (albeit at ever-increasing removal). This frame – this originating material – is made up of the proportions and relationships implied by these four numbers, and the various mathematical relationships in which they may stand with one another. Conversely, these four numbers are framed by the necessity to achieve certain types of “material” or behaviour from them. In other words, the need for these four numbers to voice a metric structure is itself a frame. The initial compositional stage, then, is one of “listening” to the potentialities implied by this collection of numbers.

Through a process of folding and refolding, extrapolating and adding, these numbers and their implied proportions are manipulated until they have produced a sequence of numbers that, in my assessment, can feasibly define the numerator of every bar in the piece. The precise manner in which this has

been achieved has varied, and it's important to note that this process is, itself, a multi-layered response to a gradually evolving state of affairs. Ultimately it results in a series of numbers that seem like they will be interesting to work with at subsequent compositional stages. While this manipulation is, at this point, divorced from any definite musical "function" as such, as Pierluigi Billone observed to me in a lesson, the numbers "speak" to me (private lesson, 27 August 2011). The decisions regarding these numbers are a response to the existing frame. There are certain sorts of things that I am hoping they will do, and certain things that I am hoping they won't. That said, the factor of them being "interesting to work with" is an important one: a particular solution is frequently reached over another, equally "valid" solution, purely because the framing implications of that solution seem more entertaining at a compositional level.

My priorities in arriving at a numerator plan typically revolve around variation in the efficacy of the numerator series over time in its role of defining metre, particularly in a context where the denominator will be changing with every bar.

Given that each bar is to be defined by a different pulse density (the denominator will be changing every measure), these bars have a core function as an area of pulse activity. The clarity with which such pulse-width identities are articulated is a function of the numerator. Very short and very long bars are less useful (less forceful) than a series of moderately-sized bars.

Immoderate bar lengths are still employed, but they represent a "pushing to an extreme", in which the qualities of metric behaviour typically evinced throughout the piece cease to operate normally. As an aside, it is worth pointing out that it is the decision to privilege behaviours arising from

moderate bar-lengths that frames very long and very short bars as suggestive of a different function.

Very short bars have an extremely limited capability to carry metric information, culminating in the inability of a $1/x$ bar to express metre at all. A sequence of $1/x$ bars (where the denominator x is changing each bar), such as in mm.92-95 of *schattenzeichen* (2010) (see **Fig. 4**, below), presents itself as a local rhythmic figuration, rather than being metric in quality. This limited metric capacity stems from the necessity of, at the very least, a *second beat* to construct perceptible metre. In an environment in which metre is changing literally every bar, this becomes absolutely necessary, in that all information on pulse length is derived from the duration between the onset of the first beat, and its end, as articulated by the onset of the second beat. In the absence of a second beat, the music has already progressed to a new pulse identity by the time that sufficient auditory information has been received to identify pulse-length, which, in light of the necessity of metre to be subject to protension (Husserl 1986), renders that bar unable to suggest metric identity.

The opposite is also true. In an extremely long bar, the effect of constantly shifting pulse identities starts to dissipate. The bar ceases to be able to take on any role of a charged local pulse density, and seems more likely to be characterised as a stable zone of middle-ground activity. This can be seen in much of *maps living among the ice of the room* (2011) (see **Fig. 5**), many sections of which contain only a single denominator, locating the principal “charging” element with the tempo line. The fact that, despite this, the complex metric vocabulary is retained adds a further layer to the sense of the piece comprising an archipelago of ambiguous, hazy islands.

Fig. 4: *schattenzeichen* (2010), mm.91-96.

Fig. 5: *maps living among the ice of the room* (2011) p.7, alto flute part.

2.2.3 Metre – defining the denominator

Having mapped out the numerator of every bar in the piece, the next stage is to delimit zones of interference. By “interference”, here, I mean the degree of incongruity between two successive denominators, described as a function of their lowest common subdivision. I have typically referred to this interference in conversation with other composers and performers as a kind of metric “dissonance”, although the analogy to pitch is a highly imperfect one that is perhaps best avoided.

I calculate the degree of interference by taking the product of the ratio between two subsequent denominators. For instance, in the case of a bar of $3/8$ followed by a bar of $3/12$, denominators of 8 and 12 stand in a 12:8 proportion, which can be reduced to their lowest common denominators of 3:2, offering a final interference value of 6. On the other hand, a bar of $3/11$ followed by a bar of $3/18$ has a ratio of 18:11, resulting in a final interference of 198. We can therefore suggest that the latter metric progression has a greater degree of interference than the former. The full table of these interrelationships is given in **Fig. 6**.

As it stands, this is not a perfect method of defining this interference, as our perception of it does not take place in an arithmetically linear way. We can observe some of the weaknesses of a table such as the one above by examining an example such as the four progressions illustrated in **Fig. 7**.

	8	9	10	11	12	13	14	16	18	20	22	24	28
8	1:1 1	8:9 72	4:5 20	8:11 88	2:3 6	8:13 104	4:7 28	1:2 2	4:9 36	2:5 10	4:11 44	1:3 3	2:7 14
9	9:8 72	1:1 1	9:10 90	9:11 99	3:4 12	9:13 117	9:14 126	9:16 144	1:2 2	9:20 180	9:22 198	3:8 24	9:28 252
10	5:4 20	10:9 90	1:1 1	10:11 110	5:6 30	10:13 130	5:7 35	5:8 40	5:9 45	1:2 2	5:11 55	5:12 60	5:14 70
11	11:8 88	11:9 99	11:10 110	1:1 1	11:12 132	11:13 143	11:14 154	11:16 176	11:18 198	11:20 220	1:2 2	11:24 264	11:28 308
12	3:2 6	4:3 12	6:5 30	12:11 132	1:1 1	12:13 156	6:7 42	3:4 12	2:3 6	3:5 15	6:11 66	1:2 2	3:7 21
13	13:8 104	13:9 117	13:10 130	13:11 143	13:12 156	1:1 1	13:14 182	13:16 208	13:18 234	13:20 260	13:22 286	13:24 312	13:28 364
14	7:4 28	14:9 126	7:5 35	14:11 154	7:6 42	14:13 182	1:1 1	7:8 56	7:9 63	7:10 70	7:11 77	7:12 84	1:2 2
16	2:1 2	16:9 144	8:5 40	16:11 176	4:3 12	16:13 208	8:7 56	1:1 1	8:9 72	4:5 20	8:11 88	2:3 6	4:7 28
18	9:4 36	2:1 2	9:5 45	18:11 198	3:2 6	18:13 234	9:7 63	9:8 72	1:1 1	9:10 90	9:11 99	3:4 12	9:14 126
20	5:2 10	20:9 180	2:1 2	20:11 220	5:3 15	20:13 260	10:7 70	5:4 20	10:9 90	1:1 1	10:11 110	5:6 30	5:7 35
22	11:4 44	22:9 198	11:5 55	2:1 2	11:6 66	22:13 286	11:7 77	11:8 88	11:9 99	11:10 110	1:1 1	11:12 132	11:14 154
24	3:1 3	8:3 24	12:5 60	24:11 264	2:1 2	24:13 312	12:7 84	3:2 6	4:3 12	6:5 30	12:11 132	1:1 1	6:7 42
28	7:2 14	28:9 252	14:5 70	28:11 308	7:3 21	28:13 364	2:1 2	7:4 28	14:9 126	7:5 35	14:11 154	7:6 42	1:1 1

Fig. 6: interference values of total field of denominators

(a)

3 **4**
13 **22**
interference = 286

(b)

3 **4**
13 **28**
interference = 364

(c)

3 **4**
8 **14**
interference = 28

(d)

3 **4**
8 **22**
interference = 44

Fig. 7: examples of interference values for a number of metric progressions

According to the table, the difference in interference between (a) and (b) (a numerical difference of 78) should be far greater than that between (c) and (d) (a numerical difference of 16). But perceptually speaking this is simply not the case. There is effectively a scaling of effect as the more abstruse ratios are reached.

I don't regard the weaknesses (or, rather, incompleteness) of this approach to defining interference to be critical, so long as these weaknesses are properly considered and accounted for in the course of the compositional process. The precise means by which these weaknesses are minimised will be explored in detail momentarily.

Zones of relative interference are defined throughout the piece, typically through repurposing existing numerical information drawn from the numerator scheme as a specification of a number of bars. At its most simple, the first numerator might describe the length (in bars) of the first zone, the second numerator the length of the second, etc. The following is an example invented for the sake of clarity (in practice the definition of these zones is somewhat less straightforward, as the underlying "system" is subjected to constant modification as I respond to the existing numerical material):

bar no:	1	2	3	4	5	6	7	8	9	10	11	12	13	14
numerator:	3	2	5	4	3	8	7	6	3	2	4	5	1	6
zones:	3			2		5					4			

Once these zones have been mapped out, each of them is assigned an interference value, which is a number between 1 and 6. This assignation is

generally first performed as a rigidly systematic reading from numerical material already generated in the course of producing the numerator line. Subsequently, this will be “overpainted” by imposing certain behaviours inspired by that systematic distribution. For instance, the imposition of gradual (i.e. “stepwise”) increases or decreases in interference, as opposed to sudden jumping. In other words, there is also a “quality of motion” superimposed on these zones, although it is one intuitively determined in response to the more unguided systematic disposition.

This zoned, six-step numerical description of interference is what permits the circumventing of the weaknesses inherent in my method of calculating interference, by treating interference as something that is (a) approximate; (b) relative; and (c) accrued over time.

The table in **Fig. 8** arranges all possible progressions from any given denominator (at left) in increasing order of interference (highlighted pairs are equivalent). The grey blocks along the top, numbered 1 to 6, designate the range of interference indicated by the number assigned to each zone in the score. For example, if the degree of interference is “3”, then starting from denominator 8, the possible choices for the next denominator are 20, 28 and 10. If 20 is chosen, then for the following denominator 16, 24 and 28 are the possible choices, and so on.

By having interference defined as something that remains valid for given collection of bars, the focus is taken off the individual motion from one bar to the next, and placed on the general accretion of interference behaviours. Rather than a single relationship needing to be universally valid, a series of relationships feeds into the fleshing out of the qualities of the limited

(approximately ten seconds) window of the musical present (D. Clarke 2009). Such an approach allows for the fact of retention in the perceptual act. Qualities of interference exist not only between consecutive bars, but also beyond (another flaw of the definition of interference). Husserl describes retention as the constant “falling back” of previous events in the consciousness of the current now-point (Husserl 1986). In other words, that events have an ongoing, although constantly diminishing, impact on our cognitive formation of objects in the present. In this sense, the use of the sort of process described above permits the generation of ongoing “types” of behaviour.

Making the structuring of denominator behaviours into a (restricted) choice, crucially, allows it to respond to the existing numerator information. In other words, the compositional process itself is modulatory, uncovering potential energies contained within each stratum.

What this process of defining metre has articulated, then, is a constant overlaying of different frames. By disaggregating seemingly co-dependent elements of numerator and denominator, and by defining denominator in response to a further zoning and definition, the process has been a constant exercise in responding to pre-existing layers.

		2				4				6			
	1				3				5				
8	8	16	24	12	20	28	10	14	18	22	9	11	13
9	9	18	12	24	8	10	11	13	14	16	20	22	28
10	10	20	8	12	14	16	18	22	24	28	9	11	13
11	11	22	8	9	10	12	13	14	16	18	20	24	28
12	12	24	18	8	9	16	20	28	10	14	22	11	13
13	13	8	9	10	11	12	14	16	18	20	22	24	28
14	14	28	8	10	12	16	18	20	22	24	9	11	13
16	16	8	24	12	20	28	10	14	18	22	9	11	13
18	18	9	12	24	8	10	14	16	20	22	28	11	13
20	20	10	8	12	16	24	28	14	18	22	9	11	13
22	22	11	8	10	12	14	16	18	20	24	28	9	13
24	24	12	8	16	18	9	20	28	10	14	22	11	13
28	28	14	8	12	16	20	24	10	18	22	9	11	13

Fig. 8: Possible metric progression ordered by interference value

2.2.4 Tempo

While the metric grid provides a proportional map of pulse lengths for the duration of the piece, this remains abstract until described in “real” performance terms by the function of tempo. Tempo may be seen to invariably stand in a modulatory relationship to other rhythmic materials. My process seeks to amplify this fact by having tempo take on a far more audibly active role in the modulation of the piece’s temporal world (that is, that they become *mutually* modulatory, mutually framing).

My tempo schemes reflect the following three priorities:

1. the tempo scheme should permit the metric grid to “speak” (framing of metre by tempo, maximum redundancy between metric frame and tempo frame);
2. the tempo should actively obscure, or smear the metric grid (minimal redundancy between metric frame and tempo frame); and
3. the tempo should take perceptual precedence over the metric grid (framing of metre by tempo).

Obviously, these three priorities are contradictory, and are not intended to operate simultaneously. The result is, ideally, a shifting ebb and flow between the perceptual prominence of metre and tempo, resulting in the engagement of the perceptual agency both of performer (as these shifting forces impact their own understanding of morphological priority) and listener (as their audition of the work alters their location of directional and interferential temporal force).

The first of these priorities is rather vague, and is best examined by looking at the ways in which metric identity is smeared or problematised in service of the second and third priorities.

The conditions under which the metric identities implied by the notated metre are problematised by tempo activity fall under three broad categories: (a) extremes of metre; (b) foregrounding of tempo behaviours; and (c) subversion of metric relationships through simultaneous tempo changes.

Extremes of tempo can make the notated metre incapable of expressing the quality of metricity (that is, its pulse content) itself.

The passage in **Fig. 9**, from the accordion part of *maps living among the ice of the room* seems harmless enough, beginning at quaver=70, and finishing at $75\frac{1}{3}$.

But once the effect of the denominator is taken into account, in real terms the bar begins at 245bpm and finishes at almost 264bpm.

McAuley (2010) points to research indicating that the physical limitations on metric efficacy lie at tempi of around 30bpm and 300bpm. The evidence for the upper figure is dictated by subjects' ability to tap or nod to pulses at such tempi. I would argue that the perceptual reality is somewhat different; that at high tempi such as this, we begin to hear pulses, regardless of notated metre, as subdivisions of larger pulses, and that therefore this figure may be considerably lower.

In this case, while I hesitate to suggest that the metre totally loses its identity, or presents as a larger metre (such as 7/14), the extreme rapidity of pulse does reduce the force of its identity *as pulse* in the context of everything else that is going on.

Metric identity is similarly problematised at extremely slow tempi, as in **Fig. 10**.

The figure shows a musical score for an accordion part. At the top, there are two tempo markings: 70 and $75 \frac{1}{3}$, connected by a diagonal line indicating a tempo change. Below the tempo markings, there are two systems of music. The first system has a piano part with notes and rests, and an accordion part with notes and rests. The second system also has a piano part and an accordion part. Red annotations include a bracket above the piano part of the first system, a bracket below the piano part of the second system, and a bracket below the accordion part of the second system. There are also some red markings on the piano part of the second system, including a wavy line and some arrows.

Fig. 9: *maps living among the ice of the room* (2011), accordion part, p.7.

The figure shows two systems of musical notation. The first system has two staves. The top staff has notes and rests, with a red bracket above it. The bottom staff has notes and rests. The second system also has two staves. The top staff has notes and rests, with a red bracket above it. The bottom staff has notes and rests. There are various rhythmic markings and dynamics throughout the score, including 11 , 12 , 13 , 10 , and 16 . There are also some red markings on the staves, including arrows and brackets.

Fig. 10: *imagines me into systems smeared along wires* (2011), mm.89-94.

At a notated tempo of semiquaver=20 (carried over from the previous page), the “real” tempo of each bar in this excerpt is 13.75, 15, 16.25, 15, 13.75, and 12.5 bpm, respectively. At such extremes, our lack of predictive ability, or, as Husserl would say, the impossibility of protension (1986), precludes metre’s vital measuring function, stops it from acting as a modulation of continuous perceived time, and sees it defining the start- and end-points of what seem more like structural periods. The pulses cease to be metric, and become durational instead.

There are circumstances in which the identity of the tempo line, through its greater perceptual presence, obscures the identity of the metric grid. In my own work, this has manifested primarily through the use of *accelerandi* and *rallentandi*.

The excerpt in **Fig. 11** from *maps living among the ice of the room* (2011) is a relatively clear and extreme example.

The entire page belongs notionally to a single metre, while the extreme (and short-range) changes in tempo, alternating between two different tempo systems (the first comprising the tempi quaver=50, $33\frac{1}{3}$, $82\frac{2}{3}$, 50, $33\frac{1}{3}$, $6\frac{2}{3}$; the second comprising the tempi quaver= $75\frac{1}{3}$, $50\frac{1}{4}$, $123\frac{1}{2}$, $75\frac{1}{3}$, $50\frac{1}{4}$, 10), render the metre near meaningless. The temporal structure of the passage is entirely defined by the tempo identity. Furthermore, the sharpness of the changes (a more than doubling of the tempo over three beats, or the division of the tempo in 5 over two beats) challenges our ability to perceive these as even being tempo shifts at all. In this case, tempo is not only problematising the metric identity, but also its own identity.

Fig. 10: *maps living among the ice of the room* (2011). p.8.

A less clearly delineated example can be found in the following passage from *imagines me into systems smeared along wires* (2011) (**Fig. 12**), in which the directionality of the tempo change takes over focus from the metric changes.

The possibility of such a perceived change in foregrounding taking place in the above example is, as indicated above, predicated upon the size of the change (here it more than doubles in speed). Also a factor, however, is the low beat density at the beginning of the change. Quaver=25 is below McAuley's stated minimum for perception of metre, suggesting the absence of any existing metric identity at the beginning to be problematised. Thus,

ultimately what we are hearing is a metric problematisation of a tempo vector, rather than the other way around.

Fig. 12: *imagines me into systems smeared along wires* (2011), mm.12-16.

A third means of problematising metric relationships through tempo is to simply place sudden tempo shifts on metric shifts. This undermines the metric scheme by producing a proportional relationship different from that notated, as is occasionally the case in *in the honeycombs of memory he built a house for the swarm of his thoughts* (2011) (**Fig. 13**).

The superimposition of the tempo change from 20 to 30 changes the proportional relationship between the two metres from the relatively modest 7:4 to the somewhat more arcane 21:8. While this is not prohibitively difficult (the metric modulation is effectively triplets nested inside septuplets), it does provide a point of disjuncture (particularly when the tempo relationships are slightly less amenable than the 3:2), creating a localised grouping, acting, in fact, as a “regular” tempo change. In terms of its capacity to actively problematise metric identity, this is a highly localised phenomenon, only problematising the immediate metric change.

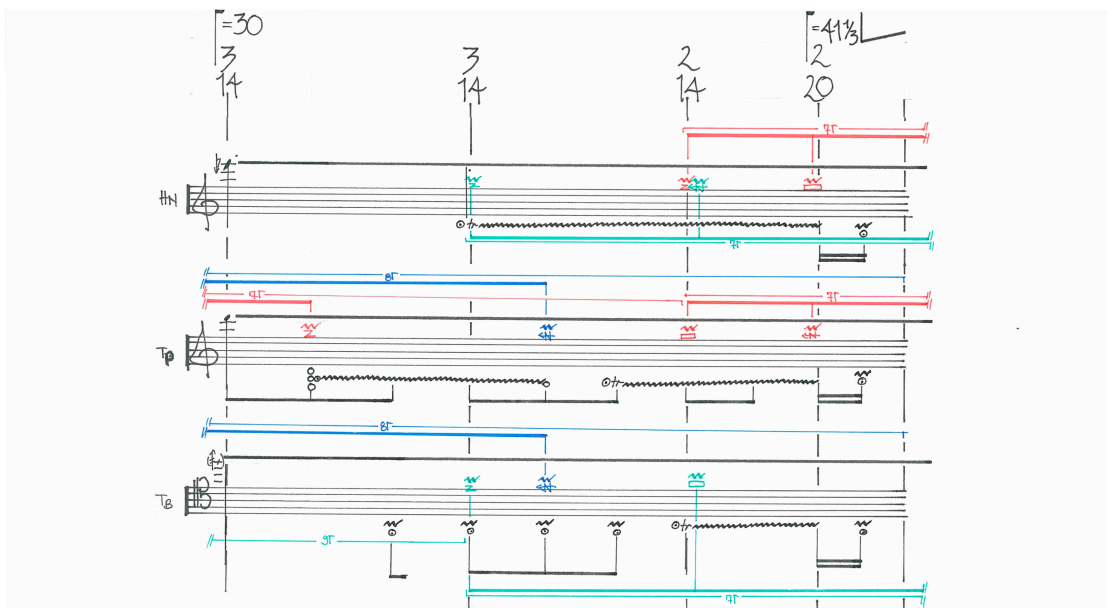
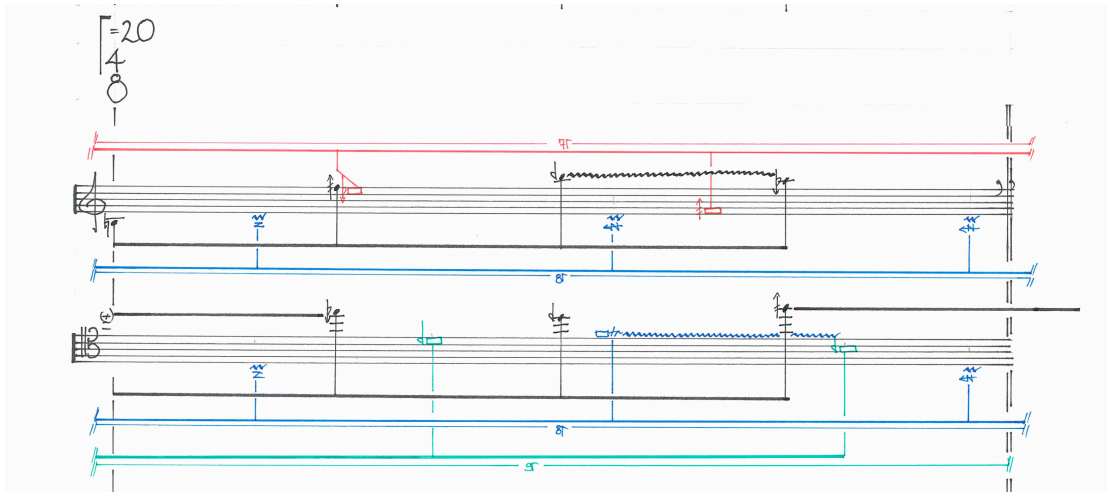


Fig. 13: *in the honeycombs of memory he built a house for the swarm of his thoughts* (2011), pp.36-37.

The actual processes employed to generate tempo material vary from piece to piece, and respond to the local exigencies of the metric material. I endeavour, for instance, to avoid laying significant tempo change over the top of tightly compacted metric changes. The processes follow similar zoning principles to those employed to generate interference patterns, and the tempi themselves

tend to be built through proportional calculations derived from numerical material already present in some strata of already-defined activity.

Rather than targeting the sorts of interactions described above in any specific way, the tempo process is geared towards discovering a way of working that will exhibit these particular behaviours without falling into tempo-related difficulties, such as getting “stuck” in a feedback loop at an extreme tempo. Earlier attempts at generating tempo material for *in the honeycombs of memory he built a house for the swarm of his thoughts* (2011), for example, resulted in tempo constantly spiralling up or down *ad infinitum*. This is was an unacceptable situation, and the terms of the process needed to be modified accordingly. On the other hand, the process finally employed in *imagines me into systems smeared along wires* (2011) resulted in a constantly decreasing tempo which, having reached an extreme of slowness (semiquaver=20), rapidly increases towards the end of the piece. Despite the seeming absurdity of such a tempo, this seemed to result in temporal contexts that would prove very interesting to work with.

2.2.5 Alternate metricities

Since *imagines me into systems smeared along wires* (2011), my scores have employed a further layer of rhythmic notation, coloured red. This layer provides what I think of as an “alternate” temporal flow.

The red notation brackets off a particular section of the piece, and divides that chronometric time (including any changes in tempo, metre, etc) into a number of precisely equal units. Because the duration of each pulse is contingent on – and framed by – the performed changes in tempo occurring under it, the precise duration is not, strictly speaking, exactly calculable, or precisely

recuperable. What the red layer notates, effectively, is actually the quality of periodicity itself.

What I was initially trying to access through this notation is the performative force required to effectively “place”, with maximum accuracy, two ultimately irreconcilable temporal strata; the energy exerted in the attempt to mentally and physically produce one plane or vector, while cognitively inhabiting another.

Due to the periodic nature of the stream of pulses, there is the distinct possibility of the red layer constituting a meaningful alternative to the metricity implied by the notated metre and tempo.

The fact of its periodicity also makes it a counting alternative in performance. That is, it would be possible to treat the red layer as the “true” metre, the ground against which the progression of musical time is measured, with the black layer treated as a problematising “other” force.

The image shows a handwritten musical score for an accordion, consisting of two staves. The upper staff is marked with a treble clef and contains a series of notes and rests. Above this staff, a red layer of notation is visible, consisting of horizontal lines and vertical pulses. Above the red layer, there are several mathematical expressions in brackets: $28\frac{1}{4}$, $37\frac{2}{3}$, $28\frac{1}{4}$, $18\frac{3}{4}$, $37\frac{2}{3}$, and 47 . Below these are the numbers 3, 3, 4, 2, 4, and 2, each followed by a 20. The lower staff is marked with a bass clef and contains notes and rests. Below the lower staff, there are several musical notations including ff , ff , ff , ff , ff , and a series of arrows pointing to the right, labeled with $[a]$, $[b]$, $[c]$, and $[d]$. A vertical dashed line is drawn at the beginning of the second measure of the upper staff.

Fig. 14: *maps living among the ice of the room* (2011), accordion, p.6.

The excerpt from *maps living among the ice of the room* (2011) in **Fig. 14**, above, demonstrates a context in which, based purely on score analysis, the perceived metricity is almost impossible to predict.

In *in the honeycombs of memory he built a house for the swarm of his thoughts* (2011), three different colours (red, blue and green) were used due to the size of the ensemble, in order to indicate more clearly to the eye temporal unison between instruments.

2.3.1 Instrumental materials

I have spent a great deal of time discussing my approach to producing the temporal schemata present in my music, in part because they are the first things finalised, and in part because those schemata are the elements most obviously divergent from whatever might be termed a “common practice” in music notation. The elephant in the room is, of course, that this rhythmic structure is, at this stage, completely silent. While I will have performed extensive work with click-tracks in the development of the temporal scheme, the scheme itself implies no such thing.

What the scheme *does* do, however, is simultaneously suggest and limit the possible direction of energies. It acts as a frame for the distribution of instrumental activity.

These rhythmic structures stand in a two-way dialogue with other material: while the articulation of any given interpretation of the temporal structure is made possible only through sympathetic mapping of sounding material onto that structure; those sounding materials themselves simultaneously can only voice themselves within that temporal structure. While, in a strictly phenomenological sense, we perceive duration as being a property of the

sounding objects, the question of attributing what durational characteristic to what material, and the effect this will have on the perception (or not) and formation (or not) of objects and relationships in time is foremost in my mind while completing all parts of the compositional process that relate to (potentially) “sounding” material.

The process of mapping instrumental events onto the temporal structure proceeds in manners very similar to the zoning processes used to determine metre. The point of these processes is not to define material *per se*, but rather to define certain types and strengths of relationships and behaviours throughout the piece. By framing compositional choice within the borders of defined qualities of relationship or behaviour, that choice is subsequently narrowed in creatively stimulating ways: “The essential task for any form of systemicization is the ordering and rendering fruitful of the internal creative mechanism of the composer himself: once pointed in the right direction, he is in a position to confront the material with almost total freedom.” (Ferneyhough 1995, p.101).

2.3.2 Categorisation of instrumental resources

I start compiling lists of possible materials at approximately the same time that I am filling in the numerators. At first, these are simply lists of the technical means of sound production available to any given instrument. These are subsequently refined into categories based firstly on their means of production, and secondly on generic qualities of the sounding result. These modes of categorisation form the basis for their organisation and distribution within the music, with a view to building relationships between different impulses.

Similarities in sound production produce concordant similarities in the resulting sounds themselves, to a greater or lesser extent.

These forms of similarity are evident in the music of Aaron Cassidy, where tenuously audible links result from both the inherent relatedness of sound modulations of similar origin, and gesturally similar materials mapped onto different physical parameters. Sound is not a disembodied thing, but rather the result of an interaction between an instrumental mechanism and the performer's body. The focus on the human, corporeal aspect of music creation is also central for Timothy McCormack, who suggests that the instrument only really *becomes* itself when in the hands of a performer, that the quality of *being played by an instrumentalist* is the essential quality of the instrumental mechanism (McCormack 2010). We become aware of the performer's tongue acting on the sound. The various sonic manipulations originating in a bass clarinetist's tongue actions are, no matter how apparently different, perceptually linked by the fact that they are produced through various types of impact upon the reed.

It is, however, precisely the tenuousness of these relationships that is of interest to me: the ephemeral nature of the frame, the "perhaps-ness" of the identities derived from their extreme context-dependence results in a dense network of relationships which, depending on myriad factors, may or may not be perceived. Regardless of whether or not those relationships are perceived or prioritised (either by the performer or the listener), they meaningfully frame the final material through the sheer fact of their presence. Just as, in negotiating a labyrinth, while not all possible paths will be travelled, the shape of any given wall is a result of the invisible paths on the other side of it.

In the percussion part to *imagines me into systems smeared along wires* (2011), the building of different degrees of relationship based on point of origin can be seen through three separate layers of categorisation. The first is the sounding instrument itself, which (drawn from a small pool of seven instruments of varying timbral qualities) features degrees of similarity ranging from identity, through similarity of sound source (resonant metal, skin, etc) to similarity of pitch, to non-similarity. The second is the “beater” (in reality the performer’s fingers, the flesh of which is used to sound the instruments, further augmented through the use of two types of thimble), with a range of similarities based on the degree of difference between any two given beaters. The third is the mode of attack, comprising a repertoire of strikes, scrapes, mutes, placements, and so forth. These filter through one another, making it possible for two consecutive attacks to exhibit a wide range of similarity from essential identity (same instrument, same beater, same attack) through extreme un-relatedness (maximally different instrument, maximally different beater, maximally different attack).

When mapped onto the temporal domain, these degrees of relationship become further complicated due to the ability of an equidistant series of pulses to draw relationships between dissimilar objects. The temporal scheme draws relationships between objects through durational similarity, while simultaneously sounding objects of greater similarity better reinforce the identity of the temporal scheme.

In **Fig. 15**, the high degree of similarity between each impulse in the lower line of the percussion part (same instrument family (skins), same beater (flesh), same attack (strike), same dynamic (*ppppp*), repeated figuration (high-low-high-low, also the fact that a variation of this figuration has grounded the

percussion part of the preceding section), and the degree of periodicity arising from the red layer, combined with the very sparse (minimally intentional) texture against which it is set, produce a context in which this takes an extremely foregrounded perceptual role in relation to its surroundings.

Fig. 15: *imagines me into systems smeared along wires* (2011), m.76

The high degree of similarity between these four elements produces an extremely strong connection between the four impulses, despite that they cross the red/black divide, framing them in a (comparatively) gestural, almost motivic way. As mentioned above, the only way in which the temporal structure is actually perceivable is through its elaboration and articulation in sounding figures such as this. Such gestural figures, not restricting themselves to simply explicating a single temporal stream, significantly undermine the temporal identity. Regardless of the coherence of any temporal system lying

behind the piece's surface, we engage with that surface perceptually as a notionally neutral plane, informed by the ways in which the piece itself frames that plane, and by our own experiences of ecological (including musical) attunement. In a context as gesturally ambiguous as these recent pieces, we gravitate towards the points of strongest relationship. It is the relative strengths of similarity, more than anything else, that dictate the perceived hierarchies of temporal material.

The second means through which relationships are drawn between materials is similarity of effect. While the process posits a possible link between two elements produced through the same means (such as subtone and fluttertongue), it also posits a possible link between two elements produced differently, but similar in sound or effect (such as fluttertongue and a throat growl).

This has been a feature of all recent works, but was used most systematically in the case of *maps living among the ice of the room* (2011), where the non-transferability of ways of organising means of production between the alto flute and the accordion became unproductively restrictive of the sorts of canonic or heterophonic strategies that could be employed.

The materials were organised by their resemblance to the behavioural archetypes outlined in **Fig. 16**.

These in no way imply specific means of production, or even specific hierarchies between them (although I regard the ornament as being intrinsically and necessarily modulatory in order to retain its function). Depressing a key on the alto flute might be ornamental, it might be a point when depressed and immediately released, it might be a "flutter" when

trilled, it might be transitional when gradually depressed or released, and it might be sustained when depressed (thus changing the pitch) and held.

Similarly, a “transition” material might be realised through gradual changes in fingering, breath pressure, flute angle, sung pitch, breathiness of tone, etc.

1.	Sustained	A sustained element, modulating or framing all simultaneous material, but static in its own right.
2.	Transitional	A gradual directional shift from one state to another.
3.	“Flutter”	A rapidly shifting/rearticulating/ alternating state.
4.	Point	A single, localised zone of effect. No envelope. Modulatory or framing in identity.
5.	Ornament	A single, localised ornamental element. Locally modulatory in identity.

Fig. 16: “gestural” types in *maps living among the ice of the room* (2011)

2.4 Formal characteristics

It will be apparent from the foregoing re-creation of the compositional process that there has been no specific energy devoted to defining form. Rather than conforming to a pre-defined structure, the formal characteristics emanate from musical behaviours over time; they are an almost accidental, almost coincidental *result* of the enactment of compositional process, rather than being a defining frame through which that process is understood.

It may seem odd then, to observe that since *imagines me into systems smeared along wires* (2011), my works have been divided into a series of very short “movements” or sections. In the case of *maps living among the ice of the room* (2011) silences are replaced by extended fermatas over actions whose length is defined by the physical properties of the performer or their instrument (such

as a pause held for as long as it takes the accordion bellows to open under their own weight while playing a top C#).

These section breaks are arbitrarily inserted at the very end of the process of composition at points that seemed structurally important during the process of folding that led to the numerator series, but given all subsequent stages of composition, these have no *functional* significance whatsoever. The nature of the composition process means that the piece has essentially been composed as if the breaks weren't there. Sounding material is notated as if it continues directly across these breaks. There is no discontinuity in the musical materials as such.

This is a case of the frame implied by the section breaks (a point of repose, an ending) being incongruent with every other sign. In my opinion, the silent section break is a frame of sufficient strength to retain its implied function as a delineator of the form of the piece (particularly in the total absence of anything else), while conversely this form is steadfastly ignored by all other framing mechanisms present in the piece.

Through the enactment of a series of processes, each performed in response to the "frame" of the piece as it stands at that point in the process, the piece gradually evolves into a highly morphologically ambiguous sedimentation of process and information. The resulting score, the trace, is an archaeology of its own history, simultaneously revealing and obscuring its own origins. The multi-layered approach results in a series of conflicting frames, conflicting intentionalities.

3. PERFORMER AS PERCEIVER

As mentioned previously, the score is conceived of as the resultant trace left by the act of composition. The compositional process leads to, and ends with the production of the score. The purpose of the score as a communicative document is to relay a fixed archaeology of the months-long process that has led to its creation, from which a performance might be constructed (one might say “composed”). As such, no attempt is made to reconcile the various conflicting, overlaid forces, or to code an “interpretation” into the score. The score is, itself, a document requiring interpretation and processing: a document to be *perceived*, in the sense established earlier. Indeed, as for Evan Johnson (2011), the score is a document evincing “the rejection of the ideal of transparency – that is, of the direct responsibility of the score to the listener and its potential recuperability”.

3.1 Temporality of learning

Faced with such wilful non-communication, the first step for the performer is to find a way into the notation. The sheer volume of non-commensurate temporal data, as well as decoupled physical parameters, requires that the score be treated in layers of information, learned one at a time. Brian Ferneyhough observes in “Unity capsule: An instant diary” that “the order in which each individual approaches this task influences the final result enormously, in spite of the fact that all interpreters are learning ‘the same piece’” (Ferneyhough 1995, p.100). For me, the most interesting aspect of this comment is the profound effect of the temporality of learning. Ferneyhough’s attribution of variance in performance, at least in part, to the order in which the layers of the piece were learned reflects the modulation of earlier-learned

material by later-learned material. To put it another way, the order of the successive framing of score information affects its outcome. The precise shape of the frame at an earlier stage in learning the piece shapes all future interpretive decisions. In this sense, the experience of decoding, processing and internalising a performance from the trace (the score) is precisely analogous to the gradual sedimentation of information over multiple steps in the compositional process that generates that trace.

The nature of the “interpretive decision” itself should be briefly explored. I understand the act of performance to be the result of an almost infinite number of nested and superimposed choices. The term “decision” or “choice” implies a certain consciousness on the part of the decider or chooser, but I don’t think this is necessarily the case. Rather, even the decisions we make unconsciously are based on our accumulated experience, in the performer’s case including the collection of personal characteristics that might loosely be termed “musicianship”, as well as the sum of their experience of *learning music*, dating back to formative instrumental lessons, combining in what might be termed a sort of “ecology of performance”. This points back to the earlier observation of the centrality of experience of the *act of reading* in relation to the *Codex Seraphinianus*. Similarly, the performer’s experience of the *act of performance* and, perhaps even more pertinently, the process of learning music, are central to the relationship between interpreter and score.

In the case of the Ferneyhough example above, the selection of the order of layers in *Unity capsule* (1976) may be a highly considered, conscious choice, or it may be quite unconscious. In a lecture-workshop devoted to Timothy McCormack’s *Mirror stratum* for contrabass clarinet and cello (2011), Richard Haynes of the ELISION ensemble demonstrated his approach to learning the

contrabass clarinet part by playing a single gesture repeatedly, starting from the “first” layer, and each time adding a subsequent layer in the order in which it was added during the learning process (Universität der Künste, Berlin. 24 October 2011). The first layer comprised almost exclusively the notated pitch materials (or, perhaps more accurately in the case of McCormack’s music, fingered materials). This seemed to be a fairly intuitively made decision – as if it were the obvious place to start – but it is, in fact, one reinforced by instrumental pedagogy that prioritises pitch and rhythmic information. As highly improbable as it would be, it is possible to imagine having decided to start with embouchure deviations, followed by articulation markings, and so on, until – finally – the fingerings are added last. This would radically change the nature of the performer’s own growing understanding of what the sound of the piece actually is.

The temporality of the learning process has in some ways been the most gratifying aspect of working with performers. Generally speaking, my work is done in collaboration with highly competent, sympathetic performers who really enjoy this sort of process. I have seen my role in this sort of relationship as being largely a permission-giving one, being reassuring while the performer is making their way through their own process of “discovering” the sound of the piece. On the other hand, given the ubiquity of short rehearsal periods, and oftentimes the difficulty of meeting with performers far in advance of the performance, this collaborative process is frequently directed towards fixing a performance, curtailing the extent to which this can be a genuine process of experimentation and discovery. Consideration for this is something I aim to build into project timelines of future collaborations, where at all possible.

A prime example of this imposition on the process is my provision of click-tracks to assist with the rapid learning of the metric proportions within the music. In the case of *imagines me into systems smeared along wires* (2011), the performance itself was undertaken with assistance from a click-track (although the performers – Richard Haynes and Peter Neville – commented in advance of the premiere performance that this had turned out to be an unnecessary, and unnecessarily detrimental, choice). While this assists with rapid uptake, it also fixes temporal hierarchies in an undesirable way. The notation seeks to produce, as much as anything, the cognitive dissonance between multiple temporal layers, which is simply impossible when one of those layers is “given” by an external source.

It would be preferable for the learning process to require a series of decisions, conscious or unconscious, based on myriad considerations including (but not limited to) the perceived significance of the material attached to each given rhythmic stratum, the physical “presence” of the sorts of materials attached to each given rhythmic layer (i.e. the degree to which the definition of the physical actions is possible to use as a ground from which to build the rest of the material), and the relative ease of placement of each of the remaining layers against each given layer. In other words, the use of a click-track beyond the early stages of learning and rehearsal actively bars, by fixing temporal identity, the perceptual agency the notation is designed to access.

3.2 Notational clarity, interpretive ambiguity

The vast majority of my notational decisions are made in order to preserve just such sorts of ambiguity, while retaining the requisite clarity of the physical gestures to be employed. The precise choreographic “material”, as

such, is supplied unambiguously, but the results will vary significantly depending on the way the interactions between these elements are interpreted. This strategy of nomenclatural clarity combined with a refusal to notate what I regard to be interpretive decisions makes the precise realisation of any given notational constellation somewhat ambiguous, ranging from the relatively small-scale ambiguity of relative weighting of notated elements, through to the far more substantial ambiguity of precise physical comportment indicated by such a combination. Thus the ambiguity is one that arises from the lack of definition produced by the inter-referential nature of notated signs, the lack of signficatory redundancy, rather than wilful lack of clarity.

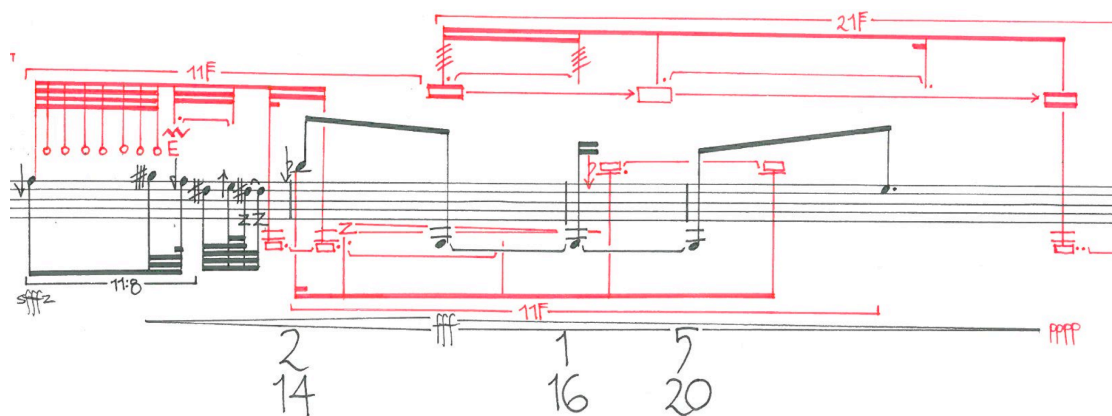


Fig. 17: *imagines me into systems smeared along wires* mm.112-115, bass clarinet.

In the excerpt from the bass clarinet part of *imagines me into systems smeared along wires* (2011) in **Fig. 17**, for instance, every single element on the page indicates a specific sonic or choreographic outcome (or, in the case of ornamental markings, a limited field of possible outcomes). But on even cursory examination their combination becomes problematic. The second half of the 2/14 bar into the 1/16 bar, for instance, features a fingered pitch, over

which is superimposed both a throat growl and a flutter-tongue, coupled with some extremely substantial embouchure distortions. In the 1/16 bar, the throat growl is replaced by a sung pitch. The *prima facie* assignation of any one of these notated elements as “primary” material is extremely difficult, as it is unclear to what degree any of these notated elements is intended to be “heard” in the way it is notated. Ultimately, the sounding result will be some balance of mutually destabilising choreographic elements, with relative importance and stability informed by a combination of conscious interpretive choice, individual physical and technical predisposition, and the order in which layers were added throughout the learning process.

The discussion thus far has emphasised the notational ambiguity targeted by my practice, which I understand to engage directly with notions of performer agency. This partially connects with a broader conversation in terms of *any* approach to notational practice; that is, the degree to which the notation denotes a specific, transmitted and transmissible sounding result or, conversely, is purely a designation of a choreography with indeterminate results. In reality, my notational practice embodies qualities of both. On the one hand, the notation and compositional process itself appear fixated with choreography as a means of drawing perceptually and interpretatively meaningful musical relationships (parameters are typically, although not exclusively, defined by different physical interactions between performer and instrument, while ornamentation invariably references its mechanical means of production, rather than its sounding result). On the other hand, while the sonic outcome my notational practice is certainly indeterminate, this indeterminacy in fact takes place within a relatively circumscribed aural space. Typically, the morphology of the sound is far more controlled and

predictable than would be expected from a music taking sonic indeterminacy as its primary aim.

This stems from an explicit – and increasing – focus on morphological indeterminacy arising from interpretive decision (or, at the very least, the filtering of the notation through the intellect and physicality of an individual performer), rather than on the sonic unpredictability arising from the confluence of materials understood to be primarily choreographic.

The possibility of locating such ambiguity in interpretive choice, however, is predicated upon notational elements having some kind of signification *beyond* simply their choreographic realisation. To this end, despite a sound world distinctly removed from that implied by traditional notation, my work is increasingly engaging with the historicity of notational symbology itself, reflecting a nomenclatural world in which symbols with an (albeit subjective and qualitative) aura of historical signification are displaced and subverted to new ends.

3.3 Notational historicity

While on a certain level the purely modulatory function of these notational elements ends up reducing their indications to their choreographic, rather than sounding, implications, the systems of nomenclature are selected precisely *because* of their connection with performance history, their possession of a *qualitative* implication beyond simply that of their choreography.

This is perhaps most easily illustrated with reference to pitch. In **Fig. 18**, featuring the woodwind and brass lines from section 8 of *in the honeycombs of memory he built a house from the swarm of his thoughts* (2011), despite the notated

pitch being constantly destabilised by a multitude of embouchure and fingering deviations in all instruments, the fact of pitch's historical primacy will suggest, for most players, that those embouchure and fingering deviations are deviations *of* the notated pitch. The notated pitch provides a point of stability from which to build up the remaining layers.

The case is similar, although much more ambiguous, with more directly historically allusive notations such as ornaments. There is a vast array of possible significations attached to the notion of the ornament, and I wouldn't presume to speak on behalf of performers engaging with such a notation, but it's reasonable to suggest that the very fact that it is clearly *ornamental* implies a certain hierarchical relationship with other notated materials. The fact that the coloured temporal strata are voiced exclusively by ornaments potentially implies a hierarchical relationship between temporal layers in which the black is dominant, merely decorated by the coloured strata. On the other hand, if one interprets the ornament to be a maximally distortive superimposition with a localised zone of impact, then the implied hierarchy is potentially reversed.

There is clearly no composer-mandated manner in which interpreters should negotiate the historicity of notation in these works – the potential hierarchical implications produced by collisions of notational devices with different degrees of historicity will mean different things to different performers. Historicity simply shapes the field of possible engagement with notation through its combination of familiar and unfamiliar signs, while also providing one more strand of *possible* information that can be drawn on.

Handwritten musical score for oboe, bass clarinet, horn, trumpet, and trombone. The score is divided into three systems. The first system has a tempo marking of quarter note = 30. Above the first system are handwritten numbers: "2 14", "2 22", and "1 12". The score includes staves for oboe, bass clarinet, horn, trumpet, and trombone. It features various musical notations such as notes, rests, slurs, and dynamic markings. There are also handwritten annotations in blue and red ink, including wavy lines and arrows. The score is marked with double bar lines and repeat signs.

Fig. 18: *in the honeycombs of memory he built a house for the swarm of his thoughts* (2011), oboe, bass clarinet, horn, trumpet and trombone, p.8.

3.4 Temporal layering

There are several passages in *in the honeycombs of memory he built a house for the swarm of his thoughts* where information for a single performer is stratified across four different incommensurate temporal strata, controlling a number of different choreographic or sounding parameters. In a very real sense, a precise replication of the notated music is unrealisable, not because of its physical impossibility, but because of the inability of human cognition, on the whole, to reconcile this number of layers of conflicting information. To approach such a passage (for example, the viola or bass clarinet solos towards the centre of the piece, or the oboe solo that concludes it) the performer must, though either experimentation or analytical interrogation (or a combination of both) arrive at something they regard as a meaningful hierarchy of events. This is perhaps most necessary in the case of the approach to time. I take it as a given that a performer will be working with only one internal clock (although I suppose hypothetically there may be individuals for whom this general psychological limitation does not apply, or who can find ways around it). As such, given the superimposition of four different clocks, it is necessary to make a decision as to which clock is going to be “counted”, and which act as a superimposition.

The constitution of the score itself as a document of uncertain intentionality – a series of incongruent, non-redundant frames – produces a performance context that is heavily reliant on perceptual agency at both conscious and unconscious levels in order to construct a performance.

4. THE PORTFOLIO PIECES

The outlining of any single, unifying aesthetic position uniting the four pieces discussed in this thesis, composed over a period of two years, is at best a convenient (if necessary) fiction. In reality, the thesis represents a kind of taking-stock of the present state, at a single point in time, of an aesthetic position that is in reality an ongoing process of exploration. While the preceding discussion presents an accurate account of my philosophical and technical preoccupations at the time of writing, this is not a set of preoccupations that has remained fixed. Rather, it has simultaneously informed and been informed by the act of composition itself.

This short chapter provides a brief description of each of the works included in the portfolio of compositions. This is not a collection of programme notes, or a composition diary, but rather aims to trace the formation and development of those elements that have become central to the musical thought outlined in this thesis. This is also a significantly more “reflective” discussion than the preceding chapters, having to do necessarily with the recollection of subjective compositional priority and shifting aesthetic intent, rather than concrete statements.

4.1 *schattenzeichen* (2010)

Completed in August 2010, *schattenzeichen* marked a significant break from previous pieces of mine primarily in terms of the extreme degree of parametric decoupling employed at both compositional and performative levels. It also marked the first time I had employed an extended metric vocabulary in any of my work.

The compositional process itself was built around a vocabulary of parameters including more traditionally “musical” parameters such as dynamic, range and pitch, as well as physical parameters such as embouchure shape, finger pressure, bow pressure, etc. These parameters were required to voice a small selection of intentionally banal, “archetypal” materials (silence, sustained sound, trill, glissando, scale, etc) which could be fluidly interpreted in terms of their precise musical/ notational realisation. Each of these interactions between parameter and material, and their rates of change, were composed separately, as if it were a single piece for large ensemble (there were twenty-eight different parameters in total) which was then condensed onto the two instruments of the duo.

The purpose of working this way compositionally was never to dictate material *per se*, but rather to paint me into a series of difficult compositional situations that I would then need to respond creatively to, in a hopefully original manner. Each confluence of parameter and material describes, in essence, a challenge to be surmounted, rather than a prescription of a given result.

In retrospect, the manner in which fixing notes on the page represents a response to a given context is a fairly clear precursor of what I have come to explicitly think of as framing.

At the performative and sonic level, such an approach resulted in a significantly increased access to what at the time I thought of as “transitional” acoustic spaces, such as the sonic degradation of the viola tone as the finger pressure changes, for example. The appeal of such a sonic vocabulary was twofold: firstly the attractive complexity of the sound itself; and secondly its

ambiguity of function. In other words, *schattenzeichen* consistently poses the question as to the point at which a choreographic instruction (a change in bow pressure, for instance) takes on such perceptual presence that it supplants the notional dominance of (intentionally unimposing) more traditional materials (e.g. pitch).

schattenzeichen's employment of extended metric vocabularies is similar to the approach taken by Brian Ferneyhough in pieces such as *Superscriptio* (1981), in that the bar is understood essentially as a container (of varying size) for the compartment of energies unrelated to underlying pulse. This renders metre ultimately a descriptor of chronometric time, in stark contrast to the manner in which this thesis describes my treatment of metre. It was, however, during the process of composing this, and learning to count such metric changes, that I first became interested in the qualities of potential metric interference discussed earlier in Chapter Two.

The pitch material in *schattenzeichen* is regarded as a ground, as a basis for distortion, yet this very quality implies an understanding that pitch is inherently valid material in its own right. This pitch philosophy is, if anything, the vestigial remains of previous ways of working, and was to be systematically (if gradually) undermined and eradicated in subsequent pieces. At this point, however, relationships and correlations are drawn in the domain of pitch between the instruments and, while events such as scales and *glissandi* are conceived of as concrete objects in their right, they are understood to serve primarily through as a means of articulating pitch (or, at the very least, find their articulation with reference to definite pitch). More succinctly: *schattenzeichen* regards of pitch to have a kind of meaningful *a priori* identity separate from its realisation in sound.

4.2 *imagines me into systems smeared along wires* (2011)

Completed in January 2011, *imagines me into systems smeared along wires* was a direct result, in many respects, of avenues opened up through *schattenzeichen*. The most readily apparent from its notational innovations are its investment in temporality and ornament.

The developments in temporal practice stemmed from the metric experiments conducted in *schattenzeichen*. Initially, this originated in a sense that, if one were to use such an extended metric palette (which, at least as a notational conceit, inescapably deals with the concept of pulse), this implied, rightly or wrongly, a certain obligation to the notion of pulse as an element in its own right – that it *not* be a neutral division of chronometric time, but rather be permitted the possibility of “speaking”, itself; that it be able to constitute a primary and (at least potentially) audible part of the music’s fabric. The complex rhythms of a piece such as *schtattenzeichen*, on the other hand, actively obscure any independent interest that might be present in the metric structure. In order to better explore and develop this aspect of my music, I needed to “get out of the metre’s way”.

To satisfy this vaguely sensed obligation to vivify the pulse-world of my music, I took the apparently extreme step of eliminating *all* extraneous rhythmic detail, leaving a skeleton constructed *only* of pulse. Where previous pieces had been tangled networks of tuplets built upon a relatively neutral pulse and tempo framework, in *imagines me into systems smeared along wires* the entire temporal life of the piece is subsumed within that framework itself.

imagines me into systems smeared along wires also marks my first experiments with extremes of tempo. These were undertaken with a view to negotiating

and crossing the line between the perception of something as “pulse” (conceived of as a single fabric having a density, or perhaps rather a “viscosity”) and the perception of discrete “events”.

One of the ways in which I “got out of metre’s way” in this piece is evident from the manner in which pitch is deployed: nearly every single metric pulse in the entire piece activates a new pitch in the bass clarinet part. The pitch material itself is drawn from a single, essentially unmodified, harmonic series (although this is somewhat obscured by its tempering to quarter-tones and smaller inflections, as well as the fact that most of the pitch material is so high in the spectrum that its identity as a spectrum is itself rarely overt). Pitch is, in *imagines me into systems smeared along wires*, understood as a basis for distortion and elaboration, but is still privileged in terms of identity compared to other elements. Pitch is regarded as having a stronger “perception-drawing” weight than other parameters, and is still treated as having identity in its own right (i.e. a dot on the five-line staff denotes an actual *pitch*, rather than simply a fingering). It is not until the very last page that pitch material is realistically supplanted by embouchure material in the bass clarinet part.

On the other hand, however, architectural relationships across the span of the piece are shifted away from the domain of pitch, and towards parametric similarity. Relationships are drawn between similarity of production-means, and similarity of effect, but very rarely is pitch employed as an unproblematised means of drawing reference between different points.

imagines me into systems smeared along wires also marks the first time that ornamentation appears extensively in any piece of mine. Certainly it was the first time that I had delegated any significant executive choice to the

performer (certain types of indeterminacy have been present in my work since approximately 2003, but what the performer is actually expected to *do* had always been clearly defined). In addition to the implied problematisation of hierarchies and text/ornament relationships (discussed previously in this thesis), this was intended to shift the signification of the notation away from the intentionality implied by concrete musical materials, and towards a (tentatively and conditionally expressed) descriptor of a quality and zone of impact. This shift reflects my gradually changing understanding of my musical “materials” from a collision of relatively well-defined *objects* (i.e. notionally intentional elements that admit of a single identity, which they themselves describe) to a collision of potentially ill-defined *forces* (i.e. non-intentional elements that contribute to the postulation, in the act of performance, of a highly provisional, highly unstable state from which an identity might be inferred).

Another immediately and visually obvious innovation in this work is the introduction of coloured temporal notation. This seemed a perfectly natural response to the circumstances of a temporal topology built entirely on pulse (in other words, the proposition of multiple, simultaneous layers of pulse was a very small logical step from the original premise). The implications of such an approach to pulse (particularly in terms of aspects of perception and hierarchy) remain central to my ongoing compositional work, and the pieces subsequent to *imagines me into systems smeared along wires* show a continued tinkering and experimentation with the results of varying approaches to this material.

4.3 in the honeycombs of memory he built a house for the swarm of his thoughts (2011)

in the honeycombs of memory he built a house for the swarm of his thoughts, completed in July 2011, is perhaps best understood as stemming from the challenges of mapping the preoccupations of *imagines me into systems smeared along wires* onto a larger, conducted ensemble. The compositional process itself was, in fact, extremely similar.

My experience of the rehearsal process for *imagines me into systems smeared along wires* had taught me that, in terms of achieving the desired activation of performer agency in the face of multiple temporal layers, an externally provided beat (such as one originating from an in-performance click-track, or, in the case of *honeycombs*, a conductor) is extremely counter-productive, in that it effectively removes agency in favour of passive response. The solution to this particular problem was to delegate some of the “conducting” responsibility to the players themselves. Each coloured layer has, at any given time, a “leader”, who is to be followed by all other players with material in that colour. In principle, the difficulty of essentially following two conductors at once, in addition to the shifting patterns and weight of unison attack throughout the ensemble, should offer sufficient basis for the requisite tension between these multiple layers, resulting in the need to individually prioritise and synthesise them.

Another difference is in the sheer volume of temporal information itself (four temporal strata, mapped across eight instruments). This was, essentially, intended to be quite *literally* audibly indecipherable, with audited temporal

morphology becoming an unpredictable by-product of those shifting patterns of correlation and unison.

in the honeycombs of memory he built a house for the swarm of his thoughts also offers a significant shift in thinking about pitch when compared with *imagines me into systems smeared along wires*. Pitch is composed in canonic structures, and the pitch vocabulary is drawn from the harmonic series in precisely the same way as in *imagines me*. However, the composed “pitches” are rarely permitted to exist without some form of radical distortion applied, which is clearly visible through the preponderance of graphically-indicated squawks and sweeps in all of the wind and brass parts. Where the notated pitch is left without being interfered with (particularly sections 13 and 22), this is conceived of as a notable feature in its own right: a kind of clearing of distortive and contradictory information, leaving only the pitch domain, is conceived of as a “flattening” – a translation of all musical information into a single dimension. These “flattening” could hypothetically have taken place onto a parameter other than pitch. Indeed, analogous “flattening” occur in other places throughout the piece, such as the flattening onto single instruments in sections 14 and 15, the former also completely *erasing* the domain of pitch in favour of an extraordinarily slow *glissando* at a bow speed unlikely to reliably produce definite pitch at all.

4.4 maps living among the ice of the room (2011)

Composed in September 2011, *maps living among the ice of the room* represents, in many respects, a clarification and enhancement of the concerns of the previous two pieces, forming the third part in what I informally regard as a sort of developmental trilogy.

The primary advances are the total foreswearing of pitch as a valid organisational domain at all, and the introduction of elements dependant on the physical characteristics of the performers for their duration. There is also no unanimous temporal scale; rather, the players are always playing independently, with only certain starting points for events synchronised – thus the players are constantly mutually-dependant, while never actually playing “together”.

The way pitch is dealt with in *maps living among the ice of the room* varies between the two instruments. In the case of the flute, pitches were selected primarily for their fingering properties, both in terms of tube length and the sorts of finger trills that would be available. The trills themselves were selected for their comparative volume and resonance, or the degree to which they would destabilise any sounding pitch that may be present. Indeed, the flute part contains very few “standard” pitched notes that actually *sound*, but rather comprises a vocabulary of breath and half-sounds. The “pitch” structure itself makes frequent use of repetition, but pitch has become so ephemeral as to make their description as pitch relationships almost meaningless. Rather, these relationships are correlations of tube length, with the corresponding audibly linkable relationships in timbre. Furthermore, any given “pitch” identity tends to be held for such a length of time that it’s ability to behave in a motivic or harmonic way is severely hindered.

The accordion part, on the other hand, cannot escape definite pitch. Pitch is rather rendered meaningless through an attempt at *over*-definition. Pitches remain static for an often uncomfortably long time, losing their weight as a shifting, shiftable “material” that could be discursively functional. It redirects attention towards the multitude of finger and bellows manipulations being

superimposed on those pitches. “Chords” appear in the accordion part (something largely foreign to my work). Such harmonic identities, in other music typically meaningful or functional in some way, are here removed from such a meaning-giving context. They become strange, out-of-place and isolated in an expressive world constructed from the physicality of breath.

The insights into my practice and priorities expressed in this thesis are, in essence, a statement of where things stand following the composition of *maps living among the ice of the room*. No doubt things will continue to develop, in ways that will be partially explored in the Conclusion.

CONCLUSION

The foregoing has been a discussion of attitudes of compositional and musical practice that are still in the process of taking shape. In this sense, my own compositional development is itself an ongoing process of listening and responding to my own work, and the work of others. The act of composing a piece is not an attempt to “solve” the constellation of questions and preoccupations discussed in this thesis, but rather to find new ways of engaging with and exploring those issues.

The major new development in the compositional processes developed in this series of pieces is the approach to temporal structuring, and its interaction with the available instrumental materials.

I think the outcomes of the pieces employing these processes are highly promising, although it is too soon to assess the broader success of these strategies. Such reflection will need to wait until a greater number of performances, by different performers, has taken place.

There are a number of avenues for future exploration, such as the ordering of the compositional process itself. Just as the order in which a performer learns layers of score information has a substantial effect on the sounding result, so the order in which compositional processes are layered affects the final shape of the gradually narrowing frame.

Since the beginning of 2012, I have been composing a number of text-based scores, typically of open instrumentation and duration. These began as experiments purely for research purposes, to better understand certain aspects of the way we perceive form in the case of pieces in which a specific architecture is not defined. There have been a number of aspects, however,

that would profitably translate into my more fully-notated works. Particularly appealing is the notion that the composition of a given parameter might reflect similar processes to those of constructing a performance of such scores.

In terms of these text scores themselves, I intend to continue exploring such alternative approaches to notation, which will potentially broaden both the palette of my music itself, and the social and performance contexts in which it is heard.

A focus for the immediate future is on works with a significantly increased sparseness and duration. By radically increasing the distance between things, I hope to substantially undermine their fixity which, given the explicit focus on performer and listener agency in the face of increasing levels of ambiguity, offers one avenue of progression. This will manifest most obviously in a large-scale (60+ minutes) work for ensemble, comprising smaller interlocking component works, entitled *WALD* (after the Gerhard Richter book of forestry photography); and in a series of one-page “microscores” for solo instrument intended to be played (truly) as slow as possible, to the point of fundamentally shifting any possible meaning that rhythmic notation can have (the first, currently in progress, is titled *der schatten eines vogels zog über dein gesicht* and comprises a single system on a single page for violin with an intended duration of between 5 and 30 minutes).

There is also potential for development in the utilisation of the temporal scheme itself. As alluded to in the body of the thesis, the use of time signature to affect proportional change in pulse width has, depending on viewpoint, either the virtue or the limitation of restricting the proportional vocabulary available. Similarly, its grounding in traditional metric notations adds to those

proportional identities a patina of either resonant historicism or needless obscurantism. There is certainly scope to re-imagine the notational and compositional strategies employed for this purpose to more directly express the bare concepts embodied therein.

One element that, to my mind, *requires* reconsideration and development is the approach to large-scale form. While, on a medium-ground level, the formal structure *do* seem to result from local context-based relationships, the fact that there is so much leeway in terms of compositional choice has allowed a relatively uninterrogated Romanticism to creep into the large-scale forms of the pieces – the endings in particular. The comparatively polite conventionality of these endings, while in certain respects quite exhilarating, unfortunately frame the preceding piece in a manner which, to my mind, uncomfortably situates it as a “normal” piece of music. It effectively *solves* the problem of identity (or, at least, does so slightly too much). I need to develop means of having large-scale architecture better reflect (or emanate from) the local weirdnesses of the music. In part, this is what I am hoping that *WALD* and the microscores will achieve.

In general, these priorities for future directions reflect, on the one hand, an increasing engagement with the “experimental” (in the loosest possible sense) aspects of my work, and on the other hand, the stripping away of accumulated baggage in order to get to the heart of what is interesting to me in this regard.

What has been successful in my work over the last two years, however, is the engineering of attitudes to compositional process that reflect my own

preferences and engagement with the world: a constant questioning, and a constant listening.

NOTES

ⁱ “Unser Blickfeld ist zu weit, um zu sehen. Unser Leben ist zu viel, um es wahrnehmen. Sehen und Erkenntnis kommt nur aus der Einengung, Eingrenzung. ... Wir erkennen etwas, sobald wir den Ausschnitt fokussieren, einengen, ein Detail beobachten, und Detail heißt, einen Rahmen setzen. Rahmen kann eine Denkweise, eine Methode, ein Kriterium – irgendeine Art von Filter sein.”

ⁱⁱ In dem Moment, in dem unsere Aktivität in die Prozesse eingreift, verändern wir jene und verfälschen sie damit. ... “Last die Klänge sie selbst sein” soll aber nicht als seine Abwendung vom Hören gedeutet werden (Lasst die Klänge für sich), sondern im Gegenteil der nichtabgestumpften, aufmersamen Passivität den Weg bahnen (Hört den Klängen beim Sie- selbst-Sein zu).

ⁱⁱⁱ “...die vielleicht wesentlichsten – oder mir kostbarsten – Aspekte von Kunst funktionieren nicht nach dem Sender-Empfänger-Modell von Botschaften. Höchstens vielleicht, wenn wir die Kausalkette umkehren – was natürlich streng verboten ist! – und den Künstler zum Empfänger, den Wahrnehmenden aber zum Sender machen. Höchstens also, wenn der Empfang, die Empfänglichkeit, die Fähigkeit, sich selbst zur Membran zu machen und in Schwingung zu geraten, die eigentliche Botschaft ist. Wenn die Botschaft keine weitergegebene Information (Festlegung, Faktum), sondern die Infragestellung des Faktischen und die Aufweichung des Gefestigten ist. Wenn also vom Künstler nichts weitergegeben wird (keine Daten), sondern im Rezipienten eher etwas wie ein neuer / unentdeckter Sinn sich öffnet (etwas, das selbst Daten produziert – so, als würde er eine für den Wahrnehmenden neue Software anwenden), und dies Öffnung Platz schafft für Empfindungen (Sinnesdaten), die dann schon viel eher, als das Kunstwerk selbst, die Gestalt einer Information, einer Sendung, annehmen können.”

^{iv} Information IST Redundanz: “Die Tautologie sagt laut Wittgenstein nichts aus über die Welt und halt keinerlei Beziehung zu ihr (*Tractatus*). Ich glaube dagegen, daß die Tautologie das Grundprinzip von Sprache überhaupt ist. Beziehungsweise das Grundprinzip der Beziehung von Sprache und Welt. Jede Beschreibung, Erklärung, Analyse, Definition ist genau in der analogen Weise Verdopplung, Wiederholung, Redundanz wie das die Tautologie auch ist. Etwas entsprechendes gilt auch für “Information”. Es ist nicht so, daß Information das ist, was sich vom Redundanten abhebt. Es ist vielmehr umgekehrt, daß Information ohne Redundanz gar nicht möglich ist. Redundanz hat etwas zu tun mit “Rahmen”; etwas wiederholen heißt, es näher zu fassen kriegen, es fixieren, ausschneiden aus seiner Umgebung, es rahmen. Auch für “Bedeutung” gilt das Gleiche: Bedeutung und Verdopplung oder Unterstreichung, Hervorhebung sind ohnehin fast synonym.

Bedeutung, Information, Begreifen sind alles *redundanz-abhängige* Transformationen dessen, was ist. Aber das was ist, ist das Unbedeutende, Nicht-Informative, Unbegriffene: die Welt, so wie sie uns umgibt und wir in ihr sind.”

REFERENCES

Texts

- Ablinger, P. (n.d.) *English texts*. retrieved 5 March 2012 from <http://ablinger.mur.at/engl.html>.
- Ablinger, P. (1995a). *Rauschen/Stichworte*. retrieved 5 December 2010 from <http://ablinger.mur.at/docs/rauschen-stichworte.pdf>.
- Ablinger, P. (1995b). *Rauschen/Hypothesen*. retrieved 5 December 2010 from <http://ablinger.mur.at/docs/rauschen-hypothesen.pdf>.
- Ablinger, P. (1998). *Konventionalität der Musik*. retrieved 5 December 2010 from <http://ablinger.mur.at/docs/konventionalitaet.pdf>.
- Ablinger, P. (2004). *Metaphern*. retrieved 5 December 2010 from <http://ablinger.mur.at/docs/metaphern.pdf>.
- Ablinger, P. (2007). *Sonate/Ausdruck*. retrieved 5 December 2010 from <http://ablinger.mur.at/docs/ausdruck.pdf>.
- Barthes, R. (1965). Objective literature: Alain Robbe-Grillet. *Two novels by Robbe Grillet* R. Howard (trans). New York: Grove Press.
- Benjamin, W. (1955). *Illuminations*. H. Ahrendt (ed). New York: Schocken Books.
- Bergson, H. (1910). *Time and free will*. F. Pogson (trans). London: Allen & Unwin.
- Bergson, H. (1911). *Creative evolution*. A. Mitchell (trans). New York: Modern Library.
- Bergson, H. (1988). *Matter and memory*. N.M. Paul (trans). New York: Zone Books.
- Buchloh, B. (2009). *Gerhard Richter: Large abstracts*. Ostfildern, Germany: Hatje Cantz Verlag.
- Cage, J. (1968). *Silence*. London: Calder and Boyars.
- Clarke, D. (2009). "Structural, cognitive and semiotic aspects of the musical present" in *Contemporary Music Review*. 3:1. 111-131.
- Clarke, E. F. (2005). *Ways of listening*. Oxford: Oxford University Press.
- Danielewski, M.Z. (2000). *House of leaves*. New York: Pantheon Books.
- Davico, N. (2010). Gérard Grisey : time and process. In *Beyond the centres: Musical avant-gardes since 1950*. 1-8.
- Deleuze, G. (1994). *Difference and repetition*. P. Patton (trans). New York: Columbia University Press.

-
- Deleuze, G. (2003). *Francis Bacon: the logic of sensation*. D. Smith (trans). London: Continuum.
- Deleuze, G. (1972). *Proust and signs*. R. Howard (trans). London: Continuum.
- Deleuze, G. (1993). *The Fold: Leibniz and the Baroque*. T. Conley (trans). London: Continuum.
- Deleuze, G. (1990). *The logic of sense*. C.V. Boundas (trans). London: Continuum.
- Deleuze, G. & Guattari, F. (1987). *A thousand plateaus*. B. Massumi (trans). Minneapolis: University of Minnesota Press.
- Derrida, J. (1973). *Speech and phenomena and other essays on Husserl's theory of signs*. D.B. Allison (trans). Evanston: Northwestern University Press.
- Derrida, J. (1976). *Of Grammatology*. G. Spivak (trans). Baltimore and London: Johns Hopkins University Press.
- Ferneyhough, B. (1995). *Brian Ferneyhough: Collected writings*. J. Boros & R. Toop (eds). Milton Park, UK: Routledge.
- Fuchs, M. (n.d.) *Disembodied online*. retrieved 12 March 2012 from <http://kig.mur.at/thema/media/disembod.htm>.
- Goldman, R.F. 1961. Varèse: *Ionisation; Density 21.5; Intégrales; Octandre; Hyperprism; Poème Electronique*. Instrumentalists, cond. Robert Craft. Columbia MS 6146 (stereo). *Musical Quarterly* 47, no 1. 133–34.
- Grisey, G. (1987). "Tempus ex machina": A composer's reflections on musical time. *Contemporary Music Review*. 1(1). 239-275.
- Hurder, J. [n.d.] *The world of Luigi Serafini*. retrieved 17 March 2012 from <http://chancepress.wordpress.com/serafini/>.
- Husserl, E. (1960). *Cartesian meditations* D. Cairns (trans). The Hague: Martinus Nijhoff Publishers.
- Husserl, E. (1970) *Logical Investigations*. J. Findlay (trans.) London: Routledge.
- Husserl, E. (1985). *Die phänomenologische Methode (Ausgewählte Texte I)*. K. Held (ed). Stuttgart: Reclam.
- Husserl, E. (1986). *Phänomenologie der Lebenswelt (Ausgewählte Texte II)*. K. Held (ed). Stuttgart: Reclam.
- Iser, W. (2000). *The range of interpretation*. New York: Columbia University Press.
- Johansen, M. (2010). What is musical metre?. *Musikk og tradisjon* No 24. pp.41-59.
- Johnson, E. (2011). *On waste and superfluity: Recent works*. [n.p.]

Jones, M.R. (1981). Music as a stimulus for psychological motion: Part I. Some determinants of expectancies. *Psycholomusicology*. 1(2). 34-51.

Jones, M.R. & Boltz, M. (1989). Dynamic attending and responses to time. *Psychological review*. 96(3). 459-91.

Jordan, R. (2007). Case study: Film sound, acoustic ecology, and performance in electroacoustic music. In J. Sexton (ed.), *Music, sound and multimedia: From the live to the virtual*. Edinburgh: Edinburgh University Press. 121-141.

Lachenmann, H. (1996). *Musik als existentielle Erfahrung*. J. Häusler (ed). Wiesbaden: Breitkopf & Härtel.

London, J. (1995). Some examples of complex meters and their implications for models of metric perception. *Music Perception*. 13(1). 59-77.

London, J. (2002). Cognitive constraints on metric systems: Some observations and hypotheses. *Music perception*. 19(4). 529-550.

Mahnkopf, C.-S. (ed). (2004). *New Music and Aesthetics in the 21st Century Volume 3: The Foundations of Contemporary Composition*. Hofheim: Wolke Verlag.

Mahnkopft, C.-S., Cox, F. & Schurig, W. (eds). (2004). *New Music and Aesthetics in the 21st Century Volume 2: Musical Morphology*. Hofheim: Wolke Verlag.

Mahnkopf, C.-S., Cox, F. & Schurig, W. (eds). (2008). *New Music and Aesthetics in the 21st Century Volume 6: Facets of the Second Modernity*. Hofheim: Wolke Verlag.

McAuley, J.D. (2010) Tempo and rhythm. *Music perception*. M.R. Jones et al. (eds). *Springer handbook of auditory research* 36. 165-199.

McCormack, T. (2010). *Instrumental mechanism and physicality as compositional resources*. [thesis] University of Huddersfield.

Merleau-Ponty, M. (1962). *Phenomenology of perception*. C. Smith (trans). London: Routledge.

Nattiez, J-J. (1990). *Music and discourse: Toward a semiology of music*. C. Abbate (trans). Princeton: Princeton University Press.

Serafini, L. (1981). *Codex Seraphinianus*. New York: Abbeville Press.

Wolff, C. (2009). *Cues – Writings and conversations*. Cologne: MusikTexte.

Scores:

Ablinger, P. (2002). *1-127*. Vienna: Zeitvertrieb.

Barrett, R. (1998). *Opening of the mouth*. London: UMP.

Beuger, A. (2009). *Two*. Düsseldorf: Wandelweiser.

-
- Beuger, A. (2010). *Keine fernem mehr*. Düsseldorf: Wandelweiser.
- Cage, J. (1951). *Music of changes* [score] London: Peters Edition.
- Cage, J. (1952). *4'33"* [score] London: Peters Edition.
- Cassidy, A. (2009). *Being itself a catastrophe, the diagram must not create a catastrophe (or, Third Study for Figures at the Base of a Crucifixion)*. self-published.
- Cassidy, A. (2009). *And the scream, Bacon's scream, is the operation by which the entire body unfolds through the mouth (or, Three Studies for Figures at the Base of a Crucifixion)*. self-published.
- Cassidy, A. (2010). *Second string quartet*. self-published.
- Feldman, M. (1981). *Patterns in a chromatic field*. New York: Universal Edition.
- Feldman, M. (1983). *String quartet II*. New York: Universal Edition.
- Feldman, M. (1987). *For Samuel Beckett*. New York: Universal Edition.
- Ferneyhough, B. (1976). *Unity capsule*. London: Peters Edition.
- Ferneyhough, B. (1980). *Second string quartet*. London: Peters Edition.
- Ferneyhough, B. (1981). *Superscriptio*. London: Peters Edition.
- Ferneyhough, B. (1988). *La chute d'Icare*. London: Peters Edition.
- Ferneyhough, B. (2006). *Shadowtime*. London: Peters Edition.
- Finnissy, M. (2006). *First political agenda*. Karlsruhe: Tre Media Musikverlag.
- Isaacs, B. (2009). *allone*. self-published.
- Isaacs, B. (2010). *I want to write a book like a cloud that changes as it goes, he said*. self-published.
- Johnson, E. (2008). *apostrophe 1: all communication is a form of complaint*. self-published.
- Johnson, E. (2008). *apostrophe 2: pressing down on my sternum*. self-published.
- Johnson, E. (2010). *Ground*. self-published.
- Johnson, E. (2010). *L'art de toucher de clavecin 2*. self-published.
- Lim, L. (2008). *The Navigator*. Munich: Ricordi.
- Lim, L. (2009). *Invisibility*. Munich: Ricordi.
- McCormack, T. (2010). *One flat thing reproduced*. self-published.
- McCormack, T. (2011). *Mirror stratum*. self-published.
- McCormack, T. (2011). *Glass stratum*. self-published.