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*the churches of Lalibela: erosion and encrustation
as transformative musical processes*

Matthew Sergeant

A thesis and portfolio of original compositions submitted
to the University of Huddersfield in partial fulfilment of the
requirements of the degree of doctor of philosophy.

September 2013

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Notes:

- i. Figure numbers correspond to the section numbers provided in the contents page (i.e. Figure 2.1(x) is included within Section 2.1).
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Abstract

This thesis outlines a new compositional grammar for my recent compositional practice as demonstrated by the collection of original musical work supplied in the accompanying folio of compositions, itself collectively titled *the churches of Lalibela*. The grammar here outlined and explored presents developments in compositional procedure resulting from re-considering acts of musical transformation in terms of erosion and encrustation. Within the terminologies of this thesis, erosion and encrustation are understood as classes of compositional action (applied to musical materials) defined by operations of erasure/removal and addition/accrual respectively. Using examples from the visual arts as a mechanism for discussion, the thesis develops a wider conceptual understanding of these terms, allowing them to be considered no longer as opposites but as intertwined mechanisms mutually achieving a state of material distortion. A compositional scenario is thus derived in which the sonic surface of a given instance of a composition can be understood as being comprised of the debris resulting from such processes. To develop an understanding of this scenario, the thesis further explores ideas concerning ambiguity of material definition and the role such ambiguity can play in relation to material comparison within the experience of a musical discourse. As such, the grammar here derived can be said to exposit a preoccupation with comparison of material debris of different classes and/or degrees of distortion within the listening experience. The thesis also explores the nature and function of material consistency with regard to definition, illustrating the difference between two terms with a notion of consistency achieved through inconsistency.

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Introduction

0.1. Beginnings

For me, it is interesting to note that the chain of events that eventually led to the writing of this thesis can actually be traced back to 2003, to the bookshop that was then just inside the Royal Festival Hall, on London's South Bank. Casually perusing the stock of the shop with no particular agenda, I pulled from the shelf a copy of Michael Hall's book¹ on the music of Harrison Birtwistle (Hall 2000), a composer whose music, at the time, I had barely heard with any regularity. It was a particular phrase cited by Hall in introducing Birtwistle's music that caught my attention on that day and has held it ever since:

[Birtwistle] said he wanted to try and put into a few words what was common to all the works he had composed. At first he came up with 'a continuum that's been fractured', 'a logic that's been disturbed'. Then he remembered what Frances Bacon had said about his aims: 'What I've wanted to do is make things that are very formal yet coming to pieces'. (Hall 2000 p.ix)

Read in this abstracted context – divorced from the musical work to which it was originally applied – to me, such descriptions presented a fascinating proposal: a claim to a musical vocabulary built from hybrid forces of logic/coherence and irrationality/incoherence.

Written nearly exactly ten years after this initial encounter, what this thesis presents are my own attempts to understand and occupy this creative space, a space in which disruption and distortion are harnessed as centralised compositional concerns. As a result, in essence what is outlined here is the result of a creative exploration of this territory and the derivation of a new grammar for my compositional practice to fill it.

0.2. The Lalibela site as metaphor

The folio of compositional work that accompanies this thesis is collectively titled *the churches of lalibela*, a reference to the numerous thirteenth-century rock-hewn churches at the UNESCO World Heritage site in Lalibela, northern Ethiopia. The names of some of the individual churches have been used as titles for each of the folio's seven constituent compositions. For me, such a reference is not some kind of micro programme note – the

¹ Hall's second book on the subject, I later discovered.

compositions presented here do not in any way attempt to be poetically descriptive of the churches as physical structures – instead, the churches have served as a multidimensional metaphor for the creative space I am seeking. The architectural edifices of the Lalibela site are exclusively rock-hewn, carved directly out of the geology of the surrounding area. Some are etched into cliff faces (such as the former monastery, Ymrehanne Krestos) whilst others are excavated downwards into rocky plateaus, forming seemingly sunken structures surrounded by closely fitted human-made canyons and ravines (the church of Bet Giyorgis serving as perhaps the finest example of the latter). Almost all of Lalibela's historic architecture is sculpted from a form of coarse sandstone, which naturally erodes over time. The buildings are thus in a state of natural deterioration, their walls, adorned with carvings, are being slowly erased. In an attempt to preserve the site, large modern structures – primarily large steel roofs – have recently been constructed over and around the churches, effectively freezing the erosional transformation into a certain positional stage, further complicating the image of the churches as seen today.

For me, the worlds of Birtwistle (as read by Hall) and Lalibela can be conceptually entwined, introducing the key terminologies that have come to form the core conceptual basis for the ensuing musical work. In multifaceted ways, the churches of Lalibela present to me as a thought-provoking perspective on a 'logic that's been disturbed' (*ibid*). The natural characteristics of an area of the Ethiopian landscape were disturbed in the churches' construction; the formal appearance of the structures is being transformed over time, as the sandstone weathers away. From both angles the disruptive force is erosional, that is to say that what was once a carefully constructed formal object has been subject to an involuntary process of deletion, introducing surface attributes themselves not intended as parts of the original design. Such thinking may be extended by simply reversing the operation at play, from erosion to encrustation. As the churches are gradually weathered, their surfaces also accrue additional debris: vegetation, for example, can find substantial root in the emerging cracks and pits in the edifices, further transforming the appearance of the churches, now through addition, rather than removal.

0.3. Objectives

In exploring the analogy presented by the Lalibela site, the fundamental objectives of this investigation can come to be further understood. This investigation will explore musical applications of erosion and encrustation as disruptively transformative compositional procedures within the context of acoustic instrumental music. The investigation will document the various manifestations and developments of the two notions within my own musical practice and, in doing so, attempt to achieve a wider understanding of the terms within a musical/creative context.

With the emphasis placed on achieving practical manifestations of erosion and encrustation in this way, it is therefore not the purpose of this thesis to target with any specificity ideas of musical ontology, notational aesthetics or performance-reception (the discussion of erosion and encrustation with regard to any one of these terms warrants a thesis in its own right). Instead, what is sought here is a holistic operational understanding of the two principle terms sufficient enough to build my musical grammar upon. This is a thesis that foregrounds the operational preoccupations of my work above and beyond any kind of aesthetical manifesto.

0.4. Methodology and chapter structure

To achieve such an objective, four compositions from the folio have been specifically highlighted for the purpose of outline, each representing a particular strategic position within the research process as undertaken: *bet giyorgis* (2011, for twelve players); *bet merkorios* (2012, for solo violoncello); *ymrehanne krestos* (2013, for brass and percussion) and *bet denagel* (2013, for solo baroque violin). In the discussions ensuing from this work, my understanding of erosion and encrustation as creative operands is developed by continually interrelating the terms with five additional key concepts: (1) the relationship between acts of erosion and encrustation to acts of *distortion*, (2) the relationship between the material products of erosion and encrustation and any notion of *ambiguity*, (3) the role and function of material *comparison* within the operational space enclosed by work of this nature, (4) the development of notions of material *consistency* within my emerging compositional grammar and (5) the conceptual territory offered by considering the

material occupying the sonic surface of a musical work as the debris of a erosive/encrustive process.

The chapters that follow serve to activate this discussion and outline the compositional potential of erosion and encrustation as transformative musical procedures. The chapter structure employed thus traces the development of my thinking from my initial exploratory attempts and ensuing processes of critical reflection to later, more considered, statements of the grammar my creative work has come to enclose.

In the first chapter, the work of Harrison Birtwistle is first evaluated with regard to the claims made regarding the hybrid logical/dis-logical space in which it is located. Building on aspects of my previous research (Sergeant 2007), the ensuing discussion will reveal that the notions claimed to occupy his work are actually not prevalent – or at least not activated – within Birtwistle’s own compositional practice. The emergent gap between that which was proposed and that which has been identified is then appropriated as the area of operation for my own creative terminologies. The scope of this space is then provisionally explored using artistic voices from the visual arts, using the examples provided as mechanisms to elaborate upon further speculation regarding the nature my new compositional grammar may eventually come to take. The first chapter concludes by outlining the central tenets of my own speculations, contextualising the notions of erosion and encrustation with relation to a sense of material ambiguity and comparative listening actions through and across a composition’s sonic surface.

With the location of my research defined and my primary creative speculations outlined, the second chapter then moves to explore the preliminary compositional strategies derived to begin to occupy this territory, using a process of critical reflection on these early maneuvers as a vehicle to further elaborate upon the scope, potential and nuances of erosion and encrustation as compositional acts. As such, an understanding of the distortive sense with which erosion and encrustation are entwined is revealed to be innately qualitative, facilitating a substantial shift of strategy from more numerically/quantitative considerations of musical material and process into a more behaviourally defined frame, which has become extensively prevalent in more recent musical examples from the folio.

Chapter three, therefore, moves to demonstrate these newly adopted behaviourally defined components of the emerging compositional grammar by way of two case studies. Using my compositions *bet merkorios* and *ymrehanne krestos* as vehicles for discussion, the

new strategy towards material as behavioural state is demonstrated. In doing so, the technical vocabulary by which acts of erosion and encrustation are articulated is also further expanded into a broader notion of hybridisation, where material behaviours are unsympathetically collided to create ambiguously defined material identities. This is first outlined with regard to the development of a particular strategy to instrumental writing that I have come to refer to in my work as *recoupling* and, secondly, with regard to wider interpretations of the recoupling strategy, revealing a broader plane of operation defined by notions of segregation and recombination as manifestations of the erosive/encrustive compositional act. A notion of *canvas* is developed within this frame, a conceptual segregation of musical container from sonic contents that, in re-colliding the container with the contents as part of the compositional process, facilitates instances of sonic material as the debris of erosive/encrustive action in a compositional space.

Chapter four then moves to explore various ramifications of these ideas as exploded into a more macrostructural compositional domain. With specific reference to my composition *bet denagel*, notions of material definition through behaviour are expanded to address larger-scale definition within this model. As such, understanding of the distortive sense is further permitted to develop: on the macro scale, within a given instance of a work, the distortive sense is revealed to be better considered as a sense of disorientation *within* and not *of* a composition's larger scale formal identity. To achieve this, the notion of canvas is also further developed to address issues of timbre as an activated compositional parameter. In doing so, the approach to instrumental writing that this thesis develops is further expanded into a notion of instrument as timbral canvas (developing the container/contents procedures introduced in chapter three), on and with which more gestural material conceptions can be subject to erosive/encrustive effect and interaction.

The concluding discussion of the thesis then moves to outline and summarise my understanding of the compositional grammar here derived with specific reference to the key concepts previously introduced in this introduction: ambiguity, comparison, erosion/encrustation, debris and consistency. With such definitions in place, I make further speculations regarding ideas this investigation might move to address in the future, concerning a further appropriation of a particular notion of the fantastic as a means of re-incorporating a sense of event-based consequence into my musical discourse.

Distortion / Erosion / Encrustation: defining a space in which to move

1.1. The Music of Harrison Birtwistle

For me, one of the most creatively provocative – indeed, one of the most creatively lasting – statements I have read with regards to compositional processes takes the form of Michael Hall's various descriptions of facets of the work of composer Harrison Birtwistle. Hall describes Birtwistle's music in relation to a comment, made by the composer, that seemed to outline a wish for 'a logic that has been disturbed' (Hall 2000 p.ix). Hall develops his own reading of this facet of Birtwistle's compositional praxis into what he describes as the composer's 'central organizational principal'.

The central organizational principal comes out of the two maxims and can be stated thus: start with an absolutely regular and uniform pattern of the simplest, most predictable kind then superimpose upon it a pattern which is its extreme opposite – something capricious and unpredictable. (Hall 1984 p.13)

My reading of this description draws my attention to an intriguingly paradoxical scenario, in which a sense of the ordered/rational is somehow palpable within an otherwise disordered/irrational material discourse. As such, for me, there is the expectation here that this dichotomy will be somehow visceral in the sonic actualisation of a given work in performance. For ease of dialogue, I give the name *surface* to such an attribute, as the sonic manifestation of a musical work in a given performance. For me, that which is described by Hall can be most singularly summarised is *distortion*: an implication of transformation, nuanced by ideas of damage (therefore, a logic that has been transformed by damage).

Much of my own research prior to this particular investigation involved attempts to explode and expand my understanding of Hall's descriptor with regard to the work of Birtwistle himself (Sergeant 2007), a process that came to reveal itself as highly problematic. To illustrate the problem presented in this regard, certain findings of this previous research will now be briefly summarised:

One of Hall's primary explorations of the central organisational principal as manifested in Birtwistle's music comes in relation to procedures of material manipulation employed in the composition of *An Imaginary Landscape* (1971, for orchestra). Hall begins by

identifying the composer's materials of 'an absolutely regular and uniform pattern' (Hall 1984 p.13):

[Birtwistle] considers the basic rhythmic gesture as the heartbeat and the basic melodic one a simple opening out from a note to the semitone above it and then the semitone below it, or vice versa. (Hall 2000 p.5)

Such a melodic process can be visualised as figure 1.1(a), below (my own example, based on that originally included with Hall's own explanation).



Figure 1.1(a): Harrison Birtwistle's basic melodic gesture
[My own example, based on that supplied by Michael Hall (Hall 2000 pp.5-6)]

The composer then elaborates this pitch material via an additional processes, as again Michael Hall outlines:

The process of elaboration involves rotating the wedge-shaped pattern, expanding it by repeating notes within it systematically, and then changing the order. In this instance, the expansion involves [truncating the wedge into five-note groups and then] repeating the last three notes in each five-note group before adding the next two. [...] The next step is to change the order in accordance with [...] numbers he places above them. In each case the numbers are [5 2 4 1 3]. [...] This set of numbers comes from tables of random numbers Birtwistle has been using since he started work on *Chorales* (7) in 1960. (Hall 2000 pp.5-6, emphasis retained)

Again, this process can be visualised as figure 1.1(b), below (again, this is my own illustrative example, based on that originally included with Hall's own explanation).

(i)

(ii) 5 2 4 1 3 5 2 4 1 3 5 2 4 1 3 5 2 4 1 3 5 2 4 1 3

(iii) 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5

Figure 1.1(b): Harrison Birtwistle's process of melodic elaboration

[My own example, based on that supplied by Michael Hall (Hall 2000 pp.5-6)]

- (i) The wedge-shaped pattern; (ii) The wedge-shaped pattern rotated into five-note groups, with ordering numbers above; (iii) The five-note groups re-ordered in accordance with the ordering numbers.

It is easy to initially read such a process as a manifestation of the central organisational principal in practice: an ordered/rational sequence of expanding intervals has been transformed and, in a sense, damaged, by the superimposition of a random sequential series. Yet, further observations by additional commentators complicate the application of my full reading/understanding of the position (requiring a sense of transformation as damage to be *palpable*) within such a procedure. Alison Deadman raises a useful criticism:

Birtwistle, having generated his basic material, freely subjects it to octave-displacements, the symmetry of the wedge ceases to have much meaning [...].
(Deadman 1990 p.13)

There is much implication from such few words. The order/logic of the material here cited by Hall consists of a process of intervallic expansion, yet the composer's re-ordering prioritises *pitch* over *interval*. As such, the original intervallic procession loses any purposeful presence in the ensuing/modified material, especially as – given Deadman's comments – the composer goes on to further transform this material via octave displacement.

It is thus difficult to propose that the ordered original material (the set of expanding intervals) can have any locatable presence in the musical surface. It thus cannot be clear that any sense of distortion would be palpable to a listener, in relation to the dichotomous hybrid state I described previously. Thus, from this small example, it becomes clear that what my reading considers to be the fundamental implications of Hall's original

descriptor (the central organisational principle) may actually be extraneous to that which Hall actually identifies on a more experiential sphere.

A similar position is reached if we consider manifestations of Hall's central organisational principle on a more macrostructural level. By way of introduction to its more global-scale manifestations, Hall provides words from Birtwistle himself, taken from an interview he held with the composer:

If I sketch a passage either in my head or on paper that consists, say, of seven phrases or ideas in which one leads smoothly and logically into the next, I break these up when I come to compose the work and reorder the events. The logical sequence is still there, but it has been fractured, disturbed, messed up. (in Hall 2000 p.ix)

Again, such words initially seem compliant with Hall's original outline of the central organisational principle. In addition, such words can serve to validate my own reading (experiencing the illogical through/inside the logical). Yet further problems arise when considering the music itself in relation to such claims. Consider attempts to analyse Birtwistle's *Carmen Arcadiae Mechanicae Perpetuum* (1977) in this regard, for example.

The two major analyses of this ensemble composition, provided by Alison Deadman (1990) and Brian Robison (1999), both take as their departure point the programme note Birtwistle provided for the composition at its first performance, again documented by Hall:

The piece is a homage to Paul Klee and the title is a title he could have invented. It consists of six mechanisms which are juxtaposed many times without any form of transition. The dynamics of the piece have a time-scale independent of that of the mechanisms, creating an independent dynamic life of their own. This process is also applied to the registers of the piece. (in Hall 1984 p.177)

Both Deadman and Robison set out to define and locate these six mechanisms throughout the score, but each presents different accounts:

Both papers attribute the first instances of mechanisms one to five to the same passages in the score (b.2-14; 16-27; 28-33; 35-41 and 43-54 respectively). However, the authors' interpretations differ regarding later textural passages. The following summary is not exhaustive.

Such differences initially appear at least consistent. The passage Deadman labels as the first instance of mechanism six-codetta (b. 70-81) is interpreted by Robison as the second instance of mechanism five. It then follows that the passage Deadman considers the second statement of mechanism six-codetta (b.104-121) would also be attributed to mechanism five by Robison.

Deadman defines mechanism five's texture as pointillistic, containing a dialogue between instrumental choirs. She also notes the first instance's use of pitch-mobile construction in the string parts. She cites both these elements in positioning her second instance of mechanism five (b.161-190). Since the two instances Deadman labels as mechanism five appear consistent in their attributes, it does seem logical that bars 70-81 be considered something different. In comparison, Robison's description of mechanism five is vague; he labels it only as consistent semiquaver motion with no obvious rhythmic groupings or melodic contour. However, even in these terms, it also seems founded that Robison considers bars 70-81 as being part of this mechanism.

Whilst it would perhaps be expected that passages Deadman attributes to mechanism six-codetta would be continually labelled as mechanism five by Robison, more problematic discrepancies arise.

The passage defined by bars 144-154 is also attributed to mechanism six-codetta by Deadman, but Robison labels the same passage as part of mechanism one. (Sergeant 2007 pp.18-19)

It seems that Birtwistle's six mechanisms are somewhat ephemeral with regard to concrete definition. From a certain perspective, such a resultant scenario could serve to amplify not only the original sentiment initiated by Hall but also my own reading of his position. The results of a genuinely distortive process should indeed result in attributes of ill-definition, as encountered in regard to the work explored above.

Yet, elaborating beyond the confines of my previous research, such a conclusion seems to bypass a critical consideration: to what extent is this macrostructural design palpably *distortive*? Does the lack of definition result in an *experiential* sense of a macrostructural design that has, in some way, been damaged or corrupted? For me, the results of the ambiguities identified serve only to highlight a difficulty in identifying the *source* of a particular material group. As such, the sense of dichotomy – the palpable presence of a something *undistorted* within something that is *distorted* – is simply not present in the output of this particular strategy.

In light of such discussion, Birtwistle's approach to disruption – even if it can be proven to exist at all – certainly seems of a highly binary nature: the material is *either* in a pure or some kind of disturbed state. It also seems that his pure(r) materials are not generally used in the final version of a given score. Thus, transformational potential of distortion seems not to be activated in the experienced sonic surface.

For me, such observations allow a more crucial realisation to be made with regard to Birtwistle's music. If distortion is an activated component of Birtwistle's compositional vocabulary, it is *non-discursive*. That is to say that comparison *between* corrupted/uncorrupted, more/less corrupted or even just *differently* corrupted materials

seems to play little-to-no role in the dialogue operating between his musical objects. His procedures – particularly those cited by Hall as being demonstrative of the central organisational principle – thus appear to me as *generative* rather than *activated*. In other words: Birtwistle's music uses procedural *results* that are in some senses distorted rather than operating inter-referentially actively, as distortion. It is this lack of discourse between/across musical objects that, for me, prevents a sense of the logical/undisturbed to be felt *inside* that which Birtwistle manipulates into illogical/disturbed states. It is this aspect that I seek to activate in my own compositional work.

1.2. Re-appropriation

Despite concluding that the distortive implications of Hall's descriptor are actually un-activated in Birtwistle's work, the speculations invoked by my original reading of Hall's descriptor – considered now as a symbol for a space in which one could *potentially* operate, divorced from its original application to Birtwistle – remain highly beguiling. If I am to activate my own reading of Hall's proposal within my own compositional work, some attempt must first be made to first articulate more concretely the full extent of the scenario that I understand it to imply. To achieve such an end I will continue the discussion by presenting my own readings of aspects of work from three visual artists (Henry Moore, Agnes Martin and Mike Nelson) and four composers (Jürg Frey, Evan Johnson, Claudia Molitor and Iannis Xenakis). The introduction of this work at this juncture is not intended as an exhaustive display, instead I present their contributions as conceptual tools by which my reading of Hall – indeed, the space enclosed by such a reading – can be made more tangible.

In this manner, two facets of the proposed creative space are sequentially discussed: the activation of discursive inter-reference of distortive materials (section 1.3) and the classes of compositional actions by which such operations may be obtained (section 1.4).

1.3. Comparison through distortion

1.3.1. Comparison through distortion as temporal/ α -temporal

To begin to articulate the potential activation of distortive transformation as a discursive musical operand (as a potential means by which a listener may compare transformed/transforming musical materials), I wish to first offer my own preliminary reading of the sculpture of Henry Moore (1898-1986).

Moore's [...] figures, in their multifarious variations, are not so much imaginary representations [...] as partial metamorphoses within an overriding tendency towards abstraction – an attempt to account for the similarities governing the natural world of forms [...]. (Hindry 2009 p.51)

Moore's sculptures, especially the later examples (such as *Reclining Figure, Lincoln Centre Sculpture* (1963-65)), are not literal studies in physical attributes of the human body (as might be seen, for example, in certain examples of Classical Greek sculpture); instead a conduit seems to be presented to the viewer, conjoining manipulations/transformation of the figure as presented in the artistic surface (the sculpture) with a more archetypal subsurface (the figure itself), as Herbert Read explores:

[Moore] has dared to seek below the level of consciousness for those archetypal forms that represent life in its deepest recesses and most powerful manifestations. (Read 2010 p.257)

The *implicit* presence of such archetypal forms (i.e. an experiential presence within the artistic surface without explicit statement) further suggests to me a potentially dichotomous reading of the sculptural forms: a hybrid state seems to be forming where an identifiable form (a figure) and an amorphous shape (the sculpture) are experienced *simultaneously*: we, as witnesses, are simultaneously aware that the subject which we see both *is* and *is not* a human figure. In a sense, this is an elegant analogy to that which was speculated as a result of reading Hall's descriptor.

Exploring further, what Moore's sculpture serves to outline to me is the presence of a *comparative* relationship instigated in the mind of the perceiver between initial visual appearance and subsurface archetype. The role of distortion as the instigator of such a relationship has not gone unnoticed amongst commentators:

[...] [E]ven in the most extreme distortions of the human body [in Moore's work], such as those inflicted on the *Reclining Figure* in lead of 1931 [...], there is an organic reference for each apparently arbitrary element – for example, in this particular figure the three rods that cross the hollowed chest refer to ribs, and the thickening of the central rib is probably a vestigial breast. (Read 2010 pp.90-94)

The employment of the word distortion appears particularly relevant here. Read uses the word to amplify the sense of comparison within the art, a connection in the mind of the perceiver between the 'arbitrary elements' (the surface as seen) and 'organic references' (the archetypal form). As Read outlines, this comparison process emerging from such connection entwines the two levels in dialogue: despite the radical transformation of the human form Moore employs, he somehow manages to retain a sense of a something that has been distorted, i.e. the human figure itself. In essence, the coherent/incoherent dichotomy is made palpable.

For me, full understanding of this operation lies in appreciating its *a*-temporality. The comparative connections between subsurface/surface are not gradually compared or connected as an innately temporal process, but felt with holistic immediacy within the art. As such, the act of connection/comparison between subsurface archetypical form and surface appearance does not take place in linear time. Such a scenario is not the result of any speculative claim to visual art's intrinsic *a*-temporality, I find similar experiential situations in the more immediately temporal media of music as well.

Jürg Frey's Streichquartett II (1998-2000) is a near thirty-minute composition entirely comprised from homophonically presented chordal events, each separated by brief silences and spaced at regular intervals throughout.



Figure 1.3(a): Jürg Frey: Streichquartett II (1998-2000); First system (bars un-numbered)
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As can be seen figure 1.3(a), above, the primary pitch data encoded within the quartet's score presents as exclusively triadic. Such is the extent of the reference that the first chord is identifiable as a root-position G-minor triad: a sonic artifact laden with a particular socio-cultural identity, potentially allowing the triad to be considered as a socio-culturally defined sonic *archetype*. But a secondary layer is also presented within the score: each pitch event is accompanied (in the above example) by an additional flageolet-pressure finger-stop on the same string, usually a minor second above the stopped pitch itself. The result in performance is a radical destabilisation of the pitch-content of each string-instrument's iteration: a haze of overtones and bow-noise is produced alongside remnants of the originally notated pitch itself. As such, sonic *debris* infects the audible surface, masking and interacting with the core pitch-data to greater or lesser extents. The original pitch-data (that which comprises the triads) is not lost in this process; it becomes entangled with the additional noise-layer within the sonic surface.

My understanding of the Frey is directly comparable to the model exposed by consideration of the Moore. In place of figures, Frey adopts the triad as an archetypal form. Yet these sonic archetypes are not explicitly stated in the (sonic) surface; instead they are always fused with noise and glitches, which transform and distort the sonic reality away from the subsurface archetype. Yet for me, as with the Moore, enough archetypal identity is present within the surface to forge a connection/comparison between the

surface/subsurface layers. I am drawn from the surface into the subsurface and a dichotomous hybrid between coherence and incoherence is formed.

Yet, despite the innate temporality of music (Frey's homophonic events unfold through an experience of time), for me the comparative act remains *a-temporal*. The archetype remains within the subsurface; its presence is felt equally within the first and last events of the composition. Again, it is a static state.²

The relationship forged between a surface instance/appearance and a subsurface archetype as so far discussed has featured material subjects derived from phenomena derived from the socio-cultural/perceived world (the figure/the triad). It is my belief that such a way of thinking may be further exploded into a domain where material occupies a more abstracted sense, a position illuminated by considering the work of American abstract expressionist Agnes Martin.

Martin's earlier work consists almost entirely of tight pencil-drawn grids on unprepared canvases. The movement of the pencil over the naturally rough fabric causes small imperfections in the geometry of the lines left behind. It is imperfection that Martin acknowledges throughout her work.

I hope I have made it clear that it is *about* perfection as we are aware of it in our minds but that the paintings are very far from being perfect – completely removed in fact – even as we ourselves are'.
 (Martin 1991 p.15, emphasis retained)

It is this notion of perfection that serves as a link between this work and that hitherto discussed. Again, for me, a relationship seems to be forged between the experiential surface held by the canvas (the imperfect lines) and the obvious subsurface intent (perfect lines). Reminiscent of my discussion of Moore and Frey, although now more removed of direct figuration, literal representation or real-world signification, the subsurface intent resonates *through* the experiential surface and in doing so draws my attention to the distortive nature of the surface form.

Yet, again, the comparison process is *a-temporal*. The experience I describe radiates holistically from the canvas as a single breath. It is a static state. To explode this thinking

² I acknowledge that Frey does alter the various means of corrupting the initial pitch data, although I hold to the opinion that the comparative experience of surface/subsurface is in a static state. The additions of glissandi and the production of vocalised humming by the players (additional means of effecting the pitch data included in the composition by Frey) are also included throughout the piece. Yet, to me, such presences do not fully engage with a *comparison* between different distorted states across the composition. The different passages are too lasting, too long-range. The focus, for me at least, remains on the *a-temporal* relationship between surface reality and archetype.

yet further, I wish to turn attention to distortive results obtained via comparison of different components of an artistic surface-appearance.

In this regard, consideration of the work of the British installation artist Mike Nelson (1964-) is particularly useful. Nelson's later work usually takes the form of an architectural play with space. Larger spaces (either site-based locations or gallery-spaces) are divided by Nelson into labyrinthine warrens through which viewers may travel at will. These composite spaces are deliberately confusingly arranged and filled with a disparate array of objects (themselves drawn from a variety of facets of everyday life) often with emotionally disturbing connotations, as Dan Cameron introduces:

Mike Nelson's installations, which generally take the form of complete transformations of the physical environments in which they are housed, are in essence fictitious histories that boast all the tactile characteristics of the imaginary worlds from which they have been derived. As visitors entering Nelson's psychologically charged spaces, we nearly always have the uneasy intuition that this is not the place we were seeking, and that we might even have wandered off the designated path and ended up somewhere else, in the middle of a scenario where outsiders don't belong. While not actually hostile, Nelson's spaces do emanate an essential unfamiliarity, as if their rightful occupants left the scene only moments before we entered, and might return at any point, as surprised to see us as we are to have stumbled upon their lair. (Cameron 2011 p.29)

For me, in work of this nature, we are confronted with a more complex form of connection/comparison/distortion. In comparison with the obsessive play with a single archetypal form (that of the figure) in the sculptural work of Henry Moore, the disparate array of objects enclosed by Mike Nelson's spaces appear somewhat more composite; there is no single archetype here. Instead, the perceiver attempts to derive comprehensibility through the relationship *between* the objects in the experiential surface of the work as it is presented. This is not an act of agency on the perceiver's part: the surface seems to somehow invite this juncture. Crucially however, in this example it seems impossible for one to concretely resurrect any subsurface archetype, the lack of success seeming to somehow instigate feelings of dislocation and unfamiliarity.

I actually consider that such comparative perceptive actions within composite artistic surfaces are somewhat innate. For me, the most rewarding articulation of such a perspective is offered by Gregory Bateson's evolutionary epistemology.

The Batesonian phenomenological universe is ubiquitously comprised of intertwined patterning relationships.

My central thesis can now be approached in words: *the pattern which connects is a metapattern*. It is a pattern of patterns. It is that metapattern which defines the generalization that, indeed, *it is patterns which connect*. (Bateson 2002 pp.10, emphasis retained)

For Bateson, such interrelated patterns are not a cognitive model of understanding; *they are all that there is to be understood*.

Whether a Batesonian model is accepted as a truism or not, the symptoms of his cause (knowledge as knowledge of patterns) resonate within the accountable phenomena of both perceptive and/or Gestalt psychology. Consider the documented phenomenon of apparent motion:

Apparent motion is the perceptual effect that used to be a very popular effect on billboards of theatres, where the switching on and off of a series of electric light bulbs in sequence gave the experience of movement. In the laboratory it is usually created in a much simpler form. Two electric lamps, often seen as small white dots in an otherwise black room, are alternately switched on, each for a brief instant, so that a movement is seen that dances back and forth between the lights, always moving from the light that has just been flashed to the light that is currently being flashed. If the lamps are close together, it may seem that the light itself is moving back and forth. (Bregman 1995 pp.21)

Or the seemingly innate Gestalt principles of proximity, similarity and symmetry (obviously amongst other Gestalt notions) that allow the perceptual grouping of phenomena into composites.

The grouping principles discussed here are actually ‘wired into’ our perceptive machinery. They do not have to be learned by trial and error, because they generally hold in the real world. (Cook 1999 pp.34)

As such, what Batesonian theory foregrounds for me is the human condition’s seeming preference not for an noumenological understanding of stimuli presented to it (i.e. ‘the thing in itself’), but instead a *relational* model, derived by comparing facets in an attempt to deduce comparative patterning relationships.

As such, my initial claim that Nelson’s work seems to invite comparative efforts in his audience seems to become more concrete. In presenting such composite surfaces (containing so many different object references), comparative activity seems to be necessarily instigated. Within Nelson’s work, the nature and function of archetype – as it has become defined in my terminologies thus far – is thus permitted to develop. In Nelson’s work, there is no singular comprehensible state rendered tangible through

experience of his work's surface appearance. In any case, what form might such an archetype comprise? Essentially, what is being explored here is the expectancy of models of grouping when observing remnants of human activity: this set of objects suggests a taxi office; this set of objects suggests a dental practice, for example. It is not one or other particular grouping that is implied (it is *not* a taxi office; it is *not* a dental practice), moreover it is the *lack* of successful concrete groupings that powers the distortive experience: that which is expected is not supplied.

To elaborate upon my emergent notion of the distortive experience, I find it useful to consider a comment made by Gilles Deleuze regarding the figurative work of the painter Francis Bacon:

When a force is exerted on a scrubbed part, it does not give birth to an abstract form, nor does it combine sensible forms dynamically: on the contrary, it turns this zone into a zone of indiscernibility that is common to several forms, irreducible to any of them [...] (Deleuze 2003 p.42)

Here, I read Deleuze's notion of force as the distortive act. The result of the force instigates an 'opening-up' of identity ('a zone of indiscernibility'). In a sense, distortion-as-transformation reveals a more pluralistic nature of material-as-form. Rather than thus presenting transformed materials as immediately related (this is a transformation of that), distortion integrates the role of questioning into this field of operation (*is* this a transformation of that?). The forces/mechanisms shunt the material subject(s) into an ambiguous 'zone of indiscernibility'. It is thus movement into this zone that I seek as an activated compositional operand.

In a sense, the sonic surface of such work can be considered to be comprised from material-debris: the debris ensuing from distortive acts in compositional space. The experience of such debris *as* debris (a non-something) locates the music within a 'zone of indiscernibility', awakening a sense of a 'something' that has been distorted.

From such a 'refreshed' standpoint, certain of Moore's sculptures now seem rather un-distorted. When I view them, I see figures. There is actually no ambiguity as such. In fact, in a certain sense, the sculptures actually present as a process of unification: providing a resolution between the figure as concept and the multiplicity of figures as experience in the world.

To clarify what I am trying to articulate, it is useful to further compare the work of Moore with painter Francis Bacon. For me, the effect of the distortive in both examples is

different. In Moore, the distortion process serves to *unite* the specific and the universal. In an almost Platonic sense, the surface object appears to seek to reveal commonalities that bind individual persons into The Form of the Figure, a more singular conceptual unity. Bacon operates along similar experiential lines, although to an ultimately opposite ends. Here, the subject is manipulated and transformed in such a way as to precipitate questions as to the concreteness of the original object-as-form. Such a perspective is further enlightened via comments from the painter himself:

I feel that I want to do very, very specific objects, though made out of something which is completely irrational from the point of view of being and illustration. I want to do very specific things like portraits, and they will be portraits of the people, but, when you come to analyze them, you just won't know – or it would be very hard to see – how the image is made up at all. (Sylvester 1975 pp.11)

In other words, Moore's position places the perceiver outside of 'the zone of indiscernibility', looking *inwards* to resolve the ambiguities of the sculpture *into* the universal; Bacon's painting places us *inside*, looking *outwards*, questioning and undermining further that which we see.

Whilst the issue of intra-surface comparison has been introduced as a vehicle for the distortive sensation, I have not addressed a discussion of temporality within this process. For such a consideration to take place, I wish to turn back to music.

1.3.2. Lateral/meta-lateral comparison of distortive facets through performance/realisation

Iannis Xenakis's *Evryali* (1973), for solo piano, is a composition created largely from quasi-visually conceived intertwined melodic lines – so-called 'arborescences' (Harley 2004 p.80). As part of the composition process, *Evryali* was essentially graphically drawn before being rendered sonic. Here, the composer conceives of the sonic behaviour of his composition as an analogy to visual space: chromatic motion upward is considered analogous to a rising gesture in visual space, the opposite applying to notions of descent. The nature of this material returns it to some kind of more a-cultural archetype: such quasi-visual lines are not socio-cultural artifacts, but seem somehow part of the innate fabric of the listening experience itself. In essence, the material is a rendering of

patternistic behaviour: the lines move up and move down; that is what is definitive here, rather than then the character of particular melodic phrase.

That said, the transmission of these materials into a sonic surface via a performance of *Evryali* is highly problematic. Substantial passages of the score are physically impossible for a human body to execute at the keyboard. This is more than to say the work is extremely hard or virtuosic in conception, it is to say that the ideals expressed in the score go beyond the human body's innate physical abilities (human hands will never span two or three octaves simultaneously, for example).

The performative space opened by such a conundrum has been the subject of much comment. In regard to *Evryali*, several strategies have been suggested, ranging from re-arranging/editing the composition into some kind of re-notated performance version (Hill 1975) to re-considering performer-function within preconceived or inherited notions of performance (Couroux 2002). Whilst it is not the purpose of this text to assess the validity of one strategy over another, what can be said is that in the output of *any* performative solution by a human, the sonic image of work could be described as some kind of distortion – or at least transformative manipulation – of that encoded in the score ideal.

It is easy to dismiss such a conundrum behind a mask of intentionality. The published version of Xenakis's score makes no prefaced reference to the impossibilities that have received such scholarly commentary. In this regard, it would be easy to dismiss the presence of such attributes as compositional ineptitude, a mistake brought about via ill consideration and oversight. But the existence of other works of a comparable nature makes such a conclusion appear exceedingly presumptuous.

Evan Johnson's *Supplement* (2004/07), for solo bass clarinet, acts a more authorially acknowledged exposition of a similar performative scenario, summarised by the composer's own introductory remarks to the score:

[...] In concrete terms, the piece is a study in layered ornamentation, in concentric encrustations of material and of performative states that more often than not conspire to overwhelm and irretrievably distort that which is ornamented. There is too much material, too much reaction to and too much enthusiasm for that material; a basic melodic line is "supplemented" beyond recognition and beyond the capacity of monophonic instrument to control it. (Johnson 2004/07 pages unnumbered)

In the pages of the score, the manifestations of such ideas are plain to see (illustrated by figure 1.3(c), below.

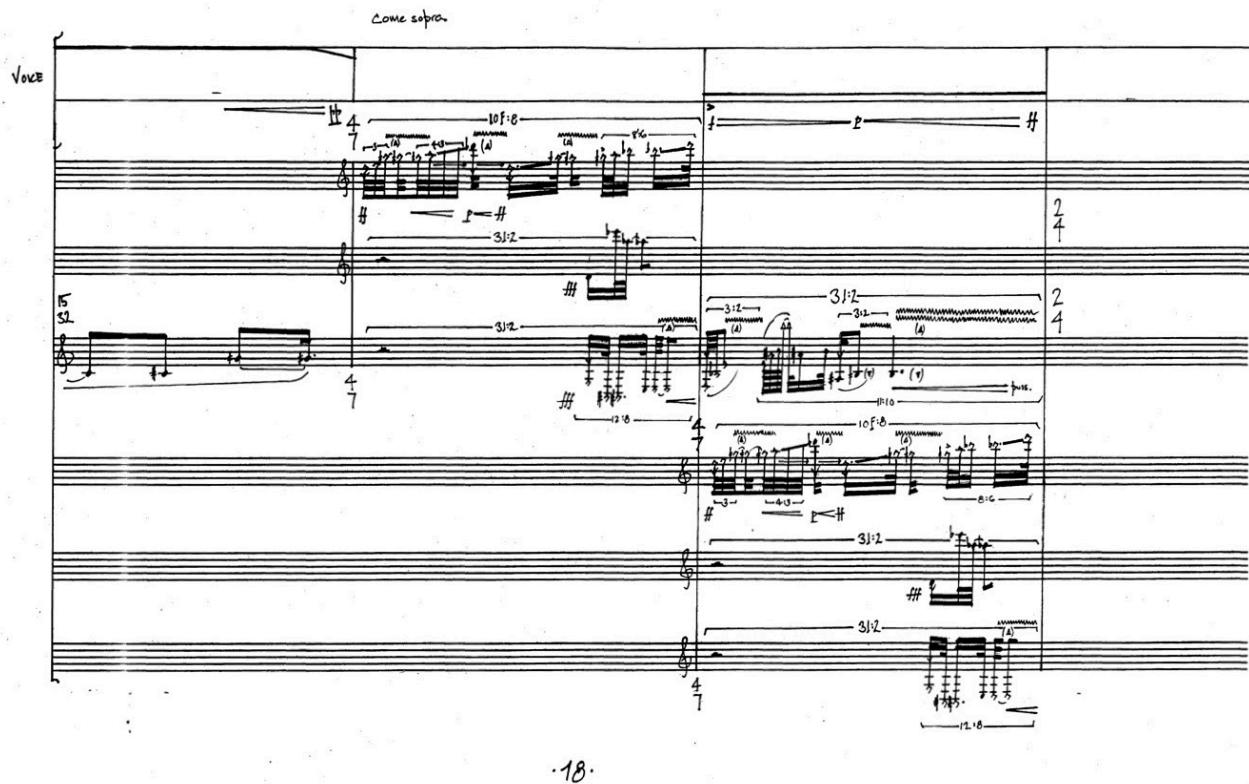


Figure 1.3(b): Evan Johnson: *Supplement* (2004/07): page 18 (bars unnumbered)
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Here, stratified musics³ are presented on several parallel staves for simultaneous execution by the performer, a facet that the composer describes as a 'superabundance of material' (*ibid*) and on which he elaborates in the following manner:

There are several passages notated on more than one main staff, presenting more material than can be played at once on a monophonic instrument. The approach to these passages is left in larger part to the discretion of the performer, with the following conditions:

Every possible attempt should be made to convey all the material on the page, even though it is of course impossible to succeed in doing so. Suggesting multiple lines with the voice; using parametric information from one staff to inflect the pitches and rhythms of other(s); and liberal use of multiphonics is encouraged. *In absolutely no case should the performer ignore the presence of material on the page even if it is literally not playable - it must be "communicated". "Improvisation" on the given materials is not permissible.*

It is also the job of the performer in these passages to project (not in any overtly theatrical or satirical manner, but through the choice of playing techniques and through the force of the attempt to succeed) the situation, i.e. that there is material not being played, that there is too much for the performer to deal with in these passages. [...] (*ibid*, emphasis retained)

³ As well as stratified/superimposed performance conditions (such as vocalisations).

Clearly, executing all of these notated strands of music on the monophonic bass clarinet is a physical impossibility and, as such, it appears the work can be considered as exhibiting a similar performance conundrum as exposed in the solo piano work by Xenakis. Here though, through extensive authorial comment and more ostensive notational presentation, the intentionality of the performative situation that arises is more obviously foregrounded.

So far, these two compositions – both with ‘impossible’ performance facets – have been somewhat banded together. And to a certain extent the performative actions facilitated by these scenarios have a relationship: the requirement for a performer to omit/add or alter the score ideal in order to render the composition sonic. Yet perhaps now a more strategic bifurcation might take place via consideration of directionality within the comparative discourse between instances of material.

Whilst it may be true that in both works the distortive facets are activated via a process of performative sonification, for me the means by which such distortive operands are accessed appear somewhat different. Consider the processes of inter-referentiality through/between musical materials within these two works in terms of a spatial/dimensional metaphor. Materials/objects can discursively interrelate *laterally* – permitting comparison through/across a given instance of a work (moment-to-moment, bar-to-bar, section-to-section) – and/or *meta-laterally* – permitting a discourse through/across different *instances* of a particular work (performance-to-performance, realisation-to-realisation). Whilst all musical works to a certain extent explore aspects of self-comparison in both directions (lateral/meta-lateral), it is useful to consider which, if either, of the two potential directions has been foregrounded as a primary conduit for comparative observations.

In the Xenakis, substantial passages of the score are performatively realisable in a normative sense (they are ‘playable’), whereas others radically cross the threshold of physical execution. As such (following my terms from above) the distortive transformations of the score object (the abstracted/notated melodic arborescences) necessitated by impossibility weighs in favor of *lateral* comparison. Instances of material in possible or impossible states can be compared by the listener within a single overall instance of the work. In the Johnson the work prioritises⁴ *meta-lateral* comparison: due to the composition’s almost exclusive presentation of sonic material which is the result of

⁴ The use of the word prioritises is intended to suggest that, whilst operations of lateral comparison will indeed be instigated in the listening experience of this composition, this composition foregrounds the meta-lateral aspect.

performative alteration from the score-ideal,⁵ different sonic instances of this work will diverge from one another, allowing material comparison to traverse much more freely along a conduit of performance-instance-to- performance-instance than in the piano composition.

Whether such a model is accepted as a truism with regard to the specific musical works mentioned above or not, what is again attempted here is a means of articulation. What I seek to highlight is my own preoccupation (derived from my reading of Hall) for primarily lateral notions of distortive transformative interrelation, where different distortions of the same material are presented for comparison within a single instance.

Such important articulations, however, must not belie the reality of these two musical works. In both cases the process of distortion is activated in the transcoding of the score object into sonic actuality via performance. Whilst the distortive power of such a trajectory should not be overlooked, it allows me to speculate further. How might such processes of corruption be mapped into compositional space, allowing me, as composer, to control the manifestations of omission and accrual of data that are necessitated by the activity/approach of the performers in the above two compositions (Xenakis/Johnson). This, again, allows a further understanding of my initial reading of Hall: compositional processes as the instigator of distortion of musical objects (and the perceptive comparison of the results thereof within a single sonic instance).

1.4. Erosion/Encrustation

With the territory associated with my reading of Hall's descriptor emerging, what I seek to next articulate and define are the fundamental mechanisms by which I might compositionally traverse such a space. I offer the terminology of *erosion* and *encrustation* for such a facet and it is hoped that the relevancy of such terms is immediately felt with reference to certain facets of work previously discussed. For me, the two terms initially serve to define directional opposites: erosion as the omission of data, encrustation as an accrual. The application of such terms arises from my understanding of the artistic works introduced above. Martin's lines, for example, *accrue* additional visual characteristics as they are distorted on and by the canvas surface. By way of contrast, in attempting the

⁵ One should not forget that, within Johnson's score, material superabundance might not exist as an absolutely even/planar state throughout the composition, but other material superimpositions – such as

impossible passages of Xenakis's *Evryali*, a performer may choose to omit certain aspects of the score data. In both cases (or in both directions), the transformation remains almost involuntary: the material (the lines/the arborescences) are forced into a state of transformation which, in turn, 'opens up' or renders ambiguous the original material character or definition.

What I hope to now present is a more exploded understanding of the operands of accrual/encrustation and removal/erosion, re-interpreting the notions not as opposites but as entwinements of ultimately the same distortive act. Aspects of Claudia Molitor's (b.1976-) composition *Voice Box* (2009, ongoing) may serve as a vehicle for such further articulation.



Figure 1.4(a): Claudia Molitor: *Voice Box* (2009-): Master Score
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Scored for solo voice, the hand-written 'Master Score' (seen in figure 1.4(a)) is reproduced under various conditions of mechanical duress. The composer positions herself in physical scenarios in which the act of clearly scribing the music on to the page becomes compromised to the point of impossibility. The subtitles of the various reproductions of the *Master Score* reflect the conditions in which they were produced, resulting in a rather wry and witty selection of subsidiary variations, bearing such titles as *Pen attached to a 2m Rod* (figure 1.4(b)) and *Trampolining* (figure 1.4(c)).

vocalizations, air-pressure and embouchure position – are almost omnipresent throughout; their absence, at least, becomes the exceptional rather than the normative operational state.



Figure 1.4(b): Claudia Molitor: Voice Box (2009-): Pen attached to 2m Rod

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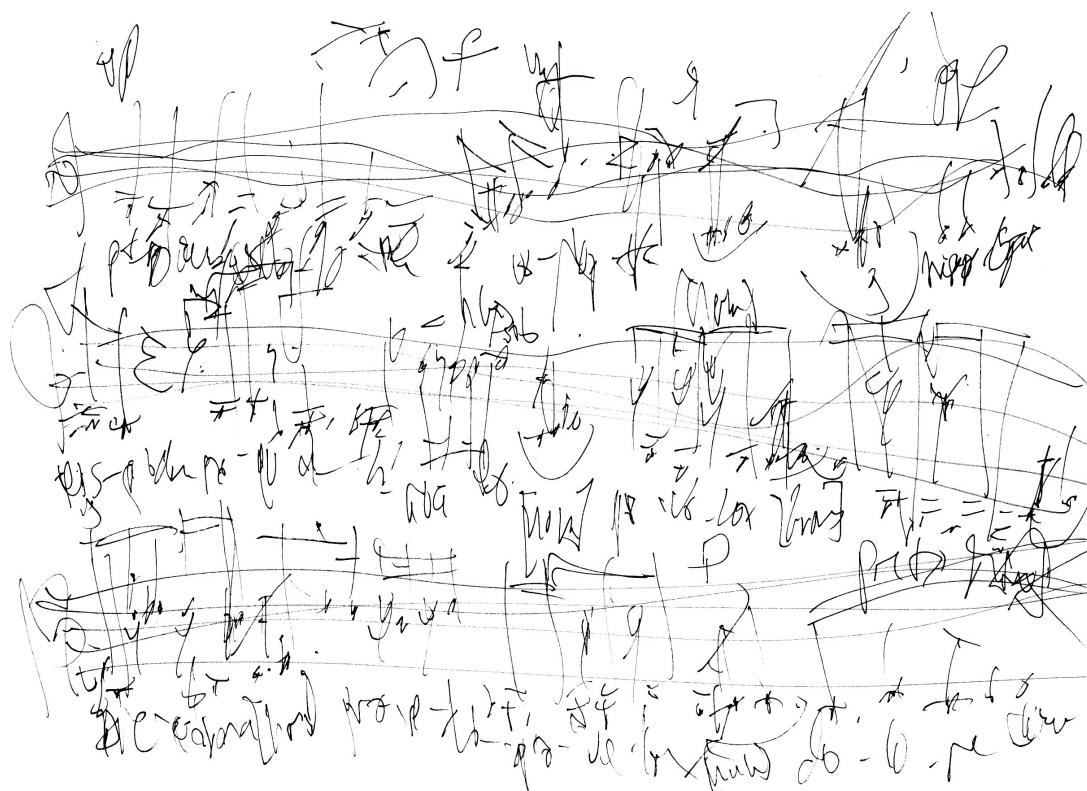


Figure 1.4(c): Claudia Molitor: Voice Box (2009-): Trampolining

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The act of lateral comparison instigated here between ‘Master Score’ and variation(s) is allied, in some senses, to facets of the discussion thus far. In centralising comparison of the effect of the scenarios of duress upon the notational⁶ image, issues of distortion and corruption appear also to be engaged with.

The corrupted versions of the *Master Score* include alterations of the original material. In some variations (such as *Trampolining*, see above) whole passages of music appear to have been omitted – *eroded* – presumably in an attempt to simplify and shorten the time taken for the act of transcription within the context of the duress situation. There is also the high presence of ‘mess’ – graphical figurations not considered as part of the codification system necessitated by Western five-line notational conventions – in the variations. The data required from the score to facilitate ‘correct’ performance (pitch/rhythm etc.) is *encrusted* by such mess, possibly instigating a higher probability for misreadings or mistakes (if such notions indeed have any direct relevancy in work of this nature!).

Yet, in addition, in the act of transcription, Molitor often ‘incorrectly’ re-codifies the data of the master score, which manifest as either the addition of new parametric values for certain pitch/rhythmic events *in place* of the originals or ambiguities which could be interpreted as many possible values. It is in this last case that Molitor’s work begins to reveal the processes of erosion and encrustation as entwined. In such scenarios, acts of replacement or ambiguity are simultaneously acts of removal *and* accrual: to replace is to remove *and* insert. An ambiguity can additionally be considered in this way: an accrual of possible value-readings from an omission of precision.

What this allows me to articulate is that *encrustation* and *erosion* are merely different perspectives on the same transformative ends. Erosion and encrustation, in my emerging model at least, are an *activated mechanism* by which distortion may be achieved. To relate such a description to earlier terminologies within this chapter: erosion and encrustation are the mechanisms of damage by which distortion-as-transformation is nuanced.

⁶ In engaging with such issues of allegiance, a distraction must be prevented from occurring. To what extent are *Voice Box*’s visual facets of distortion (as might be experienced in a perusal of the score) actually made manifest in the composition’s sonic actuality? The composer offers the performer no instruction as to how to use these scores on the concert platform or even the broadest guidelines as to how to capture the visual distress of the notation in sound. Albeit indirectly, the composer seemingly amplifies the problem. Molitor’s acknowledged audio versions of *Voice Box* (i.e. those made available on the composer’s website) do not include realisations of these visual/notated materials. Instead, the priorities of the sonic versions of the work are transposed to include a lesser involvement with notational space – the *Master Score* is now *sung* with the singer *themselves* under comparable scenarios of mechanical duress, resulting in exclusively audio versions of the work with equally playful subtitles, such as *Tickle*.

1.5. My speculations

With such an outline made, it is now possible to detail my own speculations regarding the compositional grammar I am seeking to devise. I speculate as to the formation of a compositional grammar that explores and develops previously un-activated aspects of Michael Hall's description of Harrison Birtwistle's central organisational principle. As such, I seek to develop a music in which the sonic musical surface offers the potential to be experienced as a dichotomous hybrid of logic/order and dis-logic/disorder. The word employed to describe such an approach is distortion, currently understood as the transformation of material through damage. The surface of the musical work I seek can be understood as being comprised from musical objects of debris, the output results of a transformative/distortive action.

The execution of my distortive compositional actions is to take place along lines of erosion and encrustation, transformative processes of removal and accrual. Such transformative processes are not to be considered to be mutually exclusive, but as a more entwined series of operations that together enclose a wider compositional space in which many classes of compositional processes could be developed. This investigation seeks to devise a variety of such procedures, all of which engage with erosion and encrustation as centralised operands to create a sense of material as debris.

In presenting such material, what is facilitated is a process of comparison of such debris objects occupying different temporal locations within a given work; an act of comparison I have defined above as lateral. The ambiguous relationships between debris objects emerging as the duration of a given work progresses. My intended musical surface presents a scenario in which the differing transformative outcomes such distortive actions may offer a single musical idea can be presented, like experiencing the results of different patterns of weathering on stones, or observing how mosses grow on fallen trees.

The following three chapters (Chapters 2, 3 and 4) serve to demonstrate the ideas arising here in relation to particular works enclosed within the folio. Compositional techniques developed to activate the ideas presented above in my own work will therefore be outlined and critically discussed with regard to their manifestation in specific examples of my compositions.

Illuminating the space: *bet giyorgis*, a critical reflection

2.0. Introduction

This second chapter outlines attempts to manoeuvre within the previously introduced conceptual infrastructure. The composition selected from the folio to serve for such discussion is *bet giyorgis*(2011, for ensemble).⁷ Composed relatively early within the context of this investigation (March-June 2011), the piece is representative of a particular period of this enquiry and many of its features here discussed are common to other of my compositions included within the accompanying folio, e.g. *bet maryam* (2011, for solo guitar).

But the purpose of this exercise goes beyond simply a process of documentation. With such a reference-point defined, these same three facets will then become the subject of critical discussion, using such reflection to illuminate the wider potentials of space I came to engage with in later examples of my work from this project.

At one and the same time, this documentation of an exercise in self-evaluation/reflection is in some senses intended to be representative of the research process as enacted in practice, an ad infinitum cycle of compositional action, evaluative reflection and then revised compositional action. To adopt a mantra of my close friend, composer Ian Vine, ‘make a mark and then deal with it’ (Vine 2013).

bet giyorgis will be first outlined in regard to three facets: the derivation of its materials (section 2.1), its microstructural devices (section 2.2) and its macrostructural design (section 2.3). These same three facets will then be subject to critical reflection and expansion (sections 2.4 – 2.6), before summarising key facets further developed in the chapters that proceed after here (section 2.7).

⁷ *bet giyorgis* is scored for a twelve-piece ensemble comprising flute (doubling piccolo), oboe, clarinet, guitar, mandolin, xylophone, harp, piano, violin, viola, violoncello and double bass. The ensemble is subtly spatially separated into four sub-groups surrounding the keyboard (see score for further details). The composition was written via a course of workshops with the Nieuw Ensemble (Amsterdam) and premiered by them at the Huddersfield Contemporary Music Festival (HCMF) 2011, conducted by Bas Wiegers. Like many of the items in the folio, the composition takes its title from the rock-hewn church, Bet Giyorgis, in Lalibela, Northern Ethiopia.

2.1. The derivation of materials

In a sense, the derivation of the fundamental materials to be employed in *bet giyorgis* can be considered as an expansion of the approaches documented by Michael Hall in relation to Harrison Birtwistle. As previously documented, Hall outlines Birtwistle's employment of, so-called, basic melodic/rhythmic gestures (Hall 2000 p.5). I sought to develop my own basic melodic/rhythmic gestures, designed with particular regard to their applicability for distortive treatments.

To that end, my attention was drawn to the field of perceptive psychology. Commentators within the field have documented the phenomena of musical *schemata*, as introduced by Bob Snyder in the following way:

While we derive schemata from musical experiences, we can also construct musical experiences so that they will be easier to schematize. (Snyder 2001 p.101)

Snyder here talks of *construction*; as a description of the cognitive mapping of surface-onto-schemata as a mechanism for understanding – or simply recognising – the musical objects to which we (as listeners) are presented. In this way, the notion of schemata is bidirectional, simultaneously absorbed-from and mapped-onto the musical/sonic surface as heard. For me, such a scenario immediately engages with the idea of expectancy, introduced via the thought of Gregory Bateson (see section 1.3.1.).

As Snyder goes on to outline, musical schemata can take a number of formations, ranging in generality from particular musical attributes to more holistic mental images, such as genre. The specific existence of melodic schemata is particularly well documented, as Hendrick Purwiss (et al) introduces:

Rather than being fully arbitrary, (parts of) melodies are often instantiations of melodic schemata, frequently recurring patterns of pitch contours. The most common melodic schemata are axial forms, arch forms, and gap-fill forms. Axial forms fluctuate around a central pitch, the 'axis'; Arch forms move away from and back to a particular pitch; And gap-fill forms start with a large pitch interval (the 'gap') and continue with a series of smaller intervals in the other registral direction, to fill the gap. [...] The existence of melodic schemata highlights the importance of expectancy in melody perception. (Purwiss (et al) 2008 p.174)

The specific presence of particular schemata-models, as documented above by Purwiss (et al), seems to suggest that, on a generalised level, such melodic schemata serve, in some

senses as universal melodic archetypes. As such, these types of component seem particularly suited for distortive transformation: a strong – or at least immediately recognisable – perceptive identity as a starting point for something to break.

To that end, at its most fundamental level, *bet giyorgis* is constructed from repeating pitch/rhythm cycles that are subject, upon each iteration, to processes of increasing distortion and disruption of contour. Such cycles are of two different classes. The first class of musical cycle employed can be understood as an attempt to create a melodic archetype, that of the arch-form (to be later transformed via distortion). The pitch-cycle employed for the first instance of material of this class can be seen below, in figure 2.1(a), below:

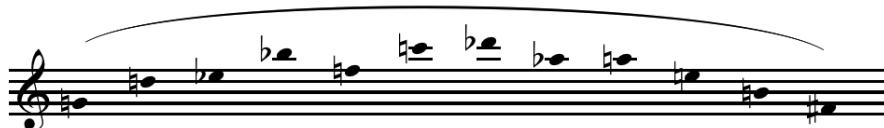


Figure 2.1(a): Pitch-cycle used for the first instance of schemata-based/consistent musical material

An additional commentary is also possible via consultation of the intervallic framework from which the above example is constructed. The cycle uses only two melodic interval-classes, 1 and 5. In a sense, this can be understood as an attempt to rectify the concerns raised by Alison Deadman in regard to Birtwistle's confusion of the material identity provided by pitch and rhythm: Birtwistle derives his logic based on intervallic patterns but then processes these patterns with almost exclusive attention to pitch class (Deadman 1990 p.13).

In addition, such strict control of intervallic content can be understood as an attempt to create extremely internally consistent musical material, imbued with a sense of *self-similarity*. As such, this pitch object's orientation towards a melodic archetype can further be understood as a grouping mechanism, cognitively binding the individual pitch-instances into a more composed musical object.

The issue of musical *consistency* as providing a logic/coherence (that, in my particular scenario, may then be disturbed) is a notion that warrants further discussion. Many composers have offered commentaries as to the meaning of the term *consistency* in relation to their own music. I find comments made by composer Antonie Beuger particularly useful in this regard:

[...] instead of assuming music to have some finite number of basic elements to start with, I am suggesting the opposite: the matter of music is 'all that is (sounding)'. The form of a specific music, then, is the way in which it cuts into this infinitely dense continuum to look or to discover certain definite things to be taken out and to be used as elements of a composition.' (in Saunders (ed.) 2009 p.231).

Beuger's description essentially re-appropriates precepts from Gestalt psychology. The implication of Beuger's statement is to consider a particular musical object as a subset of an infinity of musical possibilities/potentials. In removing objects from this infinity, Beuger draws my attention to the issue of *specificity* within identity. In essence, this is a notion of identity-through-specificity; Beuger's model, in a sense, actually re-arrives at the Gestalt grouping principles of self-similarity and proximity with which music cognition is so familiar.

In a similar vein, the above pitch cycle (fig. 2.1(a)) is rhythmicised using only three duration-classes (duration here measured in terms of number of demisemiquavers): 2, 3 and 5. The fully rhythmicised cycle can be seen in figure 2.1(b) (below, the relevant stave labelled as 'RH [Right Hand] melodic schemata').

In addition to the schemata-compliant materials employed in the composition, by way of exploratory comparison, additional pitch/rhythm materials of an opposing nature are simultaneously employed in *bet giyorgis*, constructed via mappings of randomly generated data. For this second class of pitch cycle a predetermined number of randomly generated co-ordinates were derived, defined in terms of point-of-articulation within the available metric space for that particular cyclic unit (measured in demisemiquavers: X) and available pitch-classes (Y).⁸ The resultant co-ordinates (X,Y) were then realised as score material by conjoining articulation points with sustained pitches.

The results of this process can be seen in figure 2.1(b) (below), the relevant staves marked 'RH random cycle' and 'LH [Left Hand] random cycle' respectively. Consultation with figure 2.1(b) reveals linear material that moves highly erratically through pitch-space, contains multiple intervallic/durational classes and sporadically positioned verticalities (principally dyads). As such, the material can be understood as parametrically *inconsistent* when compared to its schemata-compliant counterpart.

⁸ Such material was designed for the piano. As such, to define pitch territories for the left and right hands, the piano keyboard is split into two regions, pivoting around C4.

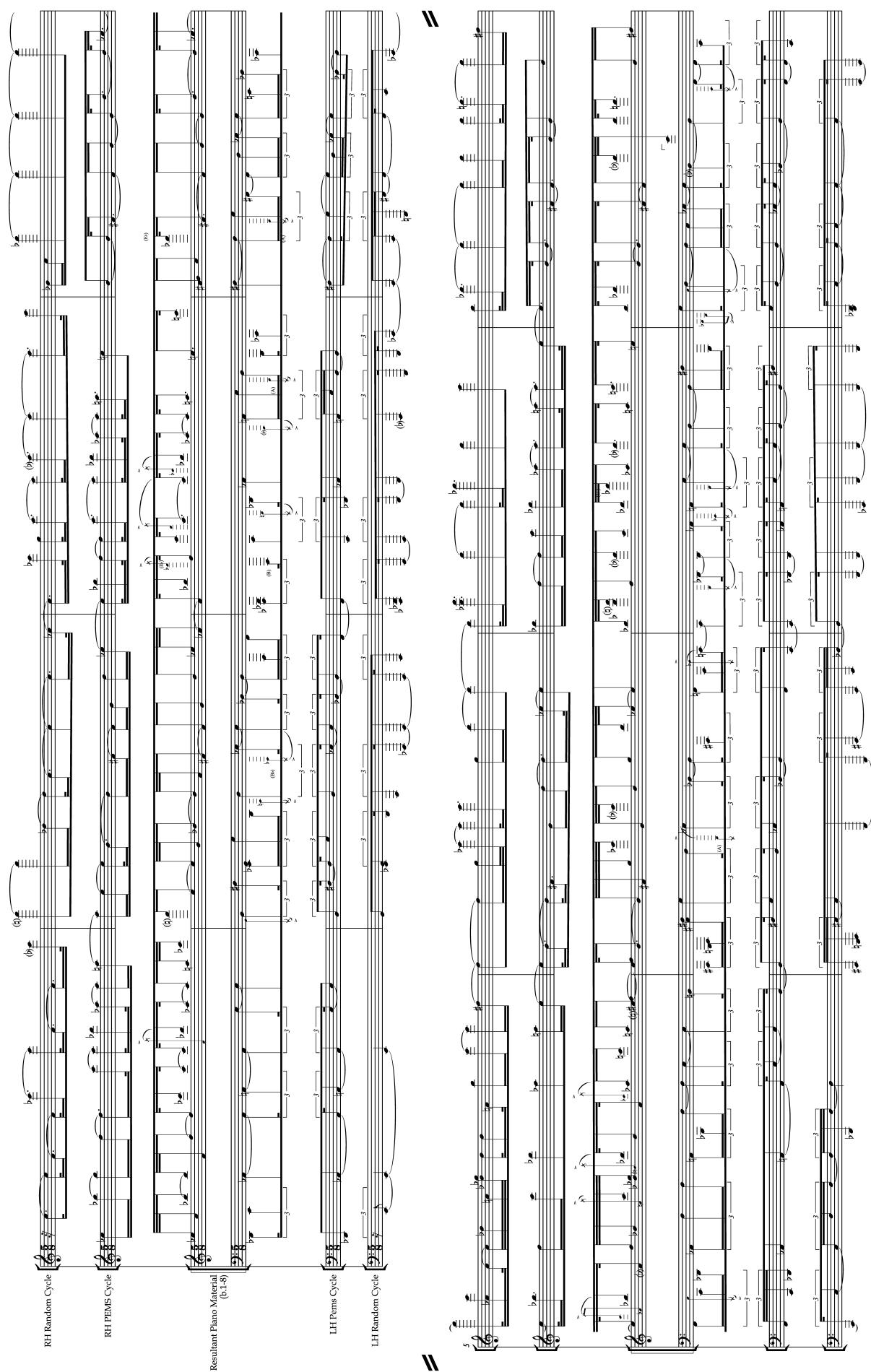


Figure 2.1(b): *bet giyorgis*: Constructional schematic for piano unit one

At any one time in the composition, two pairs of each class of material are active in the musical surface. Both a schemata-compliant and schemata-noncompliant cycle is assigned to each of two registral territories, as defined by the pianist's hands (see footnote 8). Four material cycles are thus always manifest in the composition's surface: two schemata-compliant, two schemata-noncompliant.

Initial manifestations of this scenario can be seen in the composition of the solo piano passage that begins *bet giyorgis* (bars 1-8). This eight-bar durational span is a composite, created via literal superimposition of the two material classes, a compositional process further illuminated in figure 2.1(b). This passage is then rotated/repeated throughout the proceeding opening section of the composition (b.9-48), although its enclosed material is subject to various microstructural compositional strategies. Six such rotating material units (of which the passage enclosed within bars 1-8 is the first) are employed throughout the composition, although discussion of this facet will be reserved for consideration of the composition's macrostructural design.

2.2. Microstructural compositional devices

Three microstructural devices were employed within *bet giyorgis*, referred to amongst my own sketches as *collision* (discussed in section 2.2.1., below), *extrapolation* (section 2.2.2.) and *encrustation* (section 2.2.3.). These three strategies will now be outlined and illustrated with examples from the score:

2.2.1. Collision

The first statement of each of the six material units occurs in the piano part (see below for bar-locations within the score); the process of collision is primarily used in the composition of these statements. The act of collision is here defined as a superimposition of pairs of material classes from the same registral territory. In colliding the materials, the intention is to entangle and confuse the two classes, creating a mutually corrupted composite. This compositing process can be read as distortive intervention upon the material with reference to previous definitions posited by Gilles Deleuze. In entangling the two classes of material, it was intended that the action will move the material into a mutually ambiguous 'zone of indiscernibility' (Deleuze 2003, p.42) in which the materials

coexist as a hybrid state, a hybrid that instigates gestural characteristics thus common to both original classes, but reducible to neither.

The process can be seen again through consultation of figure 2.1(b) (above), which illustrates the methodology used to construct the opening eight bars. Here, the material as manifest within the score (as labelled in the figure) is a composite of four compositional strata; the right hand of the piano, for example, presenting a summation of the 'RH random cycle' and 'RH melodic schemata', the left hand compiling its materials in the same way. Articulation points (from the original constituent cycles) within the bar are retained wherever possible, although physically impossible hand stretches are edited into arpeggiations via grace-notes (a processes considered as a further corruption of the original material). The six larger material units were all constructed in the same manner and can be found throughout the score: bars 1-8; 49-56; 89-96; 149-152; 173-176 and 209-212 respectively.

2.2.2. Extrapolation

Once an initial statement of a material unit (the collided cyclic pairs) has been made by the piano (e.g. b.1-8), this unit is then repeated/reiterated but with certain of its composite material classes *extrapolated* from the piano part into the instrumental sub-groups detailed at the outset of this outline (above).

Bars 9-16 can be considered in these terms. Here, what was initially stated as the piano part's 'right hand' material during bars 1-8 has been disassembled – the 'RH random cycle' (see figure 2.1(b)) is extrapolated (leaving the pianist's right hand to play only a literal – un-entwined – statement of its original schemata-compliant material). The material that occupied this component of the unit is then orchestrated into a sub-ensemble (in this case piccolo, xylophone, mandolin and violin). The first four bars of this orchestration are supplied below as figure 2.2(a), below, alongside the relevant section of the original 'R.H. random cycle', for ease of comparison.

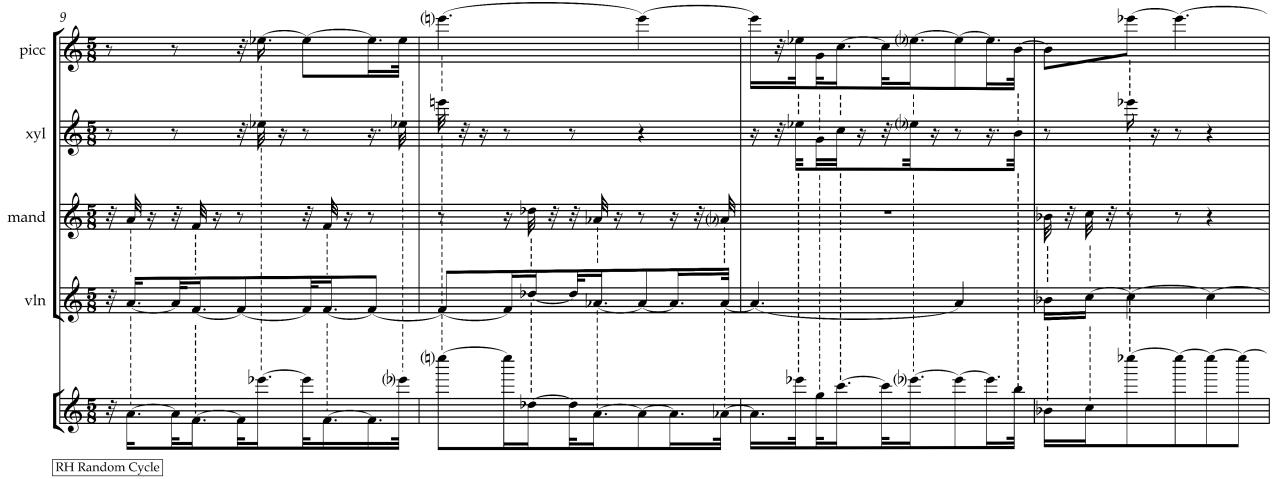


Figure 2.2(a): *bet giyorgis*: b.9-12, initial orchestration of RH random cycle
(all performance text has been removed)

A strategic approach to orchestration is employed throughout such extrapolated passages. In the above example, the instrumental sub-group is further bifurcated into two duos (violin and mandolin; piccolo and xylophone), each comprising a sustaining and non-sustaining instrument, a facet used distinctively to amplify articulation points. This orchestration strategy remains consistent (unless corrupted by further processes) until this sub-group is compositionally reallocated to extrapolate other materials from other instances of the six primary material units.

The extrapolation process outlined above in figure 2.2(a) can be described as *100%-extrapolation*, that is to say that *all* original articulation-points from the 'RH random cycle' have been re-allocated to an instrumental sub-group. Elsewhere in the piece, different levels of extrapolation are employed.

Partial extrapolation, as a process, can be illustrated through consideration of the oboe and clarinet (together another instrumental sub-ensemble) passage enclosed by b.97-104. Here, a wind duo of oboe and clarinet perform in unison (the orchestration-strategy employed at this juncture) a *60%-extrapolated* (RH) schemata-compliant cycle (taken from a primary material unit first stated by the piano during b.89-96), i.e. *only* sixty-percent of the original articulation-points from the applicable component (here, the schemata-compliant cycle) are extrapolated⁹ from the original material unit (as found in the piano statement). The remaining forty-percent of articulations thus remain un-extrapolated in the piano,

repeating upon each iteration of the unit cycle until the introduction of the next primary material unit, at b.149.

This process is demonstrated by figure 2.2(b) (below), which presents the wind duo (due to its strictly unison relationship with the clarinet, only the oboe line is notated for ease of reading) alongside that played concurrently by the piano's right hand (from where the oboe/clarinet material was originally extrapolated). Of the forty-eight articulation points available in the original schemata cycle, sixty-percent were randomly selected (i.e. twenty-nine of the original forty-eight) for extrapolation from the piano.¹⁰ These are presented in the oboe and clarinet part, edited so as to extend durations of selected articulations to fill the metric space created by those that are disregarded. As such, the middle stave of figure 2.2(b) shows the abstracted original (complete) version of the (RH) schemata-cycle for this passage, annotated to show the location of its composite pitch instances across the score.

Figure 2.2(b): *bet giyorgis*: b.97-104: oboe and clarinet, piano (right hand) and (unplayed) RH schemata cycle

⁹ Selected randomly from the original material.

¹⁰ The selection process involved enumerating the articulation points of the material within the original material cycle and then using a random number generator to select the amount required (as dictated by the particular extrapolation rate (%)) in operation) from the whole.

It should be emphasised that, once extrapolated, materials in the sub-groups continue to loop, mirroring the four-/eight-bar cycles followed by the piano. The results of the extrapolation process are fixed in its first application (and so are not re-extrapolated upon each cycle of the original four-/eight-bar phrase), although they are subject to further processes (see section 2.2.3. below).

This process of partial extrapolation can be further understood in relation to certain terminologies outlined in the preceding chapter as a distortive process of *erosion* (removal). Partial extrapolation introduces 'skips' into the original pitch cycle (in turn) introduces hitherto un-utilised intervallic and durational classes (especially in the case of the internally consistent schemata-compliant cycles). In a sense this further illustrates the entwinement of erosion and encrustation as compositional operands as introduced in the first chapter: the *removal* of material components leads to an *accrual* of additional intervallic data.

Thinking in this way, it could follow that the *lower* the rate-(%) of-extrapolation, the *greater* the distortive effect of this process. *bet giyorgis* uses a range of extrapolation rates from 20-100% (see section 2.3. for further information as to the employment of these rates in the piece's larger-scale architecture).

2.2.3. Encrustation

Developing a practical notion of encrustation for employment within *bet giyorgis* began with a consideration of a notion of masking taken from Gestalt psychology. Alfred Bregman describes the phenomenon particularly eloquently:

This can be illustrated with [figure 8, below] which shows a number of fragments that are really parts of a familiar object or objects. The fragments were obtained by taking a familiar display and laying an irregularly shaped mask over it. Then the parts that were underneath the mask were eliminated, leaving visible only those parts that had not been covered by it.

Why do the fragments not close up perceptually in this figure? A plausible Gestalt answer might be that the forces of closure are not strong enough. The contours of the fragments might not be similar [...] Look at what happens when the picture is shown with the mask present as in [b]. The visual system quickly joins the fragments without the observer having to think about it. The Gestalt principle of closure has suddenly come alive in the presence of the mask.' (Bregman 1995 pp. 25-26)

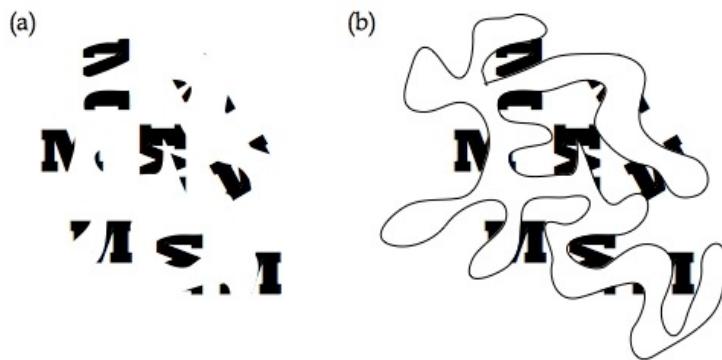


Figure 2.2(c): Masked fragments presented with (a) mask removed and (b) with mask present
[My own illustration based on that supplied with Bregman's text, (Bregman 1995, p.27)]

This phenomenon serves as a conceptual framework for the encrustation processes as employed in *bet giyorgis*: the unrelated irregular shapes observed in figure 2.2(c), above left, could be understood as the goal of the encrustation process: debris. Such debris has been created by the superimposition of a mask upon the original materials. Again, my notions of erosion and encrustation are revealed as entwined within such an action: the addition of a mask (b) ultimately resulting in the removal of material attributes (a).

Yet what the Gestalt model allows to be seen is the extent to which the *presence* of the mask itself can hinder the formation of debris. In being present as an object in itself, the mask not only binds the fragments together into a group but, in a sense, completes each fragment into a subsidiary whole (what present to me as a random selection of shapes in (a) are 'completed' by the mask into statements of the letter 'M' in (b)).

With such a model in place, it is possible to further examine additional artistic work that, at least initially, seems to engage with encrusting masks. Consider composer Peter Ablinger's composition *Instrumente und Rauschen* ("24 Short Pieces") (1995-1996) in this regard:

24 short pieces. About 20 seconds each. A very elementary music of scale fragments and sustained tones, almost completely hidden behind a surface of colored static noise. - Or, the other way round - A series of drawings in time where the background, the paper is the main element, while the disappearing figures on this paper are taken back to the state of illusion. (Ablinger 1996)

The use of quasi-visual terminologies such as 'foreground' and 'background' are of particular interest: the presence of the masking static noise appears not to function to *distort* the instrumental fragments, but instead serve to employ the instruments to actually foreground the noise itself (the 'background, the paper'). In itself, such a notion adheres completely to the Gestalt model as outlined previously. Ablinger's mask is (very much)

sonically present within the musical surface: it is an object in and of itself. As such, Ablinger's composition presents the scenario pictorialised as (b) above. The materials are conjoined and elaborated by the mask rather than contorted.

British visual artist Simon Starling's work *Infestation Piece (Musselled Moore)* (2008/09) serves as an additional example of this situation from a different perspective. To create the work, Starling submerged a cast replica of Henry Moore's *Warrior with Shield* (1953) into Lake St. Clare (Canada), a body of water infested with zebra mussels, an accidentally introduced alien species. After a time, the sculpture was removed, the result described by Bryne McLaughlin:

Despite some early resistance by the otherwise tenacious mollusk, the work was pulled from the lake early in 2008, time-worn and mussel-encrusted. (McLaughlin 2008, online resource)

The literal employment of the word encrustation as a descriptor here serves as an effective introduction to the dilemma in consideration. In being recognisable objects themselves, the encrusted mussels fail to serve as a force upon the statue's warrior. In being both identifiable and foregrounded, they remain separate to the identity of the statue's figure; they fail to blur and fragment its form. As such, the mollusks actually occupy the foreground of the work (the opposite of the scenario induced by Ablinger).

What such discussion allows me to articulate is the nature of any kind of encrustive addition – or mask – that will actually act as a damaging force upon the material to which it is imposed. In the audio domain, as in the visual, the mask must not be a felt holistic presence; it must not be a grouped self-similar continuum (Ablinger's 'wash' of static noise) that can be experienced as an object in its own right. Neither must the mask superimpose an identity or character of its own; it cannot be recognised independent of the material itself (Starling's zebra mussels).

To achieve this end, in *bet giyorgis*, once material is extrapolated from the original piano cycles, the music of the non-keyboard instruments is further corrupted via the application of randomly generated musical data. For each instrument within a given sub-group, a number of randomly generated co-ordinates are generated (X,Y: where X is a point of articulation within the temporal span of the composition's larger material units and Y is a pitch-class drawn from the unit's metric span (four or eight bars)) and added afresh to the extrapolated material upon each iteration of the unit cycle. The quantity of co-ordinates to

be generated is derived as fraction of the number of articulation points available within the extrapolated cycle.

As an example of the process-in-practice, it is useful to consider figure 2.2(d) (below). The upper two staves here denote the material performed by a sub-group (comprising of a viola and violoncello) during bars 17-24 (100%-extrapolated from a (LH) schemata cycle). The lower two staves in each system demonstrate the material performed by the same duo during bars 41-48:

The musical score consists of two systems of four staves each. The top system represents bars 17-24, and the bottom system represents bars 41-48. Each system has two staves: viola (va) and violoncello (vc). Articulation points are marked with small '3' symbols above the notes. In the lower system (bars 41-48), there are additional staccatissimo accents, which are described as randomly generated data in the caption. The score is in common time and uses a bass clef for both staves.

Figure 2.2(d): *bet giyorgis*: comparison of viola and violoncello sub-groups at b.17-24 and 41-48
(some performance text has been removed)

In the latter (lower) passage (b.41-48) additional, randomly generated, articulation points have been introduced into the music (indicated by staccatissimo accents) in comparison to that performed in the earlier (upper) statement (b.17-24). As with the process of extrapolation, the addition of such musical data forces a departure from the original state of consistency. Encrustation (as a general concept, rather than the particular technique discussed here) and erosion again appear entwined; an *accrual* of additional data results in a *removal* of parametric consistency. Thus, it also could follow that the *greater* the additional data added to the original line, the *greater* the distortive effect of this process.

To further elaborate, in the case of the violoncello material (above), a total of nineteen additional points have been added in bars 41-48 that were not present in 17-24. The original cycle (bars 17-24) included 31 articulation points: as such, the number of added points is (albeit approximately) 60% that of the original number. This ratio is treated as a variable throughout the piece and ranges in scale from 10% to 100%, the employment of such changing ratios being outlined and explored in relation to the composition's macrostructure.

Such a procedure fulfills the criteria developed in relation to Gestalt psychology. As documented previously (in relation to the collision of material classes in the construction of the piano material), when presented sequentially such random marks do not form strong contour shapes; they do not group together to form a holistic wash or holistic layer that could bind them together into something with opaque presence or schemata-compliant identity. Neither does each articulation point, taken on its own, carry enough data to constitute an object in its own right (as is the case with Starling's zebra mussels). The added points are positioned inside the original material; they form new parts of it. As such, the mask here is presented as if invisible or inaudible – erupting as if from inside the material forms, rather than as an exterior presence upon them.

2.3. Macrostructural compositional design

The larger-scale design of *bet giyorgis* can be illustrated in terms of the strategies outlined above. A schematic for this macrostructure has been charted as figure 2.3(a) (overleaf):

bet giyorgis: macrostructural schematic

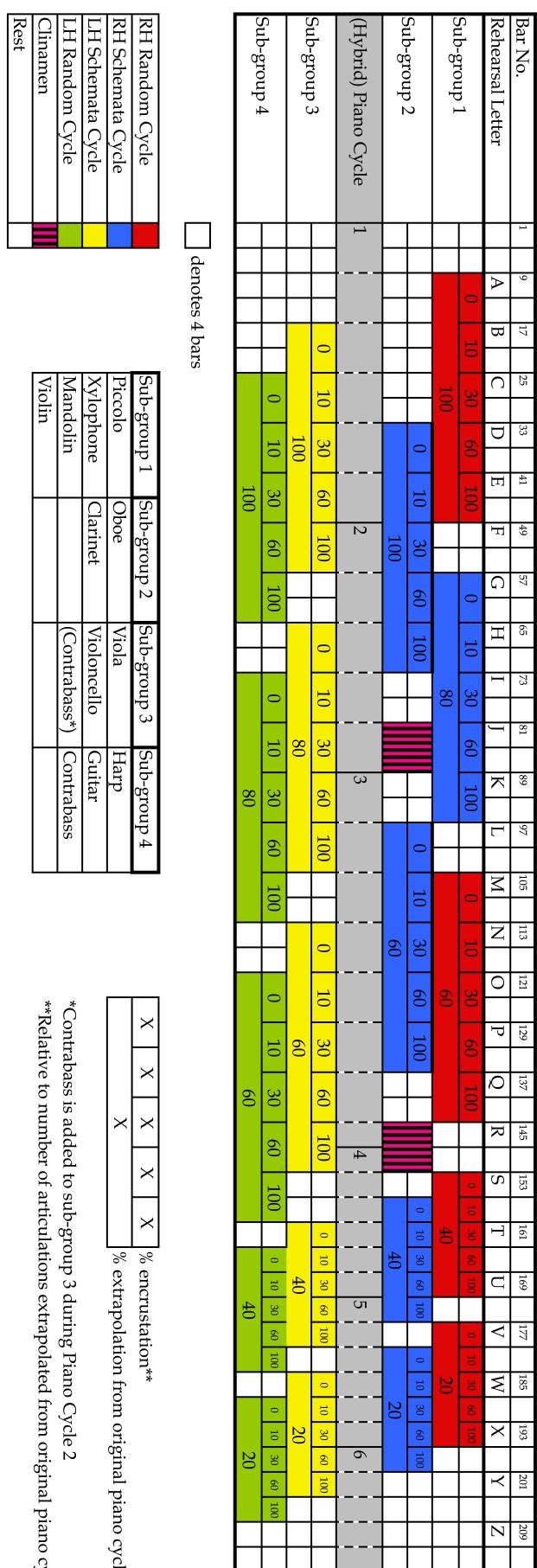


Figure 2.3(a): *bet giyorgis*: Schematic diagram showing macrostructural design
(This diagram should be viewed in colour)

By way of expansion, the central row of the table (shaded grey) shows the temporal location and metric duration (number of bars) of the six primary material units (each initially stated in the piano). Dotted lines within these shaded areas demarcate the repetitions of these cycles (thus, cycle 1 is repeated six times, cycle 3, seven-and-a-half times).

In addition, the colour-coded boxes running parallel to the grey/shaded areas denote which material class is extrapolated from the original piano cycle and into which instrumental sub-group they are orchestrated. These passages always take their material from the larger cycle in operation at their *outset*, i.e. bars 33-72 in sub-group 2 take *all* their material from elements of unit-1, despite the piano introducing unit-2 in bar 49. The coloured boxes also numerically indicate the percentages attributed to the above-outlined processes of extrapolation and encrustation. The lower box indicates the percentage-rate of extrapolation, the upper boxes indicating the percentage of encrustation (relative to the number of articulations in the original extrapolated cycle).

In addition, adjacent (like-coloured) boxes (those not separated from each other horizontally by empty squares) retain the same orchestration strategy as each other. For example, the orchestration strategy employed in the initial extrapolation of the first material unit's (LH) schemata-compliant component (first yellow box) is retained throughout bars 17-56. The overall trajectory of the piece can now be observed.

As each of the six primary units are introduced, progressively less of the material is extrapolated into the instrumental parts. As a result, *no* material is extrapolated from cycle 6, effectively demonstrating an extrapolation percentage of 0%, completing the arithmetic series 100-80-60-40-20-0 used to organise the extrapolation process across the piece. Simultaneously, and conversely, upon each extrapolation (regardless of %), the rate of encrustation within the sub-groups exponentially *increases*, following the series 0-10-30-60-100, across each of the units' five cyclic iterations.

Such a strategy can be read as conscious effort to instigate lateral comparison between distorted objects within the composition. On the medial level, the level of distortion increases as each iteration passes, facilitating an inter-referential discourse with the material that was previously heard. In effect, what is sought is a palpable sense of material objects in an observable state of decay, a sense which, it is hoped, is rendered visceral as the materials of the moment are compared (in the mind of the listener) with what has come before.

At one and the same time, on the macro level the entire composition gradually moves into a communal ‘zone of indiscernibility’: as the levels of extrapolation lessen, they render melodic gestures less intervallically consistent. As such, the schemata-compliant materials move to become more akin to the randomly generated cycles. I believe this is indeed palpable in the sonic surface of the composition. The earlier material units (e.g. units 1 and 2) manifest themselves, to me at least, as distinct/palpably ‘new’ musical ideas introduced into the musical flow. As the composition progresses this effect is lessened: material units 3-5 are far less distinguishable from one another.

The above schematic also delineates two passages labelled as *climamens*. These are passages of unrelated material that do not follow any of the logics found elsewhere in the piece (although they are also cyclically constructed). As such, they could be described as interjections that attempt to corrupt the larger-scale trajectory of the piece, mirroring the preoccupation with corruption on the micro-scale.

The clinamen as a label for a potentially disruptive structural device is read through its application to the work of the Oulipo group of (predominantly French) writers. ‘Counting among its members such prominent writers as Raymond Queneau, Jacques Roubaud and Italo Calvino, the Oulipo explores the use of rules or “constraints” in writing and is undoubtedly one of the most significant literary groups of recent years.’ (James 2009, p.14)

Such constraints can be better understood as often complex and deterministic writing strategies, used to order the components of a given text. George Perec’s novel *La Vie Mode D’Emploi* (1978) is a good example of the employment of such strategies, as documented by Alison James:

The system of constraints used to write this novel is based on a table of 420 elements, divided into forty-two lists of ten elements each. These forty-two categories specify, at least in theory, the function of each element in a given chapter. [...] The forty-two lists are then divided into twenty-one pairs, and the elements within each list are combined using a ten-by-ten orthogonal Greco-Latin bi-square – a matrix that distributes pairs of elements in such a way as to ensure that no pair is repeated and that no individual element appears more than once in the same column or row of the table. [...]

The one hundred squares of each bi-square are superimposed onto the model of the apartment building that is the setting for Perec’s novel. The narrator’s movement in the building – and therefore in the distributive bi-square – is determined by the knight’s tour constraint: the movement of a knight around chessboard in such a way that it lands on each square once and once only.’ (ibid pp.141-142)

James goes on to identify the clinamen phenomenon in Perec's work:

[...] the term clinamen has its origin in ancient physics: in order to create a place for free will in Democritus's atomist theory, Lucretius argued that atoms can deviate spontaneously and accidentally during their fall. [...] The Oulipo's co-opting of the clinamen is just one of several twentieth-century reworkings of the notion. [...] the *Oulipo Compendium* defines it as "a deviation from the strict consequences of a restriction". However, the Oulipo's collective works do not propose any coherent theory of the clinamen. Rather, the notion is invoked by some Oulipian writers, in particular Perec and Calvino, in order to justify or praise the transgression of constraints.' (ibid pp.142-143)

Within such a context, the clinamen passages employed within *bet giyorgis* can thus be further understood as developments of Harrison Birtwistle's notion of 'a logic that's been disturbed' (Hall 2000 p.ix). In my musical work, they act as departures from the operational rules by which the composition is otherwise governed. Such passages are foregrounded within the texture of *bet giyorgis* and thus act as subtle 'red-herring' materials that fulfill no consequential/developmental function in the remainder of the piece. In a quasi Batesonian sense, they therefore offer 'loose threads' that can be only ambiguously tethered to any patterning relationships displayed by the work's teleology elsewhere.

And so – to return to the methodology from the opening of this chapter – marks have been made; what remains is for them to be *dealt* with, instigating a critical reflection that will serve to illuminate the wider potentials of the space.

2.4. The derivation of materials: critical review

Reviewing the approaches to and conceptions of musical material as employed within *bet giyorgis* allows first for development of my understanding of material consistency. The composition here discussed (*bet giyorgis*) derives its basic melodic gestures from certain regulated/standardised musical parameters, but actually does not engage with all parameters equally. Quantifiable parameters, such as pitch and rhythmic values, have been standardised and regulated but does this on its own constitute absolute musical consistency?

Returning to the thought of Gregory Bateson as a creative stimulus, what is proposed here is a model of identity defined by patterns. To reiterate, for Bateson, knowledge is not

noumenological but relational – or, to put it in Bateson's own words, it is the 'pattern which connects' (Bateson 2002 p.10) that is of primacy.

Whilst a sense of pattern (of interval, of durational cycle) has been engaged with in the composition of *bet giyorgis*, what is revealed to me in reflecting upon the materials employed is a wider creative space. It seems my material formulations could be brought more in line with Bateson's model – or at least be made more interesting – by embracing a more holistic approach to material class or type. Composers such as Elliott Carter and Brian Ferneyhough have explored more holistic notions of musical material in multifaceted ways. Whilst it is not possible to document all of these emergent methodologies at this juncture, one could mention that Carter's employment of 'character-patterns' forms an archetypal definition of behaviour-as-material, where '*intervals, metronomic speeds, polyrhythms and rhythmic characters [are]* used to dramatize the musical personalities of textures' (Schiff 1998 p.36, emphasis retained). Similar ideas are found in the work of Ferneyhough, particularly expository in his exploration of the nature of musical figures in relation to *lines of force*:

Lines of force arise in the space between objects – not space as temporal lacuna, atopia, but at that moment of conceptual differentiation in which identity is born – and take as their vehicular object the connective impetus established in the act of moving from one discrete musical event to another. (Ferneyhough 1995 p.35)

What is illuminated to me here is a notion of musical character that is not, indeed *cannot*, be locatable within any given musical moment. Moreover, the notion of character/identity that appears to be arising presents more as a continuum, accruing a consistency-of-operation as its figures traverse through time, as Ferneyhough himself develops:

The figure develops momentary perceptual frames – stage sets – capable of projecting particular hypothetical evaluational categories into the still-to-be perceived future of the discourse. To some extent, we recognize and locate the nature of such a frame whilst still physically living-through the decay and dissipation of one or more anterior frames, whereby the partial superincidence or 'cross fading' of an indeterminate series of prior states comes to provide a significant, albeit necessarily fluid and evolutionary perspectival orientation. (Ferneyhough 1995 p.37)

Of course, notions of behaviourally defined materials could also be attributed to certain of the didactic processes used by the so-called minimalists. Tom Johnson's *tiling* of materials (Johnson 2008), for example, appears to produce music far more defined by the

(highly deterministic) *process* applied to his materials than by parametric data ‘inputted’ into these processes. Johnson’s work seems to prioritise and foreground this kind of operation as a self-aware didacticism, which other manifestations discussion (cf. Carter and Ferneyhough) probably do not.

What appears to be articulated here is the perpetual emergence of a musical *behaviour* as a more holistic approach to material definition. Behavioural materials are non-enclosed, they cannot be wholly located within a particular temporal location and as such exhibit more of a kind of metapatternic identity (to appropriate Batesonian terminology) as the hybrid/composite character emerging from the assimilation of *all* musical parameters.

For me, refreshing my notions of musical material into this new territory provides great scope for developing the ideas of this investigation. More innately holistic an approach to mere parametric/numerical standardisation, a behavioural strategy engages immediately with the previously overlooked potential function of more qualitative musical parameters than durational and pitch-based values, such as timbre and dynamics. Furthermore, developing my notions of material into a more behaviourally defined framework actually allows a greater resonance with observations made in the previous chapter with regard to the evolutionary epistemology offered by Gregory Bateson. Whilst the adoption of melodic schemata engages somewhat with ideas of more universal sonic archetypes, such notions actually place preference on the thing-in-itself (the arch) rather than the patterning relationships (intervallic characteristics) by which it is actually defined.

2.5. Microstructural compositional devices: critical review

Reflecting particularly on the microstructural compositional devices employed within *bet giyorgis* allows me to observe and develop certain assumptions made in relation to their derivation. What is the difference between my distortive actions (erosion/encrustation) and simply transformation? And, perhaps more importantly, what is the relationship between my processes and an idea of *wrongness*?

It seems clear to me that to distort something is different from merely transforming it. A transformation implies some kind of retention/preservation of material identity that distortion (via erosion/encrustation in this case) seems to somehow subdue or at least make ambiguous. Such a distinction is made clearer via understanding Eric Clarke’s application of the ecological notion of *invariance* in musical perception:

Music offers a particularly clear example of invariance in the perceived identity of material under transposition and transformation. A theme or motif in music can be regarded as an invariant (a pattern of temporal proportions and pitch intervals) that is left intact, and hence retains its identity, under transformations such as pitch transposition or changes in global tempo.' (Clarke 2012 p.35)

As such, the distortive act (within the particular context of my musical work) could be understood as an attempt to break – or at least interact with – musical invariance, moving material distinctions into a more ambiguous state. It is within this context that the relationship my procedures have to notions of damage can be understood: damaging the invariant attributes of the material.

That said, when examining the various microstructural processes employed in *bet giyorgis* in this light, in some senses there is actually a very low degree of damage to certain invariant attributes of the music, particularly with regard to the static orchestration strategies the piece employs. Consider the passage for oboe and clarinet between bars 33 and 72. Whilst the initial statement of the extrapolated cycle (bars 33-40) does indeed become encrusted with randomly generated data (between bars 41 and 72), not only do the gestural characteristics of the passage (a hocket, characterised by forte-piano articulations) remain omnipresent throughout, but the very fact that this material remains in these two particular wind instruments imbues the section with an absolutely invariant timbral identity. The particular significance of timbral invariance as a 'binding' element cannot be overlooked. Commentators from music psychology have outlined models of cognitive grouping mechanisms within music, with particular emphasis on the role played by timbre (see Clarke 2012 p.35; Bregman 1995 pp.478-481; Semal 1991 pp.2408-2409; Tilman 2004 pp.1138-1140; Warrier 2002 p.205-207). Thus, in work ensuing from this point in my research a far greater attempt needs to be made to address this emergent issue and engage with a notion of timbral invariance (and the breaking thereof) within my materials.

In an even broader sense, *bet giyorgis* engages with an assumption of distortion as some kind of error or *wrongness*. In becoming more distorted as the material progresses, there is a silent expectation that the material will be somehow felt as 'wronger', more incorrect, than previous. In schemata-compliant materials, for example, the implication of parametric data considered *outside* of that enclosed by the original material formation(s) is that it is somehow *wrong* within and against the established context. In a broader sense, a true/false claim is being made: 'true' material as pure-state/concrete/repetitious, 'false' material as inconsistent/fleeting/irrelevant. Yet a sense of wrongness as a descriptor has

not been necessitated by explorations of distortive processes: indeed it seems wholly within the realms of gross conjecture that music, as a sonic *substance*, is even capable of transmitted/encoding such a sense of error in and of itself.

The philosophical thought of John Langshaw Austin appears applicable here. Austin identifies phenomena of signification that he identifies as *performative utterances* (Austin 2003 p.6) and provides the following examples and working definition:

Examples:

- (E. a) 'I do (sc. Take this woman to be my lawful wedded wife)' – as uttered in the course of a wedding ceremony.
- (E. b) 'I name this ship the *Queen Elizabeth*' – as uttered when smashing the bottle against the stem.
- (E. c) 'I give and bequeath my watch to my brother' – as occurring in a will.
- (E. d) 'I bet you sixpence it will rain tomorrow.'

In these examples it seems clear that to utter the sentence [...] is not to *describe* my doing of what I should be said in so uttering to be doing or to state that I am doing it: it is to do it. None of the utterances is either true or false: I assert this as obvious and do not argue it. It needs argument no more than that 'damn' is not true or false [...] To name the ship *is* to say (in the appropriate circumstances) the words 'I name, &c.'. When I say, before the registrar or altar, &c., 'I do', I am not reporting on a marriage: I am indulging in it. (Austin 1975 pp.5-6, emphasis retained).

For Austin, performative utterances are not restricted to the confines of linguistic behaviour: Austin goes on to outline many classes, such as the notion of signature (for example). In all classes, however, a performative utterance is any operation that *does something*, or indeed *creates something* simply by its invocation. From such a perspective then, it could be considered that musical material – as-performed-in-performance-by-a-performer – is such an utterance: musical statements *create* (sonically) that which they *state* (the music itself).

Such labeling is not superficial; its use is of relevance both as a perspective and as a conduit for further understanding. For Austin, claims of truth and falsehood are thus *inapplicable* to performative utterances, since such utterances do not signify in a way comparable to other linguistic processes (Austin 1975 p.5). For Austin, the utterance is its own signifier; it *is* that which it is *created*. Following this enquiry, if musical statements are indeed considered as performative utterances, then a binary - true/false; right/wrong – consideration of their nature appears to be inapplicable and, in turn, the conceptual infrastructure from which *bet giyorgis* was built appears to crumble.

Yet by considering performative utterances as *self*-signifiers - i.e. they present at one and the same time as a *process* of signification and *something* that which is signified, more architectural cracks begin to emerge.

If performative utterances self-signify – indeed if *anything* can self-signify – then such utterances are wholly non-referential constructs. All that is signified is stated within the utterance – there is nothing signified beyond that which the utterance creates. The musical grammar sought by this investigation necessitates a comparison process that points to invariant musical archetypes through performative musical gestures. The implication of Austin's thought is that no such comparative process is possible. If such a scenario were found to be true, then any methodology that seeks to use lateral comparison (of components occupying disparate temporal locations within a sonic surface of a composition), as this investigation seeks, would appear to be a futile endeavor.

However, to draw such a conclusion as reached by Austin seems somewhat illogical. Perceptive psychology proves that it is indeed possible for a witness to track musical objects through a process of transformation (e.g. Welker 1982). A referential/comparative relationship *is* being forged in such accounts.

An even more concrete conduit away from Austin's conclusion is offered through the thought of Jacques Derrida, who confronts Austin's claims directly. For Derrida, the formulation of a performative utterance lies within its locution, the manner of speaking which enables a performative utterance *to be* performative:

It might seem that Austin has shattered the concept of communication as a purely semiotic, linguistic or symbolic concept. The performative is a "communication" which is not limited strictly to the transference of a semantic content that is already constituted and dominated by an orientation towards truth [...]

And yet – such at least is what I should like to attempt now – all the difficulties encountered by Austin in an analysis which is patient, open, aporetical, in constant transformation, often more fruitful in the acknowledgement of its impasses than its positions, strike me as having a common root. Austin has not taken account of what – in the structure of locution – already entails that system of predicates I call *graphematic* [...] (Derrida 1988 pp.13-14)

In Derridean terminology, the grapheme can be understood not as that which is signified, but as (and this is accepted as an extreme simplification) any representational trace symbolising the mental referent to which the signified corresponds (written words, vocal sounds, etc.), as the philosopher briefly acknowledges in the same text:

This structural possibility of being weaned [...] from the signified (hence from communication and its context) seems to me to make every mark, including those which are oral, a grapheme in general; which is to say, as we have seen, the nonpresent remainder of a differential mark cut from its putative "production" or origin. (ibid p.10)

To elaborate, considered as a grapheme, the performative utterance is immediately positioned within the operands of Derridean deconstruction, the significance of which is summarised by Derrida himself as follows:

A written sign carries with it a force that breaks with its context, that is, with the collectivity of presences organizing the moment of its inscription. This breaking force is not an accidental predicate but the very structure of the written text. In the case of a co-called "real" context, what I have just asserted is all too evident this allegedly real context includes a certain "present" of the inscription, the presence of the writer to what he has written, the entire environment and the horizon of his experience, and above all the intension, the wanting-to-say-what-he-means, which animates his inscription at a given moment. But the sign possesses the characteristic of being readable even if the moment of its production is irrevocably lost and even if I do not know what its alleged author-scriptor consciously intended to say at the moment he wrote it, i.e. abandoned it to its essential drift. As far as the internal semiotic context is concerned, the force of the rupture is no less important: by virtue of its essential iterability, a written syntagma can always be detached from the chain in which it is inserted or given without causing it to lose all possibility of functioning, if not all possibility of "communication," precisely. One can perhaps come to recognize other possibilities in it by inscribing it or grafting it onto other chains. No context can entirely enclose it. Nor any code, the code here being both the possibility and the impossibility of writing, of its essential iterability (repetition/alterability). (ibid p.9)

Thus the relationship between grapheme (musical-gesture-as-performative-utterance) and signifier (the invariant attributes of material still accessible through and after transformation) is rendered *immediately* indeterminate. In stripping the signifier of a context when encoding it as grapheme, any intrinsic/immediate/innate relation between signifier and signified is destroyed.

In this regard, such terminologies can aid to expand my understanding of distortion as instigating a sense of wrongness. In experiencing distortion, the ultimately *indeterminate* relationship between material distinctions is made palpable. Bacon's faces, at one and the same time, *are* and *are not* that of a given formal object: the resultant distortive sense seems to be presenting as a foregrounding of the indeterminacy inherent within the act of transmission.

In light of such discussion, such terminologies as introduced in the preceding chapter can be developed: previous definitions of distortion simply as instigating a sense of wrongness through damage (introduced in section 1.1) can be reinterpreted as acts which serve to foreground the *already innate* ambiguities inherent within the musical/performative utterance as grapheme.

2.6. Macrostructural compositional design: critical review

Reviewing the macrostructural design of *bet giyorgis* offers substantial development to previous ideas expounded/introduced regarding distortion as a sensation. The speculations of the preceding chapter suggested investigation as to whether degrees of distortion could be offered as a means for lateral comparison, i.e. a sense of this is more/less distorted than that (introduced in section 2.3.). Reviewing the attempt made to achieve this with reference to the various statistically minded approaches employed within *bet giyorgis*, it becomes more apparent that distortion-as-sensation takes a qualitative form. That is to say that experientially measurable *degrees* of distortion are not an achievable goal. The review concludes with evaluative remarks made in reference to the employment of the climanen-devices used with *bet giyorgis*, demonstrating how such devices were developed through the composition of additional components of the folio.

To address these issues, it is first useful to consider the function of cyclical treatments within the composition's methodology. The function of repetition in *bet giyorgis* can be understood as an attempt to imbue certain musical materials with an air of importance, foregrounding the central objects that are to be subject to distortion. But, in retrospect, the repetition also instigates a sense of notational encapsulation: a material object can be located within a particular temporal span, with a beginning and an end.

There is a risk that considering the material in such encapsulated notational 'chunks' has boycotted an understanding of temporal continuity. Musical objects are not experienced in the sonic domain as they can be viewed on the page. The written score permits a holistic, a-temporal, 'birds eye view' of a particular material encapsulation; the sonic surface, in contrast, gradually speaks through time.

From such a perspective, the original conception of material seems to have been allowed to become more *discrete* than continuous and this has ramifications for the procedural (distortive) transformation of these objects. In applying a statistical procedure to what

amounts to rather large passages of music (eight bars at the notated tempo lasts approximately 36 seconds!), there is a risk that the internal moment-to-moment progress of the passage does not at all reflect the statistical makeup of the larger unit. Consider the 'cello during bars 33-40 in this regard: an encrustation-rate of 30% is employed throughout this passage, yet, perhaps unsurprisingly, a ratio of extrapolated articulations to added articulations (10:3) is not consistently achieved throughout. Bars 37-38 in the 'cello part, for example, contain *nine* original articulation points and *no* encrustive additions! As a result, it appears possible that the moment-to-moment reality of the composition detracts from an overall sense of the statistical design.¹¹

Yet does this overall approach to statistical design actually hold any experiential validity, even if it could be more consistently applied throughout material sections? The thought of Henri Bergson is useful here, especially with regard to his observations regarding human sensations in general.

When the psychophysicist lifts a heavier weight, he experiences, he says, an increase of sensation. Examine whether this increase of sensation ought not rather to be called a sensation of increase. The whole question is centered on this, for in the first case the sensation would be a quantity like its external cause whilst in the second it would be a quality which had become representative of the magnitude of its cause. (Bergson 2001 p.48)

Bergson wishes us to reconsider the nature of human sensations. A certain mindset might suggest that human sensation is quantitatively based; we feel things as either hotter or colder, lighter or heavier, in measurable relation to each other. Bergson wishes us to question this common-sense position. For Bergson, human sensation is purely qualitative, i.e. differences of sensation are experienced as differences in *kind*, not of *amount*, as he expounds below:

Try, for example, to clench the fist with increasing force. You will have the impression of a sensation of effort [...] running up a scale of magnitudes. In reality, what you experience in your hand remains the same, but the sensation which was at first localized there has affected your arm and ascended to the shoulder; finally the other arm stiffens, both legs do the same, the respiration is checked; it is the whole body which is at work. But you fail to notice distinctly all these concomitant movements unless you are warned of them: till then you thought you were dealing with a single state of consciousness which changed in magnitude [...]. You felt this gradual encroachment, this increase in the surface affected, which is in truth a change of quantity; but, as your attention was

¹¹ Charles Ames's survey of statistical approaches to compositional design actually brought such a facet to my attention (Ames 1990 pp.83-86).

concentrated on your [clenched fist], you localized the increase there and you made the psychic force there expended into a magnitude, although it possessed no extensity. (Bergson 2001 p.24)

For Bergson then, the experience of magnitude in regard to human sensation is a confusion brought about by the psychic mapping of cause into effect, as he summarises:

For, in proportion as a sensation loses its affective character and becomes representative, the reactions which it called forth on our part tend to disappear, but at the same time we perceive the external object which is its cause, or if we do not now perceive it, we have perceived it, and we think of it. Now, this cause is extensive and therefore measurable: a constant experience, which began with the first glimmerings of consciousness and which continues throughout the whole of our life, shows us a definite shade of sensation corresponding to a definite amount of stimulation. We thus associate the idea of a certain quantity of cause with a certain quality of effect; and finally, as happens in the case of every acquired perception, we transfer the idea into the sensation, the quantity of the cause into the quality of the effect. At this very moment the intensity, which was nothing but a certain shade or quality of the sensation becomes a magnitude. (Bergson 2001 p.42)

Such thought has important ramifications on the quantitatively conceived processes employed throughout *bet giyorgis*. There can be no doubt that describing a musical stimulus as a something-that-has-been-distorted is an experiential sensation. In light of Bergson's observations, it seems somewhat fruitless to continue to control musical transformation in this way; it certainly suggests that such operations have no bearing in the sonified surface. It could be further argued that the techniques that have attempted such quantified strategies, namely those of percentage-controlled encrustation and extrapolation, have been confused by assuming a direct relationship between the compositional system and the listening experience. Distortion, it seems, is an innately qualitative sense: differences in distortive kind or class are indeed palpable, but any attempt to instigate differences in distortive degree in retrospect seem somewhat misleading.

To extend the discussion further, an additional question may be asked at this juncture. To what extent is *bet giyorgis*'s macrostructural design itself distortive? Or, to put the question another way, does *bet giyorgis*'s macrostructural design *itself* instigate a sense of something that has been distorted?

In actuality, only one facet of *bet giyorgis*'s more global strategy actively seeks to rupture the coherence of its larger-scale compositional mechanisms: that of its clinamens. All other facets (the material cycles; the distortive progressions) actually serve, in a sense, to present

the process of distortion as clearly as possible. In itself, this scenario actually seems rather paradoxical, or at least at odds with itself: why attempt to present the ambiguous as clear?

Addressing the clinamen passages directly, the intention was for their presence to form a violence against the structural design of the composition. But two facets actually seem preventative to a full statement to have been made. The clinamen passages – like their surrounding material – are internally repetitious (consider the clarinet and oboe writing bars 81-88), a fundamental facet exposed by the material that surrounds it. The clinamen passages are presented alongside and submerged within the primary materials, which itself beings a process of activation of Gestalt grouping mechanisms, such as temporal proximity. But in a broader sense, the clinamens as currently employed can be further evaluated in relation to the notion of Gestalt masking as outlined in section 2.2.3. In being self-defined objects, the clinamen material becomes present in the musical surface, forming the non-distortive mask (b) seen in figure 2.2(c). As such, the nature of such intruding materials – if they are to constitute clinamens – is probably worthy of further consideration and care in future work: they may present as somewhat odd additions to the sonic surface, but a genuinely violent force they are not.

Such observations open up ground for work undertaken in later aspects of the portfolio. Taking these insights on board, a need has been identified to engage more obliquely with clinamen-like insertions that genuinely intersect and obstruct larger-scale compositional designs. Such developments will be documented particularly in regard to *bet merkorios* (2012, for solo violoncello), discussed in chapter 3.

2.7. Next Steps

Completing this exercise in self-reflection allows me to illuminate the principal ‘next steps’ which this investigation has moved to explore. The emerging pathway necessitates a move away from material defined by particular parametric quantities (pitch/rhythm values) into a space where material substance is defined more in terms of pseudo-kinetic textural behaviour. In order to execute this maneuver, various technical infrastructures need to be derived and outlined. How might statements of such material be compositionally designed and regulated so as to ensure a starting point of absolute internal cohesiveness? In turn, such a change in strategy necessitates new conceptions of microstructural strategy. How might such behavioural materials be subject to processes of

distortion? And by what means may they be eroded or encrusted within the definition of terms as hitherto employed?

Broadening the horizon of enquiry yet further, what is becoming centralised now is a need for a more qualitative approach to such processes by prioritising the creation of material-debris (the result of the erosion/encrustation process) of different distortive *class* over *degree*. This is a particular issue for development with regard to macrostructural organisation. As has been extensively outlined above, the global-scale framework upon which *bet giyorgis* is constructed is both quantitative and trajectory. What larger scale scenarios could now be now employed to better facilitate comparison of more qualitative aspects of distorted materials?

It is to these questions that this thesis will now move to address via consideration of two later pieces included within the portfolio, *bet merkorios* (2012, for solo violoncello) and *ymrehanne krestos* (2012-13, for brass and percussion). These two pieces will serve as case studies for the questions emerging in the discussion documented here. It is to these pieces that the following chapter is thus dedicated.

Case Study I: Extending the mechanisms of erosion/encrustation in *bet merkorios* and *ymrehanne krestos*¹²

3.0. Introduction

The purpose of this chapter is to document technical developments arising in my music as a result of the critical reflection process undertaken in chapter 2 (with regard to the various techniques employed in earlier compositions composed as part of this investigation, such as *bet giyorgis*). Primary amongst these developments is the derivation of an approach to instrumental writing that I have come to refer to as *recoupling*. The recoupling strategy can be understood as an attempt to distort more behaviourally defined materials by engaging with physical aspects of instrumental performance. To this end, this chapter will first present an outline of the derivation of the recoupling strategy, presenting it as a creative re-interpretation of similar existent approaches to instrumental writing enclosed by the term parametric *decoupling* (section 3.1). The application of the new recoupling strategy will then be outlined as a means to activate the distortive actions of erosion and encrustation, using two compositions from the folio to achieve this, namely *bet merkorios* (2012) for solo violoncello (see *recoupling as erosion*, section 3.2) and *ymrehanne krestos* (2012-13) for brass and percussion (see *recoupling as encrustation*, section 3.3).

In addition, the two compositions will be further used to illustrate additional technical developments that have arisen to extend and support the recoupling strategy. Such additional developments further widen my vocabulary of distortive processes with regard to larger-scale (macrostructural) implications of the grammar I seek. To this end, *bet merkorios* will be discussed with regard to its exploration of macrostructural distortion (section 3.4) whilst *ymrehanne krestos* will be outlined in terms of the development of the notion of temporal *canvas* (section 3.5).

3.1. Deriving the recoupling strategy

The derivation of my recoupling strategy began with my own reading of the various strategies employed under the term *parametric decoupling*, a broad label used to define

¹² An early version of this chapter was presented as a conference paper: "Introducing 'Re-coupling': The Compositional Appropriation of Instrumental Physicality to disrupt Pattern-based Musical Materials" (Sergeant 2013), see bibliography.

certain strategic tropes in recent acoustic instrumental writing. As befits these kinds of generalised compositional terms, it should obviously be acknowledged that the parametric decoupling label operates as an umbrella-term for a very broad compositional space occupied by a number of composers, each with their own wildly divergent aesthetic and conceptual infrastructures (such as composers Aaron Cassidy, Frank Cox, Klaus K. Hübler and Claus-Steffan Mahnkopf, amongst many others). It is not the purpose of this chapter to outline an annotated history of parametric decoupling – such commentaries are provided more eloquently elsewhere (e.g. Cummings 2012). Instead, within the broad melange of practices that are encompassed by the term, my reading identifies three principal tropes that aid my understanding of the practice: physicality, polyphony and performance.

3.1.1. Physicality

In instrumental work that engages with issues of parametric decoupling, the planes in which musical materials are constructed are at least in part *physically* conceived. That is to say that musical gestures are considered in terms of, or indeed as the output of, the physical actions of a player of a given instrument, as Aaron Cassidy discusses in relation to his composition for electric guitar *The Pleats of Matter* (2005-07):

The actions of the hands and arms are indicated in microscopic detail, and each physical motion – each hammered-on attack, each plucked string (above or below a fingered pitch), each glissando, each pitch-bend, each scrape of the string, each movement of the tremolo-bar – is carefully mapped out in such a way that the gestural action is itself already a musical object. Each action carries a fundamentally *musical* set of data, and in fact much of the work revolves around a manipulation of the degree of dislocation between this *physical* movement and the actual resulting sound. (Cassidy 2008 pp.27-29)

Such an aspect is particularly foregrounded within Cassidy's work via his employment of various instrumental tablatures – notational strategies where information regarding the physical operation of the instrument is prescribed in precise detail, but where the sonic result of these actions is not indicated. This is particularly illustrated by Cassidy's *The Crutch of Memory* (2004) (figure 3.1(a), below):

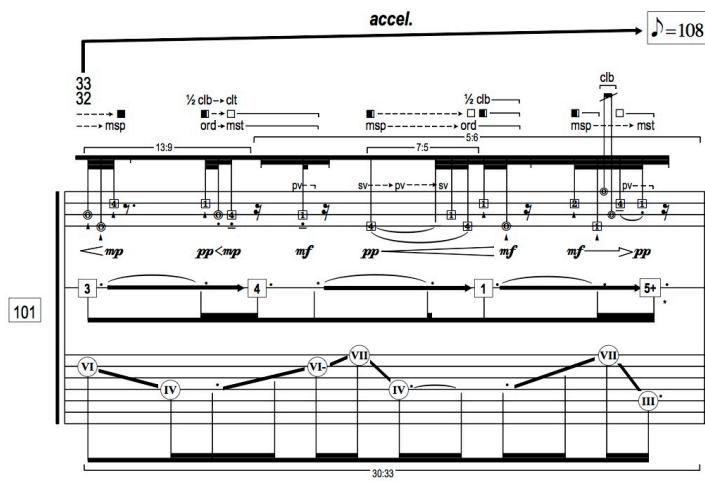


Figure 3.1(a): Aaron Cassidy, *The Crutch of Memory* (2004) for solo violin, b.101.
© Aaron Cassidy 2004. Reproduced by kind permission of the composer.

The notational strategy employed here utilises three staves of tablature: low, middle and top, as Cassidy himself describes:

The lowest staff indicates the movement of the hand up and down the fingerboard. Hand positions are indicated with upper-case Roman numerals and refer to the location of the *first finger*. The actual locations of the seven positions are at the discretion of the performer, though must remain consistent throughout the work. [...]

The middle staff indicates the amount of space between the fingers on a five point scale. 1) very tight – as close together as possible; 2) close spacing, with minimal space between the fingers; 3) a natural, open hand position; 4) an extended, open hand position, with reasonably wide spaces between the fingers; and 5) the widest possible spacing, extended as far as physically possible (to the point of becoming awkward and uncomfortable). [...] (Cassidy 2004, pages unnumbered)

3.1.2. Polyphony

With materials defined in physical terms in this way, a stratification of such materials can be permitted to occur. Consider the simple movement of a bow across a string (imagining any bowed string instrument will suffice for this thought experiment): the bow is drawn and a sound is produced. But the physical attributes of the motion here described are not as mono-dimensional as they first may appear. Instead, the bow stroke is better considered as a composite action formed from several activated parameters. Any given bow stroke is operating in at least three parametric dimensions: (1) its left/right trajectory (up-bow or down-bow), (2) the pressure it exerts on the string and (3) its lateral position

relative to the bridge. This process of physical disassembly can be continued into several more dimensional planes, such as the speed of the bow across the string (4) or the angle in which it moves, altering the string which is bowed (5a), or indeed the number of strings agitated in a single stroke (5b, etc.). Obviously, this model can be transposed on to any physical instrumental action: consider the dimensional planes in operation in string instrumentalists' left hands, or those at play in keyed wind instruments.

The compositional potential of such disassembly lies in the possibility for independent/parallel treatment of these emerging dimensional spaces. The model allows for separate musical strata to be constructed for each physical parameter and then superimposed. Distinct sets of gestural behaviours, for example, can now be constructed independently for (a) manipulation of lateral bow movement and (b) bow pressure (etc.).

In practice, much work of this nature is thus presented as multi-stave instrumental parts, each stave denoting separate physical parameters – and often making extensive use of polyrhythms to *desynchronise* the various strata. Consider the approach to string writing demonstrated by Klaus K. Hübler's *Opus breve* (1988) for solo 'cello (figure 3.1(b), below).

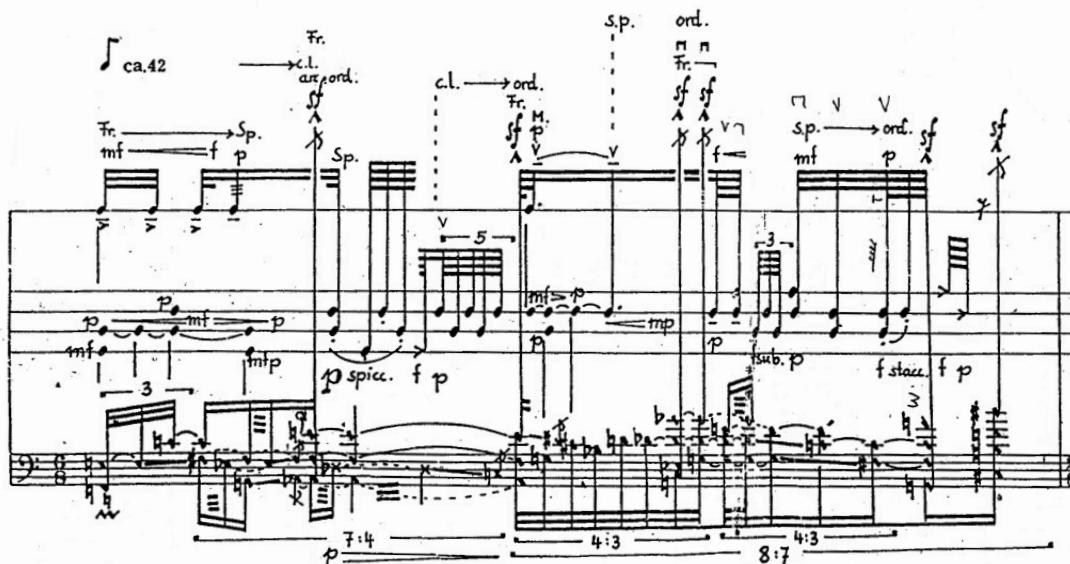


Figure 3.1(b): Klaus K. Hübler, *Opus breve* (1988) for solo violoncello, b.1
© Breitkopf & Härtel 1987. Reproduced by kind permission of the publishers.

Working again from bottom to top, the lowest stave in the Hübler example can be considered as the operations of the left/fingerboard hand; the middle, the string to be in contact with the bow (hence the quasi tablature employment of a four-line stave) and the top, the left/right movement of the bow.

In essence, a sense of parametric polyphony is created via the superimposition of such materials, although the extent to which the resultant polyphonic space occupies a constructional/compositional or perceptive/sonic realm is debated from composer to composer.¹³

3.1.3. Performance

Whether polyphony is a perfect conceptual term in this context or not, what remains clear to me is that the sonic surface of a work of this type is something of an assemblage, a hybrid formed from the superimposition – or perhaps collision is a better term – of notationally distinct parametric strata.

But the physical origination of the material opens a wider space for consideration. The physicality of these works' gestural layers allow for probably their best understanding in physical terms as metaphorical forces. As two or more directional forces collide in nature, a hybrid output force is formed by the collision. The attributes of this output force (its velocity, trajectory, etc.) are wholly dependent on the initial inputs that created it; some combinations will cancel each other out, others will amplify one another. Aaron Cassidy describes musical manifestations of such phenomena in relation to his composition *metallic dust* (1999) for solo bass clarinet, which collides the parametrically segregated strands of the mouth and fingers of the instrumentalist:

The lower staff is used to designate the action of the fingers in depressing the keys (and the resulting pitches) and is notated in the typical fashion. However, it must be noted that certain physical actions indicated here on this second staff will not be readily audible: when finger action is called for without corresponding mouth action, the player is instructed to adhere to the "fingers" information with utmost sobriety. These silent passages are not intended to be at all parodic, nor are they to be exaggerated in any way, but are simply performed in their typical manner [...]. It should be understood that the unpredictability of such "de-coupled" interaction is the composer's intention; unstable transitional and inexact sounding results will emerge from the interaction of the two strands with a rhythmic profile which extends far beyond even the already-precise notation on the page. (Cassidy 2002 p.151)

As such, the collision of such musical forces can be considered as a transformative operation in action upon the data encoded in the score. The output result (the sonic surface) is simultaneously both and neither of its constituent input parametric strands.

¹³ For a development of this discussion, see Cassidy 2002 pp.147-8.

From the perspective offered by the particular work described above, such transformation can also be considered as the result of a distortive force. In the collisions of various physical strata, Cassidy describes the expectation for omissions ('silences') from the original score data and rhythmic results wildly divergent from that indicated on paper. The distortive nature of these forces has not gone unnoticed by commentators, as Evan Johnson demonstrates:

The earliest works, the wind solos *metallic dust* (1999) and *asphyxia* (2000), are contrapuntal dances between pitches and the forces that distort them, melodic shapes and *cantus firmi* are damaged by independently manipulated embouchure and breath before they escape the instrument. (Johnson 2012 p.5, italicisation retained)

But in what realm do these distortive operations occur? It has already been outlined how the disruptive forces generated within the music are the result of the collision of parametric strata. But these collisional forces only become *activated* when the work is executed in *performance*. From a certain conceptual angle then, in this music the destructive aspect of the compositional scenario is only operational in the *performative* realm and actually lies dormant in the score itself. That is to say that there is little-to-nothing intrinsically disrupted or distorted in the raw constituent material as printed on the page, such transformative properties are only accessed when a given work is realised through performative execution in the concert hall. To draw comparison, it will be remembered how Iannis Xenakis's piano composition *Evryali* (1973) and Evan Johnson's *Supplement* (2004/07), for solo bass clarinet, could be read as activating the distortive forces of erosion and encrustation in the performative realm by engaging with issues of impossibility in the material strategies employed (see section 1.3.2).

3.1.4. My speculations

What this reading of parametrically decoupled work renders visible to me is a scenario where physically defined and segregated materials could be collided and entwined with one another to distortive ends. Such reasoning led me to my own speculation: how could the operations instigated by so-called parametric decoupling be reclaimed from this performative space and reintroduced into the compositional act itself? In other words, how could the fundamental tenants and principals hitherto outlined be re-appropriated to

instigate a scenario where similar collisional and explosive forces are operational in compositional space, resulting in material ‘on the page’ as debris. This compositional appropriation of the various tenets of parametric decoupling is what I have come to refer to as parametric *recoupling*.

In a sense, the space revealed is one that extends the strategy of collision, as employed previously within *bet giyorgis*. In the ensemble composition, parametrically consistent and inconsistent materials were superimposed to create hybrid, distorted states. By creating equally consistent materials in different planes of physical parameters and then abruptly recombining them in compositional space, the potential is offered where the mutual physical actions of such materials either counteract and erode each other, or entwine and encrust. To illustrate this process, two pieces from the folio will be explored from this perspective: *bet merkorios* (2012) and *ymrehanne krestos* (2013).

3.2. Recoupling as erosion: *bet merkorios* (2012)

My first composition to explore the recoupling strategy is *bet merkorios* (2012), for solo violoncello. In essence, the piece can be considered as a large-scale study in the re-appropriation of the forces of omission as documented in relation to Cassidy’s *metallic dust* (above).

The construction of the first three bars of my composition (figure 3.2(a)) is equitable to the strategy employed throughout the ‘cello piece as a whole: the music as printed on the finished page is the result of a controlled collision of materials in compositional space.

$\text{♩} = 96$; starting as if in mid-sentence
fleetingly / transparent / gossamer!
 con sord.
 $\frac{3}{8}$
 mp pppppp mp =

Figure 3.2(a): *bet merkorios*: b.1-3.

As an aside, in reading the examples provided, it will also be necessary for the reader to consider that the composition employs a fairly divergent scordatura, illustrated in figure 3.2(b), below:



Figure 3.2(b): *bet merkorios*: scordatura

Reminiscent of the ‘polyphonic’ attributes of parametrically decoupled work, the initial materials from which *bet merkorios* is constructed consists of two simultaneously operational streams of parametric data, each controlling one of the cellists’ hands (left hand/fingerboard; right hand/bow). In each parametric stratum, the material can be considered now as an issue of *behaviour*, as introduced in the previous chapter.

Eleven different behaviours are utilised in the composition; five define fingerboard behaviour (i.e. the activity of the left hand) and six define the behaviour of the bow (i.e. the activity of the right hand). By permutating which pair of patterns are operational at any one time, a variety of scenarios are produced, i.e. a given left hand behaviour may be collided with several different right hand behaviours throughout the course of the composition, and vice versa (as outlined in the overview of the composition’s macrostructural design, presented as figure 3.2(g), below).

During the opening bars above, the first left hand (fingerboard) behaviour employed is that of a fingering cycle. Part of the character of this behaviour involves the combination of consistent gestural actions both across the strings (from IV-I) and ‘up and down’ the fingerboard.

In order to control such bidirectional movement (‘up/down’, ‘left/right’), the fingerboard of instrument was mapped into eight fixed, non-overlapping, hand positions, each hand position allowing physical access to four possible pitches (via the four fingers of the left hand). This model can be visualised as figure 3.2(c), below:

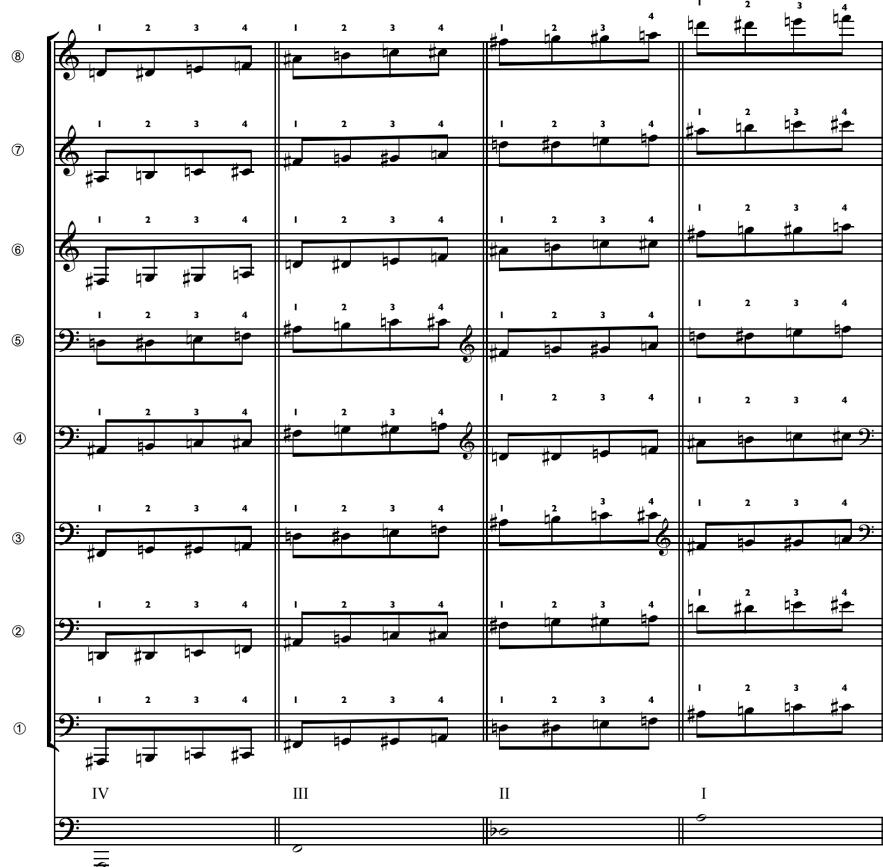


Figure 3.2(c): *bet merkorios*: Hand positions as defined within the composition

In the above tabulation, the circled Arabic numerals indicate the eight designated hand positions. The lowest stave shows the string to which each a hand position is applied, enumerated with the traditional Roman numerals from IV (lowest) to I (highest). The space enclosed by this table was then used to construct a more characterful pitch-object, designed to allow idiomatic/seamlessly-executable repetitions of the cycle (i.e. the hand is in the same position throughout the cycle, allowing immediate facilitation of an additional iteration once the previous has concluded). The resultant cycle was then transposed through all available hand positions. This process can be visualised as figure 3.2(d), below, the lowest stave designating the open strings on which all the notes in the column above are performed (and is provided for information only: open strings are never outputted as part of this behaviour).

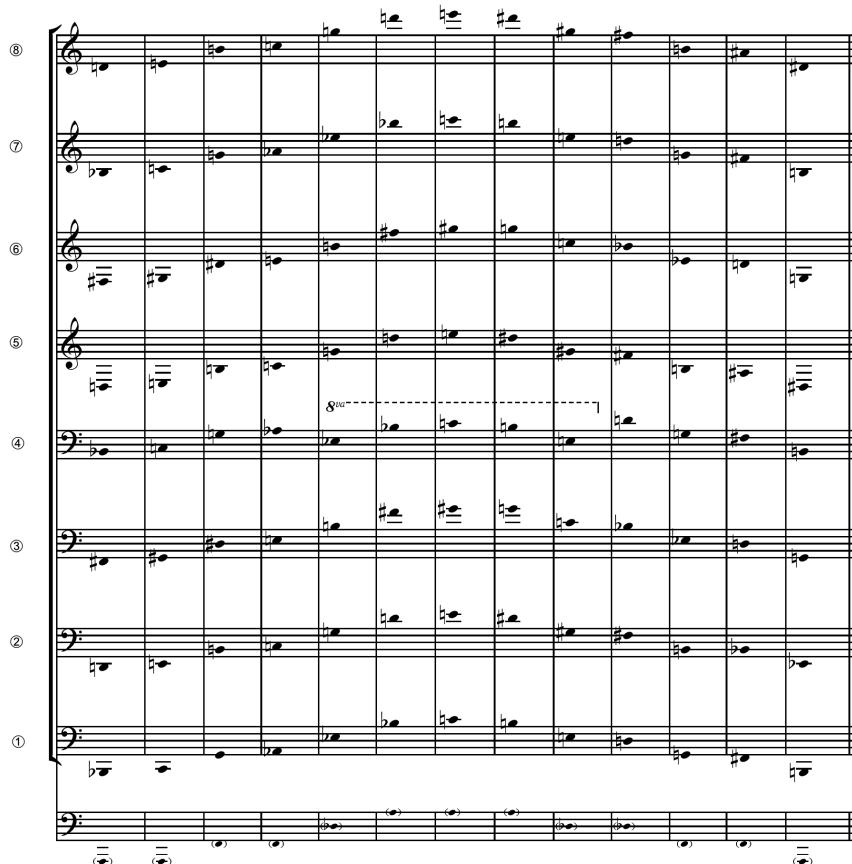


Figure 3.2(d): *bet merkorios*: Left hand cyclic material, b.1-3

Controlled movement through this table created the first left hand parametric data-stream used in the composition. To maintain internal consistency, such movement was defined by a set of probability distributions controlling, for example, the chance of a change in ‘left/right’ trajectory, the chance of a sudden change of hand position and the size of this positional ‘leap’. The material itself was thus generated in computer software by executing such statistical operations¹⁴. Rhythmically, the data output from this particular pattern was characterised as a *perpetuum mobile* (using only triplet-semiquaver values) and can be seen in the upper stave of figure 3.2(e) (below).

As such, the ‘cello composition makes manifest a behavioural approach to the derivation of consistency and material identity. The moment-to-moment quantities employed (duration, dynamic, pitch, etc.) are rendered almost immaterial. It is the tropes of the

¹⁴ The mathematical formulations that were used to control such operations are not supplied in this chapter for ease of reading, although such attributes are documented in regard to *bet denagel* (2013, for solo baroque violin) in the following chapter of this thesis (see chapter 4, section 4.5, figure 4.5(c)).

movement *through* such data that form a state of identity: an identity which is then subject to disruption.

The behavioural consistency detailed in relation to the above material is then corrupted via its collision with an additional pattern, now conceived of entirely within the operational parameters of the right (bow) hand.

At the opening of the composition, the operational right hand (bow) behaviour can be described as a rhythmatised random walk through a cycle of single and double-stopped open strings (again, produced via statistical control, for consistency). The pitch cycle (defined by the open retuned strings) within which the pattern operates can be seen in figure 3.2(e), below:

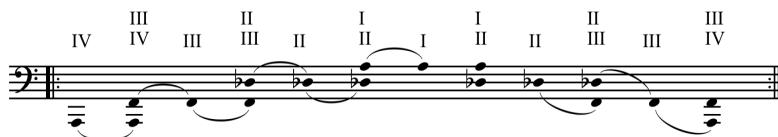


Figure 3.2(e): *bet merkorios*: Abstraction of right hand cyclic material, b.1-3

These parametric strata can now be superimposed (collided) in compositional space, a process that can be visualised as figure 3.2(f), below.

Figure 3.2(f): *bet merkorios*: Collision of left and right hand patterns in the formation, b.1-3
(Some performance text has been removed)

In effect, the two strata are filtered through one another as if in performance and only results with sonic consequence pass into the final score-surface. Throughout bar 1, by way of example, only strings II and III are being stimulated by the bow (as determined by the bow's operational behaviour), thus finger activity on any other strings (I and IV) induces

'null' results (silence¹⁵). Such results are removed as the material passes to the final score-surface.

Obviously, the character of the result of this process will be intrinsically dependent on the permutation of the different parametric materials superimposed. Each particular pairing of the various behaviours occupies a wildly different erosional state – some combinations preference preservation of material of the left hand, others, the right. It is these qualitative differences (between such pairings) that are exploited as part of the macrostructural strategy. Thus, in replacement of the *degrees* of distortion that occupy the trajectory approach as outlined in *bet giyorgis*, *bet merkorios* presents a mosaic of qualitatively understood differences: behaviours are alternated, replaced and developed within their relevant physical planes throughout the composition's larger durational span.

This collisional process can certainly be understood as a distortion via erosion of the original materials. By omitting aspects of material behaviours originally designed to operate as an internally consistent pattern, extraneous data is allowed to gather in the score-surface. Intervals not induced by the original pitch cycle are instigated and gradients and contours implied by the movement of the bow through pitch-space are undermined. Yet such a parametrically defined perspective is only part of the intended effect. In entwining the two behavioural states together, what is created is an additional gestural *hybrid*, a composite behavioural state that includes features of both behavioural entities, a hybrid state that, in its final form, can ultimately be reduced to neither of them.

Yet, the imagined image of debris can be confused with that of *ruin* – something that was once whole, now incomplete – and this image is certainly foregrounded by the actions at play in my 'cello composition. In colliding behavioural materials in this work, the act of removal is prioritised, whereas notions of accrual remain almost as a parametric byproduct. That said, such collisional forces offer the potential to transform through amplification, as if two forces along the same vector *conjoin*. The opportunity to prioritise this inversion of the tenets of parametric recoupling came in the composition of *ymrehanne krestos* (2012-13).

¹⁵ Although, obviously, in reality such actions do produce a finger-percussion effect on the strings, in essence what this process seeks is access to the arbitrary moments of contact between the two parametric behaviours. Thus the terms 'silence' or 'null' are employed slightly metaphorically as a means of describing moment of non-contact, rather than a literal employment to indicate no sonic output.

3.3. Recoupling as encrustation: *ymrehanne krestos* (2012-13)

In *ymrehanne krestos* (written for the hypervirtuoso Australian ensemble, ELISION) the conceptual planes from which the material was harvested were again physically conceived, particularly in relation to construction of the music for the brass. In selecting the parametric dimensions in which to operate, care was taken to create scenarios that move along *parallel* planes that could, in essence, *coexist* within the same musical moment without omission. The destructive forces sought are thus invoked by the mutual encrustation of these layers as they entwine in the score-surface.

To this end, the brass music of *ymrehanne krestos* is the result of four entangled parametric layers: (1) articulation, the physical action of the tongue inside the mouth; (2) valve combination (or slide position); (3) air-pressure, essentially the harmonic partial activated by the air-column inside the instrument; (4) air-speed, 'dynamics'. Four material patterns were then independently designed for each of the four resulting parametric spaces, in a manner akin to those employed within *bet merkorios* (and for reasons of space, will not be outlined in any detail here). All are independently rhythmicised; the same four parametric layers are employed in both the flugelhorn and trombone. The opening bar of flugelhorn material from the composition can be tabulated in relation to its constituent parametric strata (figure 3.3(a), below).



Figure 3.3(a): *ymrehanne krestos*: flugelhorn (transposed), b.1, score-result with constituent parametric strata.

For the purposes of clarification, from top to bottom the staves indicate (1) *articulation*; effectively the movement of the tongue inside the mouth (2) *valve combination*, the three-

line stave indicating the three valves of the instrument as seen from the perspective of the player (lowest line, valve-1; middle-line, valve-2; top-line, valve-3), in practice, such a parameter is better labelled as *mechanism* to encompass both slide/valve combination/position; (3) *harmonic partial* to be played (regardless of the fundamental instigated by the valve-combination); (4) *dynamics*; effectively air-speed through the instrument (5) *score result* – the outcome if all the top set of materials were to be performed simultaneously. Only the ‘score result’ is presented to the player in the finished version. Dotted vertical bar lines are provided in the above example to delineate beats, for reasons of clarity only. Where the superimposition results in atypical valve-combinations for certain pitches (e.g. 2+3 for notated C5) the valve combination to be used is explicitly stated in the score result and the performers’ parts.

The above example illustrates the distortive power of localised parametric encrustation. The contours of the harmonic partials are encrusted by the pitch contours of the valve mechanism. The dynamic (air speed) gestures serve only to undermine the phrase-structure outlined by the tongue (etc.) yet, an additional level of interference may be obtained with regard to the behavioural relationship *between* the brass instruments.

At a slightly deeper compositional level, all four parametric patterns share a hocketing behavioural trope – that is to say all four parametric patterns (in their abstracted state prior to combination in the score surface) alternate material across the two brass instruments. The eight parametric strata in operation in bar 1 (four in the flugelhorn, four in the trombone) can thus be reconsidered as four simultaneous parametric duos (figure 3.3(b), below).



Figure 3.3(b): *ymrehanne krestos*, flugelhorn and alto trombone, b.1, four simultaneous parametric duos

The distortive power of encrustation is once again best considered here in terms of a force. In any given hocket, parametric activity is constantly oscillating between instruments. A gestural movement is essentially created from instrument to instrument and back again. At any given moment (particularly in this and the immediately surrounding bars), four such forces are thus in operation (four hockets; four movements). The oscillation of the hockets is not temporally synchronised, leading to the resulting gestural forces between instruments crossing paths. In itself, this leads to a diverse array of scenarios. The motions of oscillating parametric activity across the ensemble can be effectively cancelled out. As certain parameters momentarily stabilise, others become active again and at no point is a sense of holistic stasis/activity ever felt. In contrast, the oscillations can amplify one another, as all four hockets momentarily and arbitrarily align. In either case – and particularly the ‘grey areas’ between the two – the instrumental behaviour of the ensemble is in a constant state of flux; no hocket or pattern is allowed to ‘speak’ with any purity at any compositional level.

Whilst it has been previously outlined at length how notions of encrustation and erosion are intrinsically entwined, what it is hoped to have been demonstrated here is the extent to which the recoupling strategy allows for the continual prioritisation of one action over the other in the compositional act. In *ymrehanne krestos*, the primary compositional action is one of entanglement, the byproduct is one of erosion (of contour; of articulative effect). This presents in contrast to that employed in *bet merkarios*, which reverses this scenario.

The primary compositional act is erosive, it removes attributes of the initial material states, encrustive effects are relegated to the addition of more subsidiary numerically-based parametric values.

As such, the parametric recoupling strategy has served to address and develop the ideas and concerns outlined in the previous chapter. In itself, the technique is inaudible – in relation to the encrustation strategy employed within *bet giyorgis* – and a-temporal. It is a state/place of compositional action, not a trajectory. But the ramifications of such a way of thinking allowed for further developments that themselves retain the conceptual infrastructure (segregation: arbitrary collision) but do not directly interact with issues of instrumental writing. The primary example of such an extension/re-appropriation of the tenets of the recoupling strategy came to be referred to in my compositional sketches as the temporal canvas and it is to this development that attention will be turned next.

3.4. *ymrehanne krestos*: The temporal canvas

The development of the notion of temporal canvas can be understood as a further attempt to derive processes of distortion for employment in my compositional work. In essence, the notion can be read as a further re-appropriation of the various strategies explored via my engagement with parametric recoupling. The temporal canvas idea mimics the recoupling strategy by segregating and developing the temporal space into which the material will (eventually) be positioned from the sonic material itself, abruptly and unsympathetically recombining the two attributes to create distortive results. The derivation of the temporal canvas as a notion will first be outlined with regard to its employment in *ymrehanne krestos* (section 3.4.1) and then be reviewed in retrospect of that which was achieved by such an attempt (section 3.4.2).

3.4.1. Deriving the temporal canvas

The strategy, as employed in the construction of the brass and percussion composition, was again inspired by my reading of the visual work of Agnes Martin (as introduced in Chapter 1, section 1.3.1). In Martin’s work, I read the canvas as *activated*. The surface which carries the painter’s marks is no longer a neutral conduit, it is an effecting vessel that, in allowing Martin’s marks to be seen, changes her lines from a perfect to imperfect state.

In a sense, that which is being articulated here is further understood via consideration of certain aspects of recent architectural practice, as Bernard Tschumi describes in relation to his project for the Parc de la Villette (Paris, 1988-92):

One of the goals at La Villette was to pursue this investigation of the concept of structure, as expressed in the respective forms of the point grid, the coordinate axes [...] and the “random curve” [...]. Superimposing these autonomous and completely logical structures meant questioning their conceptual status as ordering machines: the superimposition of three coherent structures can never result in a supercoherent megastructure, but in something undecidable, something that is the opposite of a totality. (Tschumi 1996 p.199)

In a sense, the strategy that Tschumi describes – the superimposition of logical structures to create something that is ‘undecidable’ – appears to resonate hugely with the application of parametric recoupling as hitherto introduced. In my instrumental strategy, cohesive behavioural states operating in differing physical planes are collided in an attempt to create more hybrid sonic personalities. Yet Tschumi applies this class of thinking to space: the organisation of the space acting as a disruptive force on its contents. I was thus led to speculate whether this thinking could be mapped onto music’s temporal axis: could temporal aspects of a composition be segregated from its contents and designed as an additional behavioural state, before being unsympathetically thrust back upon its contents (which were not designed with such a behavioural temporal space in mind) to instigate further distortive effects?

To illustrate this mapping, the larger-scale temporal framework – I use the word *canvas* in my compositional sketches – for the brass and percussion composition was designed totally independently of – and with deliberate disregard to – its (eventual) contents. To such an end, four numerical tables were made, referred to as *spaces* in my compositional sketches. A simplified rendering of the first of these spaces can be seen in figure 3.4(a), below (within figure, bar numbers correspond to the final version of the score).

First Space																														
Bar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Compression	8	6	8	11	8	11	8	6	5	6	5	6	5	4	5	6	5	6	8	6	5	6	5	6	8	6	8	11	8	11
Duration	5	6	5	6	8	11	8	11	8	11	8	6	5	6	5	6	8	11	8	6	8	11	8	6	8	6	8	6	8	11

Figure 3.4(a): *ymrehanne krestos*: first space (simplified tabulation)

Within the composition, the bar is considered as an arbitrary unit of musical/temporal space. These arbitrary subdivisions are then assigned metric/temporal attributes *prior* to

their occupation by material. The two primary temporal attributes are included in the tabulation above: *compression* and *duration*. Duration can be here simply understood as the length of the bar in quavers, and compression considered as the crushing/stretching of the interior durational space via increasing/decreasing the number of metric points within the bar, effectively instigating larger-scale (bar-long) tuplets. As a result of reading the table above, the first bar of the composition is comprised of eight quavers in duration, subdividing this space into five beats (resulting, in consultation of the score, with a larger-scale tuplet-ratio of 5:8 across all parts).

The numerical instances within the table (aside from bar numbers) were constructed via two independently operating random-walk operations, moving through a set of values: 2, 3, 4, 5, 6, 8, 11. As a result, the table creates moments of arbitrary alignment (e.g. bars 2, 5, 6, 7, etc.) between denominators, although these are not assigned structural significance; they are simply a byproduct of the temporal behaviour instigated.

In essence, the procedure documented can be read as a re-appropriation of certain facets of composer Brian Ferneyhough's compositional procedures, particularly his operations concerning pseudo-isorhythmically treated measure and density cycles (see Ferneyhough 1995 p.54). Perhaps more interestingly, Ferneyhough himself develops these notions into 'lines of force' (Ferneyhough 1995 p.35) (to use the composer's own terminologies) through which contextually sympathetic/unsympathetic materials can be extruded. In effect, Ferneyhough's operational treatments – and thus in my own – can be read as additional *behavioural* tendencies (Ferneyhough 1995 pp.38-39), tethering the temporal canvas concept further to my notions of sonic material.

Created prior to any sonic materials, it is through this temporally fluctuating space that the musical materials are forced. As a result of this process, the sonic material is in a constant state of compression and extrusion by its surrounding temporal space (compare bars 8 and 28 in this regard). In essence, a state of interference is formed between temporal space and sonic objects: the temporal canvas is 'roughened' – forming an effecting surface for the lines/materials that are positioned upon it. Any consistent patterns of behaviour the material objects may have held – or may have appeared to have held – in a more abstracted/conceptual domain – is rendered stunted (or even obsolete under certain extreme circumstances) as the material encrusts with its temporal space in the formation of an audio surface.

Yet the scale of the effect between temporal canvas and the material it holds is not limited to the local level. Additional levels of effect can be observed when considering the four spaces from a more comprehensive perspective, as figure 3.4(b), below:

First Space																														
Bar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Compression	8	6	8	11	8	11	8	6	5	6	5	6	5	4	5	6	5	6	8	6	5	6	5	6	8	6	8	11	8	11
Duration	5	6	5	6	8	11	8	11	8	11	8	6	5	6	5	6	8	11	8	6	8	11	8	6	8	6	8	6	8	11
Articulation																														
Mechanism																														
Harmonic																														
Dynamics																														
Second Space																														
Bar	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Compression	8*	11	8	6	8	11	8	6	5	6	8	6	5	4	5	4	5	4	3	4	5	6	8	11	8	11	8	6	8	6
Duration	8*	6	8	11	8	11	8	11	8	11	8	6	5	6	5	4	3	4	3	4	3	4	5	6	8	6	5	6	8	6
Articulation																														
Mechanism																														
Harmonic																														
Dynamics																														
Third Space																														
Bar	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
Compression	5	6	8	11	8	11	8	6	8	11	8	6	5	6	5	6	5	4	3	4	3	2	3	2	3	2	3	4	5	6
Duration	3	2	3	4	3	4	3	4	5	4	3	4	3	2	3	4	5	6	8	11	8	6	5	6	8	11	8	11	8	11
Articulation																														
Mechanism																														
Harmonic																														
Dynamics																														
Fourth Space																														
Bar	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133
Compression	8*	6	8	6	5	4	5	6	5	4	3	4	5	6	5	4	5	6	8	11	8	6	5	6	5	4	5	4	3	2*
Duration	8*	6	8	6	5	4	5	4	5	4	3	4	3	4	3	4	3	4	5	6	5	6	5	4	3	4	3	4	3	2*
Articulation																														
Mechanism																														
Harmonic																														
Dynamics																														

* Denotes a value either reinterpreted or edited in transference to the final version of the score.

Figure 3.4(b): *ymrehanne krestos*: the four spaces (full tabulation)

The arbitrary grid formation, supplied by the four spaces (above) is also allowed to effect the material on a mid-scale level by designating the activation/deactivation of the four parametric parameters detailed previously. In the above diagram (figure 3.4(b)) filled (black) squares designate an *activated* parameter; clear (white) squares designate a *deactivated* parameter. Activated parameters draw their data from the subsurface parametric cycles as introduced above; deactivated parameters freeze the attributes of a given stratum to their last detailed parametric state; articulation becomes that of a constant

(or as-constant-as-possible) slur; mechanical activity is locked to its last valve-permutation/slide-position; the last utilised harmonic partial is sustained; dynamics become constant.

In a sense, what this scenario allows is for the temporal canvas to further affect the sonic material by, in a sense, dictating and controlling the activation/deactivation of physical parametric strata of the brass music. A kind of chain is thus permitted to be created, the temporal canvas effecting the brass music that, in turn, actually serves to effect the percussion music, the latter to which attention is now focused.

During spaces one and two, the percussion material is comprised from the debris of articulations formed by superimposition of strata *deactivated* within the brass material. Bar eleven of the score serves as a simple example of this process (figure 3.5(c), below).

Figure 3.4(c): *ymrehanne krestos*: b.11

Here, as can be further verified from the above tabulations (figure 3.4(b)), the dynamic stratum has been deactivated in the brass material and reactivated/re-appropriated within the percussion part (the upper and lower voices adopting the roles originally employed within the brass hocket).

During the first space, such re-appropriations are used to colour a single physical action, that of stimulating a pair of bongos with abrasive scrubbing brushes. As a result, during temporal spaces (e.g. bar 1) where no parametric strata are deactivated within the brass, the percussionist resorts to an un-coloured state of raw scrubbing action, a relatively undifferentiated surface to lie behind the brass.

During the second space, the percussion is permitted to articulate the various deactivated strata in greater detail, as an attempt at statement rather than colour. To this end, the percussionist takes sticks and a more varied timbral palette (adding two conga drums and two tom-toms to the two bongos already employed). The process employed here can be further understood in relation to figure 3.5(d), below:



Figure 3.5(d): *ymrehanne krestos*: construction of percussion part, b.37

Here, only the mechanical aspect of the brass parameters is in a state of activation. The percussion part is thus constructed as a reconciliation of the deactivated cyclic materials abandoned by the brass at this moment. To that end, as can be observed within figure 3.15 (above) the articulation-points of the various strata are re-appropriated (whilst retaining their temporal position within the bar) into a stream of percussion gestures. The surface behaviour of the percussion part during the second space thus mirrors (via inversion) the activity contours of the brass material.

During spaces three and four, somewhat of a reversal of conception is occupied by the percussion material, which switches from unpitched to a pitched domain. Rather than absorbing debris rejected by the brass at any given moment, the percussionist begins a process of projection, which itself is now absorbed into the brass.

In a manner comparable to the parametric strata from which the brass material was constructed, the abstracted vibraphone material is the result of a process of collision between four cycles of linear material, as introduced in figure 3.5(e), below:



Figure 3.5(e): *ymrehanne krestos*: construction of vibraphone material

What is indicated above (fig. 3.5(e)) is merely a segment of larger process: the moment of realignment of all four lines occurs 4420 quaver beats after the outset!

In their final realisation as the score, the lines are compressed into a single stave, in a manner directly resembling the collisional processes employed in constructing the piano units within *bet giyorgis*. Prior to this collision, however, the material is affected by the grid-formations of spaces three and four (outlined above).

Mirroring the process of activation and deactivation previously discussed, lines from the vibraphone material are also activated and deactivated, re-appropriating the schematic followed thus far. Voice-one follows the activation/deactivation pattern assigned to the articulation stratum; voice-two, that assigned to the mechanism; voice-three, that assigned to the harmonic series and voice-four, that of the dynamics.

The debris omitted from the vibraphone part is now positioned into the brass parts (articulated as sforzando-pianissimo accents to imitate the vibraphone's sonic envelope). From this perspective, the score can be further understood via figure 3.5(f), below:

The musical score consists of four staves. The top staff is for the flugelhorn, the second for the alto trombone, the third for the vibraphone (debris), and the bottom for the vibraphone (material). The score is set in common time with a tempo of quarter note = 132. Bar number 70 is indicated at the beginning. The flugelhorn and alto trombone staves feature sixteenth-note patterns with dynamic markings of *p*, *f*, and *fpp*. The vibraphone (debris) staff has eighth-note patterns with dynamic markings of *p* and *fpp*. The vibraphone (material) staff has eighth-note patterns with dynamic markings of *f*. Performance instructions involving triplets (indicated by a bracket with a '3') are placed above the notes in several measures. Arrows point from some of these triplet markings to specific notes in the other staves, suggesting a layering or reference to the removed vibraphone material.

Figure 3.5(f): *ymrehanne krestos*: b.70 (annotated)
(Larger-scale compression tuplets have been removed)

Here, the material of voice-three and voice-four (denoted above as *vibraphone debris*) has been removed from the vibraphone part and its constituent articulations superimposed on the brass music (which itself is still following the cyclic parametric formulations used throughout). The 'left over' articulations (derived from voices one and two) remain in the vibraphone part itself. The operation at work here could be considered as a return to the conceptual problems instigated by *bet giyorgis*: it produces an audible remnant in the brass by infecting their music with additional pitch-data. This is not the case, since rather than this operation being considered as a distortive act in itself the intention can be understood as something more akin to the processes of hocket behaviour instigated between the brass instruments.

As with all material in the piece, the vibraphone is forced through the same fluctuating temporal space as the brass, resulting in the continual presence of the processes of extrusion/compression manifest elsewhere.

And yet nothing outlined thus far has detailed the macrostructural implications of the four spaces.

Further consideration of figure 3.5(b) will reveal bars missing from those that are enumerated (such as bars 31-33). At the conclusion of travel through each of the four spaces, an arbitrary structural division is imposed upon the material. The last temporal

segment (bar) of each space is locked/parametrically retained and repeated five times, each iteration interrupted by a substantial percussive articulation to render this facet audible (facilitating the additional 5/32 bars as demisemiquaver expansions of the first beat). This is not to suggest that sonic material enclosed within such bars holds any intrinsic significance; the contents of the repeat bars are merely that which was outputted from the procedure(s) at play at that point.

Following their repetition, the material that occupied the repeated *fragment* is deconstructed (in compositional space) back into its constituent parameters/lines. The resulting fragments-of-fragments are then employed as the base material cycles in the proceeding space, until further re-fragmented/re-cycled at the next arbitrary structural junction (the closure of the next space).

In actuality, the material units (compressed beats) contained within these juncture points approximates a decrease: bar 30 contains 11 compressed units; bar 63, 6; bar 99, 6; bar 133, 2. This was not a point of plan, but the coincidental result of the random processes from which the four spaces were generated. As such, the employment of the temporal canvas can be understood, on the larger-scale, as instigating a global scale structural form that is segregated from the material by which that form is articulated, another manifestation of the thinking ultimately derived from the parametric recoupling strategy (segregation: collision).

To continue this thinking, the composition as a whole artifact can be considered *entirely* as the debris of a distortive process in this regard, a remnant produced by colliding behavioural states neither of which have any mutual regard for one another. The actualised structure – the felt/heard structure – is a strange hybrid of logic and dis-logic; a hybrid generated by arbitrarily organising material according to an arbitrary/independent structural schemata (the spaces).

3.4.2. Reviewing the temporal canvas as manifest in *ymrehanne krestos*

ymrehanne krestos stands as the first attempt within the folio to create an unsympathetic temporal canvas for the material that is to occupy it. Such a first attempt was not without a fairly substantial (although in retrospect not entirely surprising) unforeseen outcome. Review bar 72 in this regard, following the temporal demands of the score, the basic

structural division – the quartuplet-semiquaver¹⁶ – iterates at 352bpm, within which there are further subdivisions, the smallest of which – the hemidemisemiquaver value *within* the quartuplets – has a literal temporal value of c.0.043s - or c.23.3 beats-per-second! As such, the outcome of the collision between material and canvas results in passages of literal impossibility.

The presence of such attributes became something of an issue of personal conflict for me. To edit the score to make the various impossible attributes of the piece playable seemed, somehow, to render the temporal canvas as a more sympathetic context to the material contents that it came to contain. It must be remembered that, from the outset, the two were deliberately developed independently from one another, so to edit one respect in light of another seemed to undermine a central conceptual concern of the experiment. Yet, to leave the score ‘as is’ would open additional conceptual problems. If the score, as instruction, is no longer ‘achievable’, then my control over the distortive tenets of its procedures employed would be greatly relinquished/nullified as the performers involved altered/developed the score object to make it realisable.

It must be conceded that, in the event, the second scenario was adopted, but the experience allowed me to further understand the compositional space the temporal canvas had created. I offered no guidance to the performers/conductor as to how to execute the score and so, without direct suggestion from myself, the performance team (players/conductor(s)) devised a scalar system for the adjustment of tempo, narrowing the bandwidth of the composition’s tempo-extremities whilst retaining a sense of proportional difference between individual values. In the event, the relinquishment of compositional control in this regard was extremely disconcerting – almost an abandonment of responsibility! But the scenario allowed me to develop my thinking with regard to the temporal canvas as a strategy. In a sense, the temporal canvas as manifest within *ymrehanne krestos* is an *uncompleted* compositional action within my terms.

Consider the process of collision as manifest in the recoupling strategy. Parallel/independent material strands are first devised, then superimposed and the results of this collision mutually edited to co-exist within the score as debris. The importance of the latter stage, in light of the experience of *ymrehanne krestos* in concert preparation, is rendered particularly visible with regard to reclaiming distortive actions into compositional territory. The score of *bet merkorios*, for example, does not simply

¹⁶ i.e. Four semiquavers in the time taken for three - the ratio 4:3.

present two notationally separated lines to be performatively recombined; instead they are first entwined in compositional space and allowed to effect the identity of one another. In contrast, this last step is *missing* from the application of the temporal canvas to the material of *ymrehanne krestos*. A superimposition has indeed occurred, but the editorial process – so crucial to the formation of material as debris – is entirely missing and so must be accommodated by essentially additional compositional decisions in performative space. This is not to say that such a scenario is a failure: the performative space occupied by *ymrehanne krestos* does indeed form a sonic object that is an editorial hybrid of the temporal canvas and its material contents but this hybrid state is created via decisions I have positioned outside my control.

Thus, from a certain evaluative perspective, the composition does engage with new conceptual territories for a-temporal/non-sonically active compositional collision making, but does indeed stop short of reclaiming such new territories from the performative spaces introduced with regard to Evan Johnson and Iannis Xenakis. The fulfillment of such reclamation is thus required and, again, such development is documented with regard to *bet denagel* (2013, for solo baroque violin) in the chapter that proceeds.

That said, what the temporal canvas as a concept begins to engage with more holistically are manifestations of distortive acts on a larger scale. To continue this discussion, it is necessary to return to the composition of *bet merkorios* and explore the developments made in this (albeit earlier) composition in relation to those made above.

3.5. *bet merkorios*: attempts at macrostructural distortion

The macrostructural design of *bet merkorios* can be seen in the following schematic, figure 3.5(a), below.

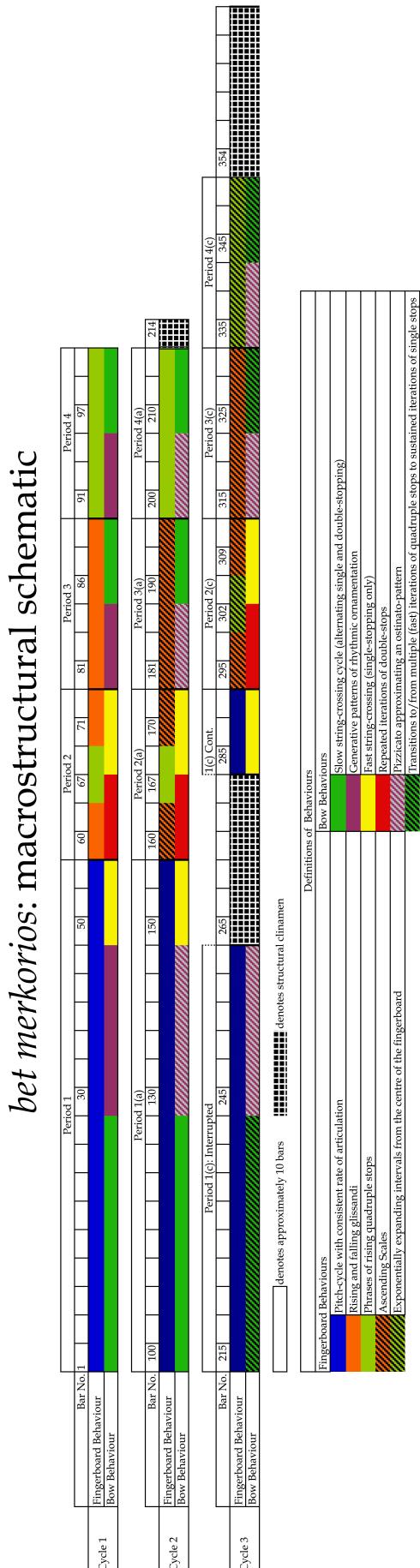


Figure 3.5(a): *bet merkorios*: Schematic diagram showing macrostructural design
(This diagram should be viewed in colour)

As can be seen, larger passages of conjoined bow and fingerboard comportments are grouped together into four blocks labelled as *periods*. The resultant series of four periods is reiterated,¹⁷ although corrupted, to form three cycles, which comprise the entire durational span of the piece.

Two strategies are used to corrupt the processes of these macro cycles, strategies that I refer to amongst my sketches as *substitutions* and developments of the notion of *clinamens*. These two strategies will now be outlined (section 3.5.1-2) and evaluated (section 3.5.3).

3.5.1. Substitution

Upon each of the two successive repetitions of the original cycle, certain behavioural materials are *substituted* for new, previously un-used, behaviours. For example, during cycle two, all occurrences of the ‘rising and falling glissando’ behaviour (in the fingerboard) are removed and replaced with that of ‘ascending scales’. Substitutions made in cycle-two are retained in cycle-three, although the latter additionally introduces new substations. It is also interesting to note that where comportmental pairings recur (without substitution) in consecutive cycles, a smaller scale process of modification is employed whereby the materials are timbrally altered (via the introduction of different levels of bow/finger pressure or a different method of pizzicato – snap/Bartok pizzicato, for example).

3.5.2. Development of the clinamen

Clinamen-like devices have been introduced previously with regard to their employment within *bet giyorgis* and their conceptual infrastructure remains the same as that introduced in chapter 2. Their employment in *bet merokorios* can be understood as a response to the previously documented need to develop this technique: to develop acts of structural insertion that genuinely act as forces upon the larger-scale macrostructural logics of the composition concerned.

Three passages are denoted as clinamens in the macrostructural schematic (fig. 3.5(a), beginning at bars 214, 265 and 354 respectively). Each clinamen passage introduces a unique musical operation that is foreign to the remaining structure of the piece. It may be

¹⁷ Although it should be noted that the cycle is defined by recurrence of comportmental behaviours and not the literal restatement of previously stated material.

interesting to note that the clinamen passages were inserted into the score only *after* all the other passages had been composed, their individual operations derived from retrospective self-analysis, establishing the ‘things that this piece does not do’. Three such operations were identified in this way: (1) the literal localised repetition (or ‘looping’) of material; (2) the introduction of completely unrelated material and (3) the long-range literal recapitulation of material presented earlier in the work. These three operations were employed to create the three clinamen passages.

Clinamen-one (bar 214) literally repeats a (arbitrarily selected) single bar of music. Clinamen-two (bars 265-284) introduces completely new and unrelated materials into the piece, which themselves never return. The materials used in clinamen-two were created via a completely different compositional process to all other materials in the piece and also feature natural harmonics, a playing technique not used anywhere else in the score¹⁸. Clinamen three (bars 354 – end) is a literal recapitulation of bars 81-90 and deliberately features a return to the glissandi comportments not heard (due to subsequent substitution) since the first cycle of the piece.

3.5.3. Substitution and clinamens in evaluation

Having outlined two developments with regard to attempts at macrostructural distortion, what remains to be documented is the extent to which these techniques actually result in a genuinely distortive sense. It remains difficult to describe the sonic effects of such processes as distortive in the same/similar sense as has been discussed in relation to more local-scale compositional maneuvers.

To understand my observations, it is necessary to consider the perspective offered on the composition’s macrostructural design by diagrammatising it as a schematic, as has been done above. In essence, the perspective allows a holistic ‘birds eye view’, in a manner in some senses comparable to the terminologies used in relation to *bet giyorgis*’s macrostructural design in the previous chapter. As with the ensemble composition, such tabulations allow the entire structural design to be viewed holistically – and from such a non-experiential perspective, the distortive operands at play can be seen to ‘work’. By comparing cycles alongside each other within the schematic, they can be seen to be altered/stretched/interrupted in relation to one another. In a sense, what is being engaged

¹⁸ It will be noted that harmonic finger-pressure is employed at various points in the score as a timbral modifier, but never cohesively at true harmonic nodes.

with again here is a process of lateral comparison across an abstracted/potential instance of the composition: larger units are compared in order to experience the distortive attributes.

Yet what this abstracted perspective belies is the intrinsically temporal aspect of the musical flow: cycles are not ‘looked at’ holistically, they are temporally ‘walked through’. Whilst seemingly trivial, the introduction of temporality as an aspect at this juncture is actually crucial. From ‘inside’ the experience of the piece, a listening awareness of any larger design is intrinsically tied to an awareness of temporal position within the composition’s larger frame.¹⁹ To elaborate: in order for a listener to engage with the larger-scale distortive strategies at play in *this* composition it is not enough for them to merely recognise the *recurrence* of particular surface-tropes, as might emerge at the beginning of cycle two (where a certain comportment-pairing reappears); instead the listener must correlate this recurrence with their own listening position within the overall compositional macrostructure. Without assembling such a co-ordinate of material and temporal location, the listener surely cannot begin to participate in a larger-scale sense of lateral comparison (if you are not aware that you have begun cycle two, how will you then compare this segment of music to cycle one?).

And thus a problem with all of the macrostructural distortive devices hitherto employed can be articulated. Given that this investigation focuses on the distortive effects that can be introduced within a single instance of a composition, to a listener within this scenario the overall structural logic will not be a known quantity until *after* the event. That is to say that temporal co-ordinates relative, say, to ‘beginning’ and ‘end’ cannot be determined until the end point of the composition is known, by which time the macrostructural games at play will have already passed by unnoticed! To further complicate this scenario, of course, once the overall structure is experientially known (via whatever capacity: maybe a listener even follows the composition in performance accompanied by a projection of the above schematic!) and ‘useful’ co-ordinates may be produced, then the distortive effect still

¹⁹ Obviously the idea of listener awareness could be further tied to a notion of *expectancy*: “I expect X to happen at point Z but Y occurs instead”. Such play with expectancy could be argued to occupy work that engages with compositional forms extensively known to a socio-cultural audience of a given time. In the time of Beethoven, the opening movement of a symphony would be expected to take the form of a sonata allegro, and thus expected to engage with the various harmonic/thematic tropes such a form might exhibit. Play with such expectation within such socio-culturally/temporally accepted compositional forms could/does allow for various internal ‘surprises’ in this regard – ‘surprises’ as reactions against the formal expectation. Yet, even within this context, it is difficult to consider such ‘surprises’ as distortive. The unexpected employment of a modulation to the mediant for the second subject (as opposed to the expected dominant in a major key) hardly seems to constitute a move into an ambiguous space, where the applicability of the assumed form in governance (the sonata-allegro) is called into question.

cannot take place. In becoming *known*, the structure loses all *ambiguity* and, as such, the 'zone of indiscernibility' cannot be experientially accessed.

What such discussion allows me to articulate is the problem with applying the term distortion, as it is currently understood, to a macro-scale temporal experience. Distortion, as the term has currently been used, implies the sense of a formal artifact that has been distorted – 'past tense', in a sense – yet awareness of larger-scale design unfolds in the 'present tense', especially if the formal designs are unknown quantities at the time of instigation (cf. Sonata form). As a mechanism for bypassing this problem I wish to introduce a new terminology, that of *disorientation*. Unlike distortion, which requires a holistic artifact, disorientation arises *during* the process of coming to know an artifact. As such, it is positioned far more in the unfolding present tense. Yet disorientation still forges a relationship with ambiguity, only now it is the ambiguity emergent from the act of attempting to achieve an appreciation/acknowledgment of temporal location, rather than emerging from a comparison of enclosed/encapsulated formal zones.

3.6. Preliminary conclusions: next steps

Engaging with more holistic/behavioural approaches to compositional materials and more qualitative methodologies for their lateral comparison with the work serves to develop the model of distortion as used so far in this thesis (and as outlined in chapter 1). The original model favoured some kind of known archetype (the figure) somehow felt in an ambiguous experiential appearance. What the discussions presented in this chapter allowed me to address is the potential contradiction within this model: if an object is known or recognised as 'that object', how is it ambiguous? Where is the doubt – or self-questioning – so critical to the distortive effect?

In a sense, that which is being articulated here is a development. What, then, remains is to develop this perspective back into a compositional domain, now placing all aspects of the distortive act (micro/macro-structural materials or otherwise) truly *inside* a 'zone of indiscernability' (Deleuze 2003 p.42), allowing the listening experience to look 'outwards' on to the disfigured/distorted/ambiguous rather than inwards on to a clearly defined archetype. Thus, the following chapter will move to address such issues via discussion of my composition *bet denagel* (2013), for solo baroque violin, with specific regard to certain developments in my macrostructural strategy.

Case Study II: Macrostructural developments in *bet denagel*²⁰

4.0. Introduction

This chapter serves to outline certain developments in my compositional practice arising in reference to the previous chapter's discussion of aspects of my work. The composition selected to illustrate such developments is *bet denagel* (2013) for baroque violin. *bet denagel* will be outlined with regard to its development of new macrostructural strategies for this investigation (thus addressing the macrostructural weaknesses/further potentials identified at the conclusion of the previous chapter). To achieve this, the chapter will first outline the development and re-application of certain notions originally employed within *ymrehanne krestos* (2012-13, for brass and percussion) to derive a new notion of *timbral canvas* as an effecting space (to return to the terminologies defined in chapter 1) for segregated parametric materials (sections 4.1-5). The discussion then moves to consider the new macrostructural strategy this timbral infrastructure allows the investigation to occupy (sections 4.6-9) and ends with more concluding remarks, outlining how the compositional process here discussed allows me to develop my understanding of aspects of the space occupied by my compositional work in a more general sense (sections 4.10-11).

4.1. The timbral canvas

The beginnings of my understanding of timbre as a potentially distortive compositional operand can be considered in relation to the notion of temporal canvas, introduced in the preceding chapter (section 3.4). In essence, the composition of *bet denagel* maps this process of segregation of *space* and *contents* into a timbral dimension and, again, is derived in relation to my reading of the work of visual artist Agnes Martin. In this particular instance, my perspective on Martin's work can be further developed by considering it part of a wider artistic practice that embraces the transformative potential of operational 'glitches', as documented with regard to, for example, the 'post-digital' or 'glitch' aesthetic observed in music by commentator Kim Cascone:

²⁰ Parts of this chapter were presented as a conference paper: "The instrument as roughened canvas: embracing timbral indeterminacy in composition and performance" (Sergeant 2013), see bibliography.

The “post-digital” aesthetic was developed in part as a result of the immersive experience of working in environments suffused with digital technology: computer fans whirring, laser printers churning out documents, the sonification of user-interfaces, and the muffled noise of hard drives. But more specifically, it is from the “failure” of digital technology that this new work has emerged: glitches, bugs, application errors, system crashes, clipping, aliasing, distortion, quantization noise, and even the noise floor of computer sound cards are the raw materials composers seek to incorporate into their music.’ (Cascone 2000 pp.12-13)

In both examples (Martin/Cascone), material contents (the perfect line, the binary code of a data file) are transformed by the space in which the experiential material is placed (the textured surface of the canvas or the hardware of a computer). The comparison of Martin with Cascone thus allows me to develop this segregation of material and container from that previously exhibited in the properties of the temporal canvas.

What was attempted in *bet denagel* is a reconsideration of the notion of canvas as container into an instrumental domain. Rather than engaging only with notions of *temporal* space as container, the instrument itself (here, the Baroque violin) becomes reinterpreted as a container in which to ‘hold’ the material that will be eventually be performed upon it. In instigating such a transposition, what becomes observable to me is a retention of the processes of segregation/recombination explored previously: the timbral modifiers of an instrument can be considered as exemplifying a separate behavioural state, independent-of and unsympathetic-to gestural material which later may be superimposed upon it.

4.2. The Baroque violin employed as a timbral canvas

bet denagel places its material into the performative ‘container’ of the Baroque violin, an instrument particularly rich with potential for acoustic glitches and involuntary transformations of sound, far more so than a modern instrument. The Baroque instrument’s strings are made of gut, which provide a coarser surface interface between bow and string thus producing a higher relative amplitude of background bow noise than a modern instrument as a result. In turn, this makes the strings more sensitive to bow pressure; the threshold between pitch and scratch-tone is much lower and less stable than present day equivalents. The Baroque bow is also weighted differently to that of a modern violin and the achievable amplitude bandwidths from the frog to the point are therefore much more pronounced: at the tip the loudest dynamics are unachievable, whereas at the

heel subtlety and lightness are equally unrealistic outputs. The Baroque instrument is, in a sense then, more sensitive to extreme performative actions than its modern counterpart: an ‘inappropriate’ combination of lateral bow position (relative to the bridge), vertical bow pressure, bow speed and left hand finger pressure – can all cause unpredictable cracks, squeaks, white/filtered noise and pitch-falters in a manner directly resembling Cascone’s ‘application errors, system crashes, clipping [and] distortion’ or Martin’s imperfect lines.

In preparation for a performance of *bet denagel*, attributes of instrument are further exaggerated to further germinate such glitches via a severe *scordatura* (shown in figure 4.2(a))



Figure 4.2(a): *bet denagel*: scordatura

which is extended by the following indication from the score:

[A]ll four strings should be tuned down additionally (retaining their intervallic relationship in minor 6ths) to the lowest pitches possible on the instrument (i.e. the lowest possible pitches that maintain ‘safe’ tensional support of the bridge). The score is then read as if the pitches above were employed, the sonic result being automatically transposed. (performance instructions to *bet denagel*, p.iv)

When severely detuned in this way, the strings fail to hold stable pitch events: when stimulated by the bow, physical operations, such as the application of vertical pressure in the production of dynamic variation, cause pitch deviations (essentially glissandi) away from the frequency notated in the score. Such frequency deviations are also highly unpredictable both in timing and scale, leading to potentially wild departures from the physically fingered pitch in certain (especially loud) dynamic contexts.

It is from the perspective of this latter example that the notion of performative timbral glitch can be presented as tethered to the entangled forces of erosion and encrustation defined elsewhere in this project. Musical material presented on this instrument (especially when detuned in this way) could be transformed by the instrumental ecology as outlined above.²¹ Such timbral glitches themselves constitute disruptions to any

²¹ Obviously, in order to facilitate this, a certain performance practice is required whereby the performer may encourage – or simply ‘let’ – such glitches occur as the score is executed. As a result, the score of *bet denagel* includes an explanation of the intended performance space in which the performer should locate themselves (see performance instructions, p.vii).

consistency the original material held; pitches may be unpredictably skewed or altered, while the alternatively or additionally ensuing cracks, squeaks and noises may cause particular pitch-notations to be omitted from the actualised sonic surface altogether. As such, by positioning the composition's material on an unsympathetic timbral canvas, the consistency/regularity of the original score material will be subject to a process of erosion and/or encrustation. In blocking material elements from speaking (by creating pitch falters or noise masks), material contents are omitted/eroded and replaced/encrusted by performative glitches.

4.3. The Four timbral spaces

What is being gradually outlined is a conceptual segregation of the possible timbral modifiers available on a given instrument and the additional gestural materials to which these operations may then be later superimposed. In *bet denagel*, this process of segregation is ultimately additionally tethered to the composition's macrostructural design, using timbral modifiers as both as eroding/encrusting agents and as larger-scale grouping mechanisms within the composition's larger-scale form. To facilitate this latter attribute, in the particular instance of the composition discussed here, the timbral canvas was designed to comprise four timbral spaces, each space used to define a particular formal segment of the composition.

Obviously, a single instrument is capable of a number of distinct timbral traits. Some such traits can almost be considered as a by-product of issues of, for example, register. As a thought experiment, imagine E5 performed on each of a violin's four (normally tuned) strings. There will obviously be a distinct timbral difference between performance of this pitch in a high position on the lowest string and as the highest string in open position. In comparison, other timbral traits are the result of more separately controllable physical actions, such as lateral bow position, relative to the bridge. It is this second group of timbral modifiers that are employed within *bet denagel*'s timbral canvas to create the four timbral spaces. Four such timbral modifiers were selected to achieve this: (1) bow pressure, (2) bow space/speed, (3) bow position and (4) bow material. It must also be remembered that each of these spaces is considered to be tethered to a set of possible performative glitches that, themselves, can erode and encrust the material to which they

are combined. Each of these four timbral spaces will now be outlined with regard to their employment within the composition (sections 4.3.1-4).

4.3.1. Bow pressure

Within the ecology of the Baroque violin's extreme scordatura, bow-pressure can cause pitch-inflections/deviations as previously discussed. In the score this parameter is controlled via detailed dynamic notations (dynamics elsewhere are treated statically and defined by physical exertion rather than sonic output (see performance instructions in the score, p.vi, for further explanation)).

4.3.2. Bow-space/bow-speed

The physical area available for use by the performer is strictly specified (ranging from the compete span of the bow to merely a segment) in the score. The operational/'permitted' area of the bow is notated quasi-graphically on a separate stave: here, the upper/lower stave-lines symbolise the heel and point of the bow respectively and the continuously fluctuating thicker lines (within the resultant stave space) demarcate the area of the bow that may be employed for the music notated underneath, as illustrated by fig. 4.3(a), below:

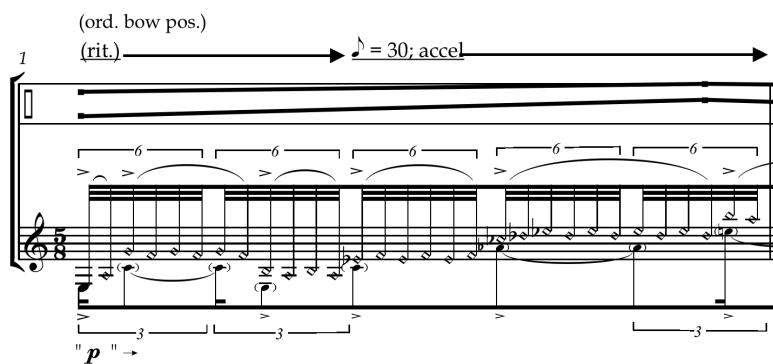


Figure 4.3(a): *bet denagel*: Bow space stave, as employed in district-λ, b.1

In reality, such instruction actually results in fluctuations in bow speed: longer articulations under smaller bow-areas facilitating a much slower motion than the reverse situation.

4.3.3. Bow-position

Bow-position relative to the bridge is also activated into a state of flux, again notated pseudo-graphically on a separate stave, as illustrated in figure 4.3(b):

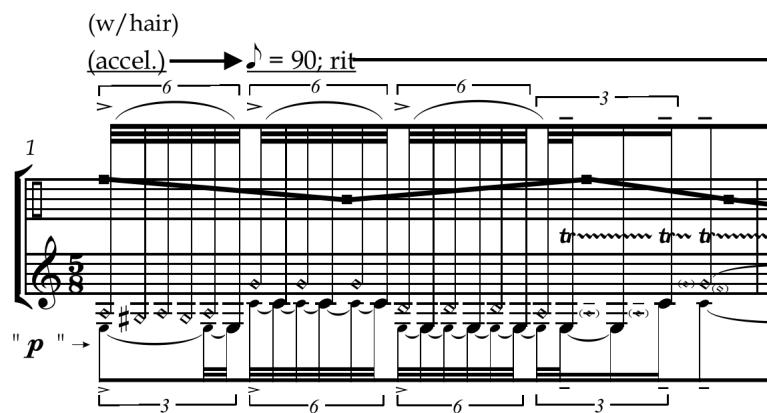


Figure 4.3(b): *bet denagel*: Bow position stave, as employed in district-ñ, b. 1

Here, the five lines of the stave correspond to five delineated positions of the bow relative to the bridge (from visually highest to lowest): (1) molto sul ponticello (bow in partial contact with the bridge); (2) sul ponticello ‘ordinario’; (3) ‘naturale’ (ord. bow position); (4) sul tasto ‘ordinario’; (5) molto sul tasto (bow positioned over the fingerboard).

4.3.4. Bow-material

Bow-material is also activated as transformative timbral parameter: at times the performer is instructed to gradually rotate the bow between wood and hair, resulting in either the sounding of high unstable multiphonics, or destabilising the overall pitch content of the given note.

4.4. Occupying the four timbral spaces

With the four timbral spaces delineated in this way, each space was then occupied with quasi-physically conceived behavioural materials. That is to say that, prior to the development of other gestural material, the physical movements of the timbral modifier activated in a particular space (lateral bow movement, changes in bow pressure) were

assigned a statistically controlled behavioural identity in a manner directly comparable to materials derived and outlined elsewhere in this project.

By way of example, the kinetic behaviour of the lateral bow position can be considered in this way: here, the five delineated bow positions (described above) alternate gradual movement from ‘naturale’ bow position to a randomly-selected ‘non-naturale’ position (then gradually returning to ‘naturale’ and repeating this cycle ad infinitum). The durational aspect, for example, of the transitions between bow positions was constructed from a random walk within a set of seven durational values (n) each a multiple of a fundamental triplet-semiquaver unit: [1, 2, 3, 5, 8, 13].²² The resultant durational sequence was then slightly blurred via the application of a Gaussian distribution; for each value of the original random walk output (n), a new random value (X) was selected from a distribution where $X \sim N(n, 25)$.²³ This new sequence of X -values forms the final durational sequence used in the composition.

The intricate rhythmic language that emerges as a result of this process was then approximated graphically in the final score for ease of reading (primarily at the request of the performer), where horizontal space is mapped precisely into the temporal dimension. Figure 4.4(a), below, illustrates this process, the actual score notation presented alongside the original rhythmic output from the above process, for comparison.

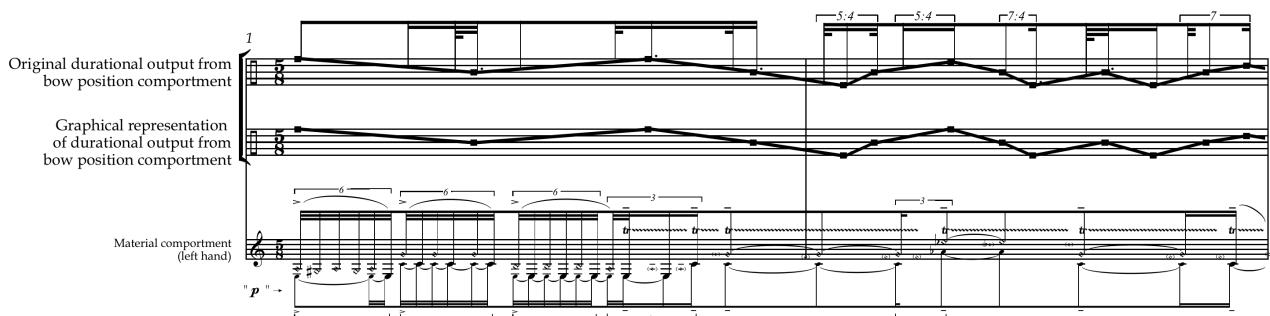


Figure 4.4(a): *bet denagel*: Comparison of graphical notation of bow position to original durational output, district-Δ, b.1-2

Four similar behaviours were derived for the composition of *bet denagel*, one assigned to each of the available timbral spaces. Before it can be outlined how these behavioural strategies were used to articulate the composition’s macrostructural design, it is first

²² The arithmetic progression from (n) to ($n+1$) is drawn from the first six numbers of the Fibonacci series: 1 (+1=) 2 (+1=) 3 (+2=) 5 (+3=) 8 (+5=) 13.

²³ I.e. The variance is expressed as a percentage of the mean (n): the variance is fixed at one quarter of the mean value.

necessary to consider the gestural materials to which such timbral behaviours would eventually be superimposed.

4.5. Other gestural materials

Continuing the notions of material identity and consistency used elsewhere in this investigation, *bet denagel* employs behaviourally considered materials in the construction of its more gestural aspects. Whilst *bet denagel* retains such notions, within the territory of more gestural material it departs slightly from the more oblique employment of parametric recoupling demonstrated elsewhere in the folio: it does not in fact directly engage with the practice of recoupling in any concrete sense. Instead of segregating physical parameters into separately considered behavioural streams (and then later recombining them), *bet denagel* instead employs a more holistic approach to material as behaviour in which, for example, aspects of bow movement and the fingerboard are considered as a more singular behavioural identity, as illustrated by figure 4.5(a), below.

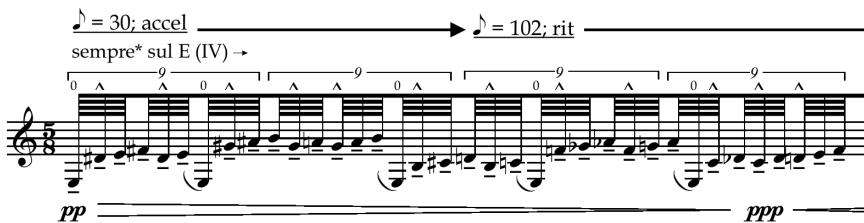


Figure 4.5(a): *bet denagel*, U-district, b.1 (excerpt)

As can be seen in the above example, the articulation behaviour (one pitch per articulation, with occasional slurs on to the open string) is as much an integrated character of the gestural behaviour as the pitch (fingerboard) attributes²⁴.

Yet the behavioural characteristics, although now more integrated, are still ultimately derived from a physical perspective of the instrumental. The particular behaviour as detailed in figure 4.5(a) features small ascending figures derived from movement of the first three fingers of the left hand, outlining one of two possible intervallic sets: [013] or [023] (the latter being an inversion of the former), although sometimes their statement is interrupted. Changes in hand position ('up' and 'down' the fingerboard) facilitate

²⁴ It is important to note that the tempo attributes in the above example are the results of further processes and will be introduced at a later point within this chapter (the dynamic attributes are the result of the behavioural material ascribed to bow pressure).

transposition of these repeated figures along the string, larger position-changes are 'covered' by an instance of open E4. If repetitions of figures from a given set are removed, the above example can be schematised as follows (figure 4.5(b), below):



*bracketed noteheads are not present in the score but can be implied from their context.

Figure 4.5(b): bet denagel, U-district; b.1 (schematic)

With the exception of movement to/from E3, horizontal intervallic movement is thus dominated by interval-classes from the combined original sets (0, 1, 2 and 3). In addition, the differing rates of change between the alternations of interval-sets and hand positions (transposition) results in emergent localised pitch regions, where outer pitch-classes remain static throughout the operative set.²⁵

This slight alteration in strategy can be understood not as arising as any form of critique of the recoupling practice itself but, moreover, as a way of reducing the operational strata which will then come to be collided. By recombining, for example, left/right bow movement and fingerboard activity into a more singular entity, the timbral behavioural aspects of the composition are allowed to be additionally foregrounded in the composition's ultimate sonic surface.

In this way, nine such gestural behaviours were constructed for the composition of *bet denagel*. As with earlier employments of such behaviourally defined material, to retain a genuine sense of consistency within each material form, each behavioural class is ultimately defined by a set of statistical likelihoods that govern and control the kinetic motion of the material (and executed via computer software). The statistical frameworks for such material classes have been summarised and tabulated as figure 4.5(c), below. In the score of the composition, statements of a particular material class are referred to as 'districts', each indicated by an Amharic character (the theological alphabet of the

²⁵ Whilst such an outline may appear to demonstrate a return to more quantifiably consistent parametric data, it is intended for this not to be the case. Over-and-above the parametric regularity of the behaviour is the consistent gestural/behavioural motion; the inclusion of information regarding value-based parametric consistency is intended merely as a perspective as to how behavioural control contributes to a notion of consistency in a wider sense.

Ethiopian orthodox church, to which the churches of the Lalibela World Heritage site – see section 0.2 – belong) and these are provided as part of the tabulation, for the purposes of cross-reference:

Behavioural class.	Summary of statistical framework			District (denoted by Amharic character)
	Operational Strings	Summary of Pitch Material	Summary of Rhythmic Material	
1	IV	<ul style="list-style-type: none"> • Short ascending figures; • Employing sets [013] & [023]; • Figurative material interrupted by open E3, 	<ul style="list-style-type: none"> • Nonuplet-demisemiquaver as fundamental rhythmic unit; • Durational values expand and contract along a random walk; 	ሀ
2	IV, III, II, I	<ul style="list-style-type: none"> • Random walk across individual open strings; • Harmonic finger-pressure; • Static hand position; 	<ul style="list-style-type: none"> • Sextuplet-demisemiquaver as fundamental rhythmic unit; • Rhythmicised/Non-rhythmicised trill configurations; 	ሁ አ-
3	IV, III, II, I	<ul style="list-style-type: none"> • Random walk across individual open-strings; • Open string double-stopped with (stopped) adjacent string; • Stopped-string(s) move through intervallic random walk through the set [-7, -2, -1, 0, 1, 2, 7] (relative to the operational open string) 	<ul style="list-style-type: none"> • Durations selected randomly from two alternating Gaussian (A and B) distributions where: <ul style="list-style-type: none"> ◦ A~N(1818ms (♩), 50%²⁶) ◦ B~N(909ms(♪), 50%) 	ሁ
4	IV, III	<ul style="list-style-type: none"> • Parallel perfect fifths; • Descending horizontal motion in semitones; • Figurative material interrupted by open E3/C4 to ‘cover’ larger position-shifts, 	<ul style="list-style-type: none"> • Quintuplet-demisemiquaver as fundamental rhythmic unit; • Durational values expand and contract along a random walk; 	ሁሁ ስሁ-

²⁶ Where variance is here described as a percentage of the mean.

5	IV, III	<ul style="list-style-type: none"> • Alternating open strings and double-stopped harmonics; • Hand position in flux; 	<ul style="list-style-type: none"> • Sextuplet-demisemiquaver as fundamental rhythmic unit; • Oscillation between rhythmic and trill-based configurations; 	W
6	Not specified	<ul style="list-style-type: none"> • Rising dyad, either 1 or 2; • Ornamented via flickering gestures on non-stable harmonic nodes; 	<ul style="list-style-type: none"> • Sextuplet-demisemiquaver as fundamental rhythmic unit; 	Z
7	IV, III, II, I	<ul style="list-style-type: none"> • As comportment 1 (above) but with addition of random walk across all strings, 	<ul style="list-style-type: none"> • As behaviour 1; 	A
8	IV, III, II, I	<ul style="list-style-type: none"> • Quadruple stops in rising glissandi of one $\frac{3}{4}$ tone; • Followed by tremolo to open strings through descending glissandi; 	<ul style="list-style-type: none"> • Peak of glissando always positioned on 3rd beat of bar; • Initial/ending durations of rests generated randomly to last between ♩ and ♩+♩ 	A A-
9	II	<ul style="list-style-type: none"> • Ascending figures of three articulations: open string (II) followed by two stopped pitches as artificial harmonics with non-harmonic nodes; 	<ul style="list-style-type: none"> • Open string maintains a fixed duration of approximately one demisemiquaver; • Durations of proceeding stopped notes and rests are randomly selected from a cycle of three Gaussian distributions (X, Y, Z) where: <ul style="list-style-type: none"> ○ X~N(1818ms (♩), 50%) ○ Y~N(318ms (♩+♩+♩), 28.5%) • Z~N(134ms (♩+♩), 45) 	Φ

Figure 4.5(c): *bet denagel*: Table of behavioural materials

N.B: The behavioural materials described above do not take into account further processes of tempo-related encrustation, described later in this chapter.

It should be conceded that the natures of these material behaviours were designed with some acknowledgement of the hostile instrumental environment in which they were to be placed. Behaviour-1 (W), for example, makes use of unusually high hand positions relative to the open string (IV) (e.g. district-W, b.3), furthering the change of potential timbral glitches (registerally ‘high’ employment of the lower strings, even without

scordatura, presents sounds extremely weak in upper partials and more prone to cracking/squeaking than more ‘comfortable’ registers).

Taken as a group of nine, the relatively diverse nature of the behavioural classes employed here will inevitably interact with the unsympathetic timbral canvas in qualitatively different ways. The glitch-types evoked by district-**ñ** (dominated by harmonics) will obviously be somewhat different from those invoked by district-**h** (open strings double-stopped with adjacent string within fixed interval patterns). Further steps are taken to activate this space and achieve the qualitatively distinct erosive states sought by this investigation on the larger scale.

4.6. Introducing *bet denagel's* macrostructural strategy: learning from Lynch and Nelson

Before the macrostructural strategy employed within *bet denagel* can be outlined with any concreteness, it is first necessary to introduce both a conceptual understanding of its derivation and certain terminologies with which the composition strongly interacts.

It has been extensively documented elsewhere in this thesis how the installation work of artist Mike Nelson evokes strong senses of disorientation amongst its perceptive occupants/participants (observations documented in section 2.3 can be particularly reviewed in this regard). The architectural psychologist Kevin Lynch provides a model within which to further consider the experiences arising from Nelson’s art. Lynch’s model concerns the perceptual/architectural mechanisms by which free internal movement of an observer within large-scale structures can form a fixed holistic sense of larger scale formal design, an environmental ‘image’²⁷ to use Lynch’s terminology.

Environmental images are the result of a two-way process between the observer and his environment. The environment suggests distinctions and relations, and the observer – with great adaptability and the light of his own purpose – selects, organizes and endows with meaning what he sees. The image so developed now limits and emphasizes what is seen; while the image itself is being tested filtered perceptual input in a constant interacting processes. (Lynch 1960 p.6)

The psychologist builds his framework based on five environmental elements (defined as paths, edges, districts, nodes and landmarks), from which such an image may be constructed. Three such elements are particularly of interest here.

²⁷ It is important to note that Lynch’s city images are considered as separate conceptual objects from any intentionality of the town planner, or road map. Lynch’s images are personal to individual perceivers, although the result of experience of the same perceptual framework as his model outlines.

1. *Paths*. Paths are the channels along which the observer customarily, occasionally or potentially moves. They may be streets, walkways, transit lines, canals, railroads. For many people, they are the predominant elements in their image. People observe the city while moving through it, and along the paths and other environmental elements are arranged and related. [...]

3. *Districts*. Districts are the medium-to-large scale sections of the city, conceived of as having two-dimensional extent, which the observer mentally enters "inside of," and which are recognizable as having some common, identifiable character. Always identifiable from the inside, they are also used for exterior reference if viewed from the outside. [...]

5. *Landmarks*. Landmarks are another type of point-of-reference, but in this case the observer does not enter within them, they are external. They are usually a rather simply defined physical object: building, sign or mountain. Their use involves the singling out of one element from a host of possibilities. [...] They are frequently used clues of identity and even of structure, and seem to be increasingly relied upon as a journey becomes more and more familiar.' (Lynch 1960 pp.47-48)

Even from such a preliminary outline, it is easy to see how Lynch's model can account for the experiential aspects of Nelson's work previously discussed.

The entangled network of corridors through which Nelson's observers pass contain little distinguishing identity and thus fail to be perceptually truncated into discrete paths. The larger room-spaces, strewn with a seemingly bizarre collection of unrelated contents, fail to form a 'common, identifiable character' and thus fail to qualify as distinct districts. The observer thus cannot form a stable environmental image of the overall space; the very least distorted (or, at the most, non-existent) image induced by Nelson's work potentially accounting for the feelings of lost identity, disorientation and destabilisation experienced by Nelson's commentators.

Such observations allow me to develop certain ideas arising from issues of microstructural design as discussed at the end of the previous chapter. A sense of macrostructural ambiguity may potentially *not* be induced from some kind of perceptual comparison of transformed and interrelated formal objects (as is the case with the cyclic forms in *bet merkarios*) but more by a listener's failure to develop a concrete pseudo environmental image (as Lynch describes the term) and *locate* themselves within a given composition's unfolding musical form (Where am I within this piece?). Thus, the experiential output - the experience invoked in my listeners - of macrostructural distortion can be more concretely considered as *disorientation*, rather than an experience rooted in corruption and decay.

bet denagel's macrostructural logics are thus derived from a reading of Nelson via Lynch's psycho-architectural model and can now be outlined as follows.

4.7. *bet denagel*: Macrostructural design

From even the most cursory reading of the performance instructions for *bet denagel*, the influence of Lynch's ideas can be felt. Twelve modules of material comprise the score, referred to throughout the score as *districts*, conjoined and interconnected by a graphical system of *paths*, as the performance instructions included within the score explain:

The twelve districts are interconnected via a network of lines (henceforth referred-to as 'paths'), colour-coded for ease of reading. Once a given district is performed, the performer must move immediately to any district conjoined to it via a path of any colour. (For ease of reading, the available network paths are doubled at the beginning and end of the stave-notation to allow quick/efficient visual transition between districts. (*bet denagel* performance instructions, p. iv)

In addition, a single module – referred to as the *landmark* (boxed with dotted red lines) is presented. Whilst all districts may be executed multiple times in a performance of *bet denagel*, the landmark may only be performed once (including its own internal repetitions).

The network here described can be further elaborated in the following way: by removing the musical material itself and any duplicate paths (but retaining the Amharic characters that label each district), the score-design can be simplified as a schematic (Figure 4.7(a)).

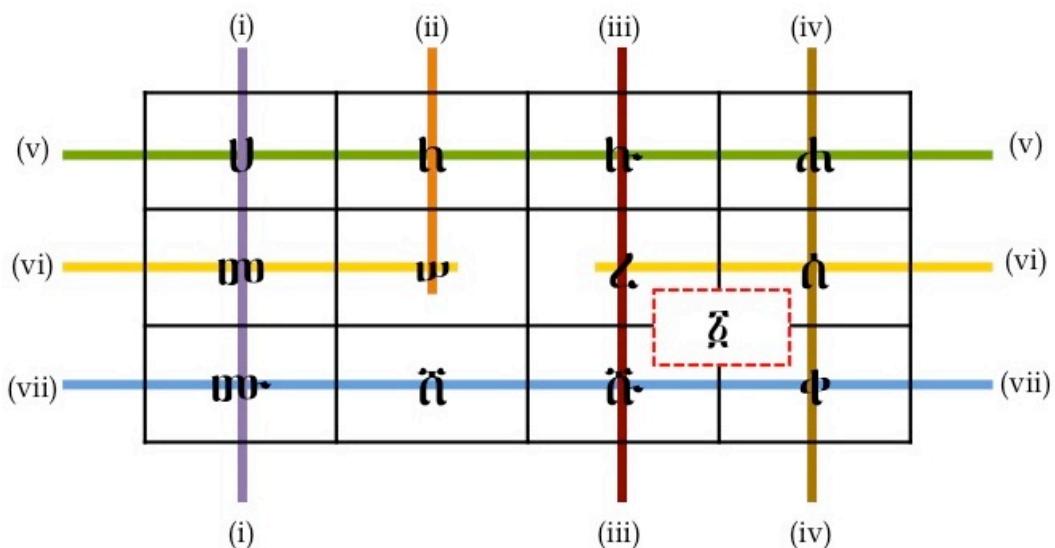


Figure 4.7(a): *bet denagel*: Schematic diagram of score-design

As such, a 4x3 grid emerges, interconnected along seven (colour-coded) paths. The performer's interaction with the grid is described in the performance instructions that accompany the score:

A performance must begin in the top-left hand district (marked with the Amharic character “ሀ”) and then proceed through the network in any way determined by the performer. A performance **must** include a single statement of the landmark. Once the landmark has been performed, the performer can conclude a performance by returning (through the network) to the opening district (“ሀ”). (*bet denagel* performance instructions, p.v)

For purposes of clarity, it should be emphasised that movement to/from the landmark may be made from any of the four districts (ሀ, አ, ከ, and ቅ) to which it immediately borders.

The districts employed within *bet denagel* can thus be at least initially understood as an appropriation of Lynch's terminology into my existing musical practice: each district in the score encloses a gestural behaviour (as introduced in section 4.5). As will be noted from a more thorough consideration of the score, certain districts share gestural behaviours with districts immediately adjacent to them: districts-ሁ and ከ share behaviour-1; ወ and ው share behaviour-4 and አ and ከ share behaviour-8.

It may also be interesting to note that such sharing is acknowledged in the employment of the Amharic alphabet used to label the districts.²⁸ Unlike the Roman alphabet, where each phoneme (consonant or vowel) is represented with a different graphical symbol, the basic unit of Amharic is the syllable: each of its characters represent a combination of a consonant plus vowel. Within the Amharic system, visually similar characters generally employ the same consonant, the subtle alterations to the same basic shapes indicating the different vowels with which they have been combined. The Amharic symbols employed in *bet denagel* have been tabulated below (figure 4.7(b)), alongside their international phonetic alphabet (IPA) transcriptions and approximate English pronunciation.

²⁸ As an aside, it may be interesting to explain why the Amharic was chosen for employment in the score at all – after all, it may be considered a much simpler strategy to label the districts with, for example, Arabic numerals (1, 2, 3, 4, 5...) or Roman letters (A, B, C, D, E...). The rationale emerges from the open nature of the score: the familiarity of such commonplace symbols as letters/numerals and their intrinsic place as part of a sequence (2 follows 1, B follows A) runs the risk of imposing an, albeit subconscious, order of execution on the performer. The employment of unfamiliar (at least within the context of a UK-based commission) characters, such as Amharic, circumvents this risk. Although it is accepted that a problem re-emerges if the work were presented to a performer fluent in the Amharic script, the syllabic nature of the alphabet still does not lend itself to a fixed sequential order in the same way as the Roman alphabet; various traditional character sequences exist, but in academia the characters are usually presented as a grid, which itself takes various forms.

Amharic Character	IPA Transcription	Approximate English Transliteration
ሀ	hə	<u>Hut</u>
ኩ	kə	<u>Cup</u>
ኩ	ku	<u>Cuckoo</u>
ኩ	h'ə	[No equivalent]
ሙ	mə	<u>Mother</u>
ሙ	mu	<u>Smooth</u>
ሙ	sə	<u>Sun</u>
ሩ	rə	<u>Run</u>
ሮ	sə	<u>Suppose</u>
ሻ	ʃə	<u>Shut</u>
ሻ	ʃu	<u>Shoot</u>
፻	k'ə	[No equivalent]

Figure 4.7(b): *bet denagel*: Pronunciation of Amharic characters

In consultation of the chart it will be noted how districts **ሁ** and **ኩ**; **ሙ** and **ሙ** and **ሻ** and **ሻ** share the same consonant components ('k', 'm' and 'sh' respectively). It is my, somewhat playful, intention that this in some way acknowledges their shared behavioural materials – such pairs are effectively labelled as the same district, in a manner resembling the related names of *East Hampstead* and *West Hampstead*.

To continue the macrostructural outline itself, Lynch's landmarks can be distinguished from his notion of districts in two important ways. Firstly, the observer's experience of a landmark is 'external' (it is looked *at* rather than walked *through*). Secondly, some feature makes them distinguishable, or at least somehow separate, from the 'host of possibilities that surround them' (Lynch 1960 p.48). To this end, the landmark employed within *bet denagel* can be seen in figure 4.7(c), below, and is denoted in the score by the Amharic numeral **፻**(one).

Figure 4.7(c): *bet denagel*, landmark (6)

Several unique features separate *bet denagel's* landmark from its surrounding districts. Firstly, there is a conceptual difference in the landmark's material: it is the only object conceived as a discrete (closed) musical object, rather than as behavioural activity. Secondly, formally, it is the only passage of music to include exact repetition. Thirdly, from a timbral perspective, it is the only pizzicato passage of music in the entire piece (and thus the only passage exempt from any of the bow-controlled timbral modifiers described earlier). Macrostructurally, there are further segregations of the landmark from the districts: the landmark is the only passage of music that can be accessed without regard to the routes of the conjoining path-network. Furthermore, it is the only passage of music that carries the caveats that it *must be included* in a performance and *only included once* (the districts can all be omitted entirely or repeated (potentially excessively) at the discretion of the performer).

Whilst in previous examples of my compositional work such deviations from contextually provided behavioural norms has been described as an 'Oulipian' clinamen, this is not the intention here. Instead, the landmark serves a simpler macrostructural function. As detailed above, the performer must travel through the composition's network (beginning at district-0), arrive somehow at the landmark and then return to the starting district. From a macrostructural perspective then, the landmark serves as a sonic signpost between to the two distinct phases of the work-in-performance: entrance and departure from the network.

The primacy placed upon paths in Lynch's urban model is partly attributed to their ability to carry a sense of individual identity or character independent of that which surrounds them (districts, landmarks, etc.), as Lynch illustrates:

That paths, once identifiable, have continuity as well, is an important obvious functional necessity. People regularly depended upon this quality. The fundamental requirement is that the actual track, or bed or the pavement, go through; the continuity of other characteristics is less important. Paths which simply have a satisfactory degree of track continuity were selected as the dependable ones in an environment [...]. They can be followed by the stranger, even if with difficulty.

But other factors of continuity had importance as well. When the channel width changed, as Cambridge Street does at Bowdoin Square [in Jersey City], or when the spatial continuity was interrupted, as it is at Washington Street at Dock Square, people had difficulty in seeing a continuation of the same path.' (Lynch 1960 p.52)

The continuous identity of paths, perceived distinctly from their surrounding phenomena, is mapped into a musical domain via the four spaces outlined previously (section 4.3).

Considering again the above schematic (figure 4.7(a)): four of the seven colour-coded paths (labelled with lower-case roman numerals) correspond to the four timbral (or tempo) behaviours introduced in section 4.3. These behaviours are then superimposed over the materials contained within *all* districts through which the given paths pass.

Whilst the vertical paths (i, ii, iii, iv) of figure 4.7(b) are thus defined in this way, the horizontal paths (v, vi and vii), in contrast, are defined by additional behaviours, now existing within the parameter of tempo-fluctuation. Again, such behaviours can be considered as part of the wider segregation/recombination approach emerging throughout the portfolio: the behaviour of the tempi was created completely independently of the material which it ultimately overruled (although a certain degree of care was taken to avoid the performance scenario resulting within *ymrehanne krestos*, see section 3.4.2). Three behaviours of tempo-fluctuation are used (and constructed via similar technical procedures as were employed within the design of the timbral comportments). The basic tempo (quaver = c.66) is either stable (path-vi), in a constant state of acceleration/deceleration (path-v) or effectively operating as abruptly terraced tempo-changes (path-vii, although this is notated in the score as metric changes, preserving the general tempo by thus expanding and contracting the duration of beats within the bar). In a sense, the application of temporally defined behaviours at this juncture can be understood as an extensions and re-application of the temporal canvas as introduced with regard to its application in *ymrehanne krestos* (introduced in section 3.4.1).

It will thus be noted that, through using timbrally defined behaviours vertically and temporally defined materials horizontally, each district is effected by *two* path behaviours,

one timbral, the other tempo-based. It is from this position of duality that the function of the tempo-fluctuations can be further understood. As well as providing an independent strand of behavioural material to conjoin materials into a discrete ‘horizontal’ path, the tempo changes also interact with the timbral environments with which they intersect. Tempo fluctuations obviously drastically alter the articulation-rate of pitch events and thus often serve to amplify (to different extents, depending on the tempo-comportment in operation) the occurrence of timbral glitches within the performative execution of the districts. Thus, the employment of tempo comports can be seen as at least conceived as part of the larger timbral discussion of this chapter and not as a discrete material thread.

Figure 4.7(d), below, tabulates the timbre/tempo comports assigned to the seven paths in *bet denagel*. The colours employed correspond to those used to map the course of the paths in figure 4.7(a).

Path	Colour	Comportment		Enclosed Districts
		Trope	Type	
(i)		Bow-pressure: “dynamics”	Timbral	ሀ , ዘዴ , ዘዴ
(ii)		Bow-space		ከ , ወ , አ
(iii)		Bow-position		ከ- , ፊ- , አ-
(iv)		Bow-material		ዳ , አ , ቅ
(v)		Acceleration/deceleration	Tempo	ሀ , አ , አ- , ፊ
(vi)		Stable		ዘዴ , ወ , ፊ , አ
(vii)		Terraced tempo changes		ዘዴ- , አ- , አ- , ፊ

Figure 4.7(d): *bet denagel*: Table of paths

4.8. Introducing *bet denagel*'s macrostructural strategy as behaviourally defined

It is from this perspective that the macrostructural design employed in *bet denagel* can now be considered as *behaviourally* conceived, allowing a move away from the more encapsulated structural units employed in other compositions (such as *bet merkarios* and *bet giyorgis*) and into a notion of macrostructure than can begin to engage with a sense of

disorientation emanating from being lost *inside* the structure – not viewing it from an external/outside perspective.

To expand this articulation, it is immediately striking how close Lynch's definition of urban ecological districts was to my own notions of behavioural material(s). Lynch's districts are experienced from the 'inside' – they are *temporally explored* spaces, rather than objects viewed externally (like landmarks). This seems highly analogous to the texturally conceived behavioural materials employed in so many of my works presented here: the identity of my materials is not enclosed within a musical object, moreover they are experienced over time as the behaviour itself unfolds. Environmental districts also have boundaries, delineating them from the surrounding 'outside' – or presumably other districts – meaning that multiple districts are permissible within a given urban structure, just as materials of different behavioural class can be presented sequentially.

Mapping such conceptual formulations into an open/indeterminate formal design instigates, in turn, not a closed or fixed formal object with a beginning and end, but instead a sense of identity emerges from the behavioural patterns evoked by any movement throughout the score: no matter which route is ultimately selected by the performer, district-**U** will always be temporally proximate to **h** and **uu**, whereas **ff** and **Φ** will be temporally segregated, 'further away'. In truth, it is this facet that primarily accounts for the open nature of the score format; this simply seemed the most 'honest' means by which such an idea could be notationally represented.

4.9. Medium scale notions of consistency/inconsistency

The behavioural conception of macrostructural design, as outlined in the previous section, is harnessed within *bet denagel* to explore new applications of consistency and inconsistency as medium-scale compositional mechanisms. As will be outlined in the text that ensues, the behavioural characteristics of *bet denegal's* path network facilitates a process of perpetual rupture between iterations of districts. In a sense, what is instigated here is a perpetual experience of continuity/consistency and discontinuity/inconsistency as one iteration of a district follows into another, as shall now be outlined.

Any movement between any two districts simultaneously evokes *both* localised behavioural continuity and discontinuity: 'vertical' movement from district-to-district maintains the identity of a timbral path but breeches the continuity offered by the tempo-

based comportments. Likewise, 'horizontal' movement across the score maintains tempo/metric identity but breeches the continuity of timbral behaviours. At every intersection, the performer has thus no option but to both maintain and interrupt certain behavioural characteristics. As such, from the listener's perspective, the act of lateral comparison between materials as presented is thrown into a more questioning position (is this material new, or have I heard this material before?) Some behavioural characteristic is always the same/consistent-with the previous district, binding the districts together into a seeming continuity, yet some attributes are always new/inconsistent with what has come before.

To further complicate this emergent listening scenario, interfaces between material zones are, themselves, not of a uniform class; movement from district-**h** to district-**h** facilitates, for example, larger-scale textural ruptures (induced by the tempo/timbral comportments), but maintain the same basic material textural comportment across both (behaviour-2). A sequence of rifts or 'edges' – the latter terminology is borrowed from Lynch (Lynch 1960 p.47) – emerge as the various districts collide in performance, the disruptive effects of which are qualitatively unique from edge-to-edge. For example, the sense of disjunction created by movement from district-**h** to district-**h** is of a very different class to that instigated by movement from district-**ñ** to district-**ñ**. In the former, the edge is created solely by a change in timbral comportment, from bow-space to bow-position, whilst in the latter, an edge is produced via a combination of change of tempo behaviour (terraced tempo changes to a stable pulse) and textural comportments. From this perspective then, what emerges is that each edge is unique: each of the seventeen edges (not including transition to/from the landmark) instigates a different consistent/inconsistent hybrid state (tempo, timbral or textural) and thus each is its own qualitative class. In turn, each comparative relationship of each district to district is both unique and dependant upon the context within which each district was traversed within the particular performance: there is no singular compositional device that will emerge to a listener to aid comparison between material zones and, as such, every comparison of material with material will remain innately within an ambiguous space.

4.10. Facets of disorientation in *bet denagel's* macrostructural design

Whilst medium scale engagement with issues of structural consistency/inconsistency have been outlined, what remains to be directly addressed is the manner in which this composition directly engages with a disorientation as a sense of macrostructural ambiguity. This facet of the composition will now be directly confronted:

Disorientation has been hitherto defined with reference to Kevin Lynch, as the effect produced when a given observer cannot form an environmental image (Lynch 1960 p.6). In the compositional realm, such an environmental image has been interpreted as an image of structural plan as formed in the mind of a listener through a performance. Environmental images fail to be formed when paths and districts (amongst other urban elements) cannot be delineated from one another. Two simple facets encourage the confusion/non-delineation between elements (path from path and district from district) in *bet denagel*. Firstly, the listener is denied the ability to traverse a single path unilaterally: two paths (one tempo, one timbral) are always superimposed, and constantly in a state of hybridised identity. Secondly, the qualitative differences between district-materials (comportments) in *bet denagel* are not uniform. It has already been noted how the textural components of districts-**h** and -**hr**; **vv** and **vv-** alongside **ii** and **ii-** are identical (although the larger-scale behaviours with which they are encrusted are different) – but this position can be expanded. It may have been noted from examination of figure 4.7(b) that certain behaviours share fundamental features that could lead to their audible confusion. Consider district-**U** in relation to **i** in this regard. Both material formulations share core attributes, such a preference for primarily one note per bow stroke and a quasi *perpetuum mobile* rhythmic character. When a given performance arrives at district-**i**, it is more than possible that a listener may confuse this material with that of district-**U**.

Therefore, it may be possible to conclude that, if a temporal environmental image is being formed, the listener may locate themselves in a different location within the 'map' than that which is actually occupied at a particular performance moment, potentially resulting in disorientating facets as the performance progresses. As such, although each district exhibits enough behavioural identity/consistency to provide the necessary feeling of a rift when two districts collide, not quite enough is present to facilitate full delineation between materials. This is particularly persuasive when one adds into this equation the relationship between different glitch-tropes and the performative mechanism that

produced them. Whilst the timbral spaces allow the material over which they are imposed to be altered by certain kinds of pitch-erosion or encrustation with noise, many of the resultant glitch-events from particular spaces will be sonically extremely similar to those produced in other spaces. As such, the emergent glitch-tropes themselves aid confusion of the path-structure.

4.11. Conclusions

In my work of this nature, macrostructural identity has now become an issue of behaviour. Having made such a development, certain tenets of its nature can now be observed. Whilst a sense of macrostructural behaviour has been harnessed as a vehicle for an experience of disorientation through ambiguity, it is interesting to note that the macrostructural identity itself is no longer the subject of attempts at distortion. This position actually allows for further preliminary commentary regarding the function of consistency in my musical materials. If we consider all macrostructural forms as issues of behavioural personality, then this personality will be innately defined by the behavioural tropes that such a form may come to contain. To create an inconsistent behavioural personality seems to make no sense from this perspective; by being defined by whatever particular tropes the content exhibits, the larger-scale structural personality emerging will always be *innately* consistent. In essence, such a scenario has already been introduced by the evolutionary epistemology of Gregory Bateson (see section 1.3.2); the pattern/metapattern is derived from that which is presented and is continually adjusted to accommodate the world as experience of it increases. This is not to say that the foundational tenets of the grammar I have sought are crumbling, rather it is to say that a conceptual bifurcation is now possible between a notion of musical consistency and a notion of musical ambiguity, ‘reducing’ the former does not ‘increase’ the latter.

What thus remains is to locate these observations within and in relation to the other emergent terminologies that have arisen over the course of this thesis. It is to this specific goal that the discourse here presented will now move, in the concluding portion of this thesis.

Conclusions and future enquiries

5.0. Introduction

This thesis sets out to develop a new compositional grammar for my own musical work. My own understanding of this grammar has come to be tethered to a notion of *ambiguity* of material identity. Such a notion has become activated in my musical work by forcing the actions of *comparison* within the listening experience into a state of questioning ("is this X or Y?"). To render this experience palpable, certain classes of compositional strategy have been described that prioritise acts of removal and accrual within the material substance, in what I have referred to as distortive acts of *erosion and encrustation*. Such acts are transformations of the material substance, transformations felt through the statements of material itself, leading in turn to a notion of material that has come to be referred to as *debris*. In working with such debris, what has come to be understood are wider notions of musical *consistency* and inconsistency within this field of operation and the extent to which such terms can be tethered to the distortive acts in the first instance.

As a result, the relationship my work has come to forge with this zone can be obliquely summarised with regard to five emergent key ideas: ambiguity, comparison, erosion/encrustation, debris and consistency. With the current state of my compositional activity then defined, it is then possible to look outwards from this occupied space and forward into the next potential areas of investigation for my creative work (section 5.6).

5.1. Ambiguity

A consistent thread runs throughout the compositional procedures I have employed throughout the folio, a preoccupation with processes of hybridisation between different material states and identities. Such a preoccupation can actually be traced back to earlier examples of my work: *bet giyorgis* (2011, for ensemble) employs a fetal form of the scenario, combining materials defined by regulated parametric values with those of a non-regulated class. But perhaps such a preoccupation is more immediately obvious in more recent examples of my work, compositions which employ materials as defined by a behavioural state, such as those employed extensively within *bet merkorios* (2012, for solo violoncello) and *bet denagel* (2013, for solo Baroque violin). Such behavioural states, in all instances, are

used as part of a larger mechanism for superimposition, which collides the material identities to create a composite surface form of material, containing attributes 'common to several forms, irreducible to any of them' (Deleuze 2003 p.42).

It is in regard to such behavioural states that perhaps my relationship with ambiguity in a wider sense can now be articulated. Such behavioural states are consistently defined by a set of executed statistical likelihoods (as documented with regard to *bet denagel* in chapter 4). These likelihoods are used to create patterns of pseudo-kinetic textural behaviour; the material is no longer defined by particular parametric classes but by the generalised mannerisms it enacts as it unfurls through time. If we were to reintroduce a concept of encapsulated *object* into this scenario – a concrete/enclosed/absolute definition of a material form – such an object could only take the form of the sets of probabilities and statistical relations from which the instance of the material (as heard) was originally seeded. The material as heard in the score is ultimately a single example from an infinity of possible instances of a particular behavioural class. In being defined by a set of statistical likelihoods and not inevitabilities; in essence; all possible outcomes of a particular behavioural trope are permitted the possibility to exist. By way of elaboration, consider the following thought experiment:

A behavioural model is derived such that each of the twelve composite pitches of a one-octave chromatic scale are probabilistically weighted according to a derived distribution. Within this hypothetical scenario, the pitch of A4 receives the lowest chance of being selected: the chances of its selection are set at 0.00001 (i.e. extremely unlikely). The selection is made according to this distribution and, surprisingly, the result yields a sequence of one hundred iterations of A4. Such scenario should not be misread as a failure; it is entirely *possible* for this behavioural model to output this instance, is just highly *unlikely*.

This thought experiment illustrates the innate bifurcation induced here between the *instance* of such statistical processes and the statistical *object* from which such instances are ultimately derived. It is not possible to wholly and absolutely resurrect the framework from the instance (reading the one hundred iterations of A4 in this way would suppose a framework whereby $P(A4)=1$). Thus, in a sense, the absolute identity of the material – as symbolised by its statistical framework – is positioned at a point of innate inaccessibility. To invert the sentiment and put it another way: to achieve concrete knowledge of my behavioural material is to achieve a holistic and simultaneous awareness of *all* possible

outcomes of the particular statistical field. This is ultimately a knowledge of an infinity and, as such, is beyond the scope of human experience: one can get the 'gist' of a behavioural identity but cannot absolutely grasp it. The identity of behavioural material, then, is in a sense *intrinsically ambiguous*.

This model of material foregrounds the ultimately indeterminate and innately ambiguous relationship between surface material instance and the identity that is signified by it. In essence, it is a further foregrounding of the innate ambiguity within the signifier/signified relationship, as articulated in the thought of Jacques Derrida and his semiotic deconstruction.

As such, the role of ambiguity within my compositional processes can be further elaborated from that which was assumed at the outset of this thesis. Rather than acting as a verb – *to make something ambiguous* – it is actually serving as a state of being to be retained – *to reveal something as already ambiguous*. The practices of hybridisation to which my work has become preoccupied can also be understood in this way: in hybridising the material it is hoped the innate ambiguity of material definition is foregrounded in the listening experience. In a sense, amplifying the presence of material as already occupying an *ambiguous* state of definition, inducing this state through compositional process. In a sense, what is being achieved here is revealing to a listener that they themselves are already innately occupying 'the zone of indiscernibility' (Deleuze 2003 p.42).

5.2. Comparison

From the outset of this thesis, the act of experiential comparison between different material forms within the sonic surface of a given example of my compositions has been an innate and assumed part of the listening experience demanded. Even at this late stage in the discussion, it should be conceded that such comparative acts as undertaken on the part of the listener are not in any way considered new, special or particular to my own musical practices. All that is really engaged with in this regard is a listener's innate aptitude to experience differences in material kind and this is considered self-evident. In drawing upon such terminologies as comparison, all that is highlighted is the human ability to distinguish between material forms. In acknowledging that material X is not material Y, an act of comparison has inevitably taken place. Whether such comparative actions are conscious or subconscious is for the realm of musical psychology to decide. All

that is assumed here is that the human mind is capable of making such delineations of material.

For me, the comparative listening act can be tethered to my above understanding of ambiguity through considering my practice in terms of permutation. This new term eloquently summarises certain ideas contained within my embracement of the comparative listening action. In superimposing and colliding musical identities, composite musical personalities are formed. This process of conceptual segregation and recombination have become holistic concerns of this investigation, explored within the realm of instrumental physicality – the recoupling strategy employed within *bet merkorios* – and within the development of notions of container and contents – the timbral/temporal canvases as employed in *ymrehanne krestos* (2012-13, for brass and percussion) and *bet denagel* respectively. It is this engagement with a notion of surface form as composite that can be summarised as an issue of permutation. The instances of the surface material forms are defined by the recombined attributes from which they were created. In a sense, it is the particular permutation of the recombined attributes that constitute the material as heard. Thus, the differences between heard material instances are bound to the differences between the permutations employed at any two (or more) particular locations. But the composite nature of the material instances allows for various constituent parts of its particular permutation to be reiterated elsewhere *without* others. Comparison of such materials thus engages with a ‘gray-zone’ scenario whereby no two material instances are entirely different in nature, nor are they entirely the same. As such, the ambiguities between material classes are further foregrounded by the musical discourse.

Yet, the introduction of the word permutation also engages with notions of ambiguity and distortion as a qualitative sense. Permutation, as a word, may come to bear certain numerical overtones, but in my music what is actually prioritised by considering such operations in this way is the issue of qualitative difference within the sensation of the ambiguous (as introduced with regard to the thought of Henri Bergson in section 2.6.). Differences of permutation, whilst relational, are not themselves quantitative: permutation ABC is numerically no more/less different to ACB or BAC. Comparing differences of permutation is thus innately qualitative, reflective of the qualitative nature of the human sensation of the distorted, with which these practices directly seek to engage and foreground.

My compositional work has been preoccupied with foregrounding ambiguity within (previously defined) laterally comparative acts, which in itself has allowed me to observe the differing nature of such actions with regard to the micro and macro compositional scale. Macrostructural comparative acts are innately tethered to the opposite, meta-lateral, comparative space. Whilst a given composition may come to contain multiple material personalities, its larger scale formalistic personality will always remain singular within the lateral comparative zone. A single instance of a composition will, innately, contain a single instance of larger scale identity: no lateral comparison can take place.

Such an observation has led to engagement with the ambiguous sense arising from the experience of larger scale form not in terms of *comparison* but in terms of *compilation*. Whereas on the smaller scale, the differences between material forms are positioned inside an ambiguous gray-zone (where ultimate and confident delimitation of material classes may not be felt successfully achieved), on the larger scale, the sense of ambiguity is activated by harnessing the power of this local level grey zone to prevent or obscure construction (in the mind of the listener) of clearly defined larger-scale formalistic units. In essence, to return to the previously introduced terminologies from architectural psychologist Kevin Lynch, a holistic image (Lynch 1960 p.6) of the composition as a musical environment is prevented from being forged. The foregrounding of the ambiguous within this area now is best described as a sense of listener disorientation within the composition rather than as manifestations of the distorted.

5.3. Erosion/encrustation

Throughout this thesis, entwined notions of erosion and encrustation have remained central to the operational compositional mechanism here at play. Yet from the more holistic perspective offered by previous concluding remarks, it is now possible to acknowledge and appreciate more concretely what these terms have come to mean and to what substance they truly operate upon.

To begin such a final statement, it is first necessary to consider the substance to which the processes of erosion and encrustation ultimately apply. In the initial stages of this investigation, the terms were applied in relation to data content: data values were added or removed in order to articulate the erosive or encrustive forces initially explored. From a certain perspective, this understanding of the terms has been continually assumed as the

nature of the surrounding discourse has progressed. Notions of material, for example, have evolved beyond parametric/quantifiable means of definition into a more behavioural state, whilst the nature of erosion and encrustation has appeared to remain tethered to changes in the contents of such material forms. Yet beneath the surface of such an appearance a conceptual diversion has actually taken place. The compositional techniques employed within the folio (especially the more recent examples) have been instigated not to affect attributes of a surface material instance (the note, the chord) but to obfuscate material *identity* as a concrete substance. From such a perspective, it is possible to consider erosion/encrustation in terms of the directional effect of their force. Erosion/encrustation can now be considered not as a force acting upon the material instance to transform it into a state of ambiguous definition but as a force emanating *from* the material to prevent its encapsulation *by* definition.

5.4. Debris

When the word debris has been used in this thesis, it has always referred to instances of material as heard. That is to say that the sonic surface of my musical work is considered to be comprised from such debris.

It is now clear why a word is needed to define this particular concept of material. In embracing an ambiguous space, what is claimed is not the lack of possibility of material similarity and difference but a rendering visible of the fluidity between these zones. In a sense, what is foregrounded is the ultimate lack of graspability of concrete definitions of musical material and it is in this sense that the word debris becomes applicable. For me, the word embraces the gray space most obliquely. Debris is a ‘something’, but a ‘something’ that is only ambiguously known. As such, its application to the sonic instances of my material seems particularly apt. My materials, via their composite nature, are always a collection of ‘somethings’ but, in their plurality, cannot be singularly encapsulated without also holding on to an attribute that also occurs in what might first appear as a ‘something else’.

5.5. Consistency

For me, perhaps the widest implication rendered observable by this investigation concerns developments in my understanding of musical consistency. In earlier discussions within this thesis, musical consistency was regarded as almost synonymous with a notion of material definition. In being consistent, material was regarded as being of a definitive and distinguishable class. Thus, according to this earlier logic, to render something inconsistent was to break its identity.

In more recent discussions, such a position has become substantially developed. In retrospect, the previously employed notions of material consistency have actually constituted something of a quantitative assumption, implying that material consistency is somehow measurable in an experiential sense (X is consistent, Y is inconsistent, Z is more consistent than Y but less consistent than X). In engaging with notions of material as an issue of behaviour, what has become apparent is the extent to which such a notion constitutes something of a fallacy. Whilst consistency can indeed be considered in an abstracted or quasi numerical sense (e.g. this passage only uses crotchet values and the pitch E3), consistency in the experiential sense emerges as being more innately related to the context by which it is considered.

If, by way of a thought experiment, a musical motif is imagined that consists of seven different pitch and six different interval classes, this motif is consistent. In this hypothetical example, the consistency here operates as a consistency of difference. In a different hypothetical example, where a motif is defined by seven iterations of two pitch classes, outlining six repetitions of a single melodic interval, consistency emerges instead as a consistency of similarity. Crucially, neither example is quantifiably more or less consistent in nature; both simply exposit different qualitative classes of consistency. Thus, for me, material can and will always be considered as in some senses consistent, regardless of its own abstracted nature.

What such consideration therefore allows is a conceptual understanding of a bifurcation between consistency and ambiguity as concepts. Consider the microstructural behavioural logics that my music has come to predominantly feature. As has been argued throughout, the sense of personality/identity instigated by these strategies is not induced by any particularly enclosable musical object (the theme/the motif) but is revealed through time as the material unfolds. Thus, the sense of identity/personality of the ensuing material is

not something that is enclosed in some kind of meta-level; it emerges through and of the sonic surface as it presents itself. In turn, this realisation actually throws certain aspects of my compositional practice into a wholly different perspective. Consider the temporal canvas of *ymrehanne krestos* in this regard. In this composition, great care was taken to create a mutual interaction between parallel compositional planes: a temporal behavioural state and the sonic material itself. From an abstracted perspective, in colliding the characteristics of the sonic material with its temporal background, certain aspects of its contents are rendered more inconsistent when compared with its original/intended form. Yet such a perspective completely boycotts the experiential reality of this practice. The material identity of the sonic surface is experienced holistically through time. As such, in the ear of the listener there is no bifurcation between different compositional levels; instead the facets by which it is *heard* define the material identity. Any notion of inconsistency within the sonic surface as heard becomes an experienced behavioural *consistency*. In being consistently inconsistent the material identified solidifies into a state of singularly defined identity. This is not to suggest that such a scenario is unambiguous in nature: as a wider platform, distinguishing materials in *ymrehanne krestos* is an extremely problematic listening act. Moreover what this example serves to illustrate is the bifurcation of ambiguity and consistency and the lack of proportional relationship between the two terms.

5.6. Future enquiries²⁹

Throughout the results of this investigation, at all levels and within all terminologies, what has ultimately been embraced here is preference for notions of state over notions of object. State is here understood in terms of a notion of flow. Identity, by way of example, has come to be defined with regard to the manneristic flow of character through and across time. In a similar vein, such a perspective has aided my understanding of consistency, as attributes that flow through a sphere of reference, defining the context of a musical discourse. Yet, to invert this perspective, what has not been explored is a reinterpretation of a notion of point within this emergent compositional system. Here, point is understood as a temporal position within a composition: a temporal location, an *event*. With such a contrasting notion articulated, my compositional preoccupations

²⁹ An early version of section 5.6. was presented as a conference paper: "Invoking the interface of the fantastic: Todorov, music and composition." (Sergeant 2013) see bibliography.

emerge as somewhat planar. The musical moment-to-moment in my compositional practice has been rendered arbitrary/inconsequential in preference of this engagement with temporal flow and resultant definition. Whilst such preoccupations have served as mechanisms by which 'the zone of indiscernibility' (Deleuze 2003 p.42) may be illuminated as the location of musical discourse, what therefore remains to be explored concerns how notions of ramification and consequence may be reintroduced into the operational foregrounding of this zone. Can the musical consequence of an event be activated to further illuminate the innate ambiguities of the musical space?

It is to the development of such notions that I wish the legacy – the next phase of research – to turn to next. It is in relation to such a future goal that my attention has already been drawn, primarily by preliminarily considering the potential application of the work of philosopher and literary theorist Tzvetan Todorov, more specifically his notion of the *fantastic*.

For Todorov, the fantastic materialises most concretely as a literary genre, a realm in which we (as readers) are presented with 'a world which is indeed our world, the world we know, a world without devils, sylphides, or vampires, [and in this world] there occurs an event which cannot be explained by the laws of this same familiar world' (Todorov 1975 p.25). In Todorov's vocabulary, such an event invokes a *hesitation*:

[A] hesitation common to reader and character, who must decide whether or not what they perceive derives from "reality" as it exists in the common opinion. [...] If he decides that the laws of reality remain intact and permit an explanation of the phenomena described, we say that the work belongs to another genre: the uncanny. If, on the contrary, he decides that new laws of nature must be entertained to account for the phenomena, we enter the genre of the marvelous. (*ibid* p.41)

By way of elaboration we may consider the following, somewhat playful, thought experiment:

A story tells of a number of people who, last Tuesday afternoon, bore witness to the sudden appearance of a unicorn wandering the streets of Brixton, South London. Later that evening, the national news runs one of two possible stories covering the event. In the first, the event is revealed to be the work of an elaborate hoax: there was no unicorn, it was merely an illusion brought about via pranksters and prosthetics. In the second, however, zoological experts are brought to the scene, capture the animal and verify its status as an entirely new species. It transpires the creature arrived in Brixton after meandering from its

native grazing pastures in nearby Camberwell, where, after further investigation, many other such unicorns are found to be residing.

Should the first account be broadcast, (following Todorov's understanding) my story moves into the realm of the *uncanny* – its spectacular events are accounted-for within the normative parameters of reality. Should the second version of events be aired, the nature of my story veers into the *marvellous* – a new reality has been created in which unicorns both exist and are native to various areas of South London. But now consider a third scenario, where *no* story is broadcast. The unicorn disappears without trace and is never seen again. For the readers of my story, its nature remains unknown; they remain encapsulated in *hesitation* – the threshold between the conceptual territories of the uncanny and the marvellous. It is via the invocation and occupation of this threshold that Todorov's notion of the fantastic can be located.

I find it useful to further consider the distinction between Todorov's hesitation and the event from which it arises. Whereas the event itself is spatially or temporally locatable, the hesitation is better considered as a *force* acting upon the phenomenological fabric of the world from the event from which it was generated. It is the effect of this force that serves to transpose the plane of reference of the witness from their current location to the uncanny, the marvellous or into the perpetual conceptual 'orbit' from which the fantastic is itself invoked.

But, crucially, at its moment of instigation, the focal direction of this force is not tethered to any self-evident destination. At this moment, the force is nothing but an affronting violence against the constituent truisms of its departure-space; it is from this perspective that Todorov's model is revealed as a potential plane of operation for my future compositional mechanisms. The invocation of the fantastic, through hesitation, can be considered as a potentially damaging force upon normative coherence; a conceptual rupture that calls its witnesses to question what this is and where they are.

Such an outline leads me to speculate as to how fantastical events and their ensuing hesitation forces could be constructed within a musical domain. Such an appropriation of terminologies seems to offer the potential for additional mechanisms to illuminate the ambiguous nature of the musical substance, the hesitations ensuing from a musically fantastic event serving to provoke an act of questioning on that which has been heard in a composition's past.

That said, the operations enclosed by this Todorovian model have not already gone without consideration in a musical domain. Marianna Ritchey, for example, explores Todorov's conceptual framework in relation to Berlioz's *Symphonie Fantastique* (1830). Ritchey's work draws particular attention to the fantastical hesitation invoked from the collision of normative structural mechanisms exposites by the prevailing Beethovenian model of the time and their distorted counterparts as manifest in the *Épisode de la vie d'un Artiste*.

By locating his music within the "real world" of certain accepted musical procedures, Berlioz could then trouble those procedures to reveal alternative possibilities. Like the fantastic story, in which nightmarish elements are rendered with a dreamlike detachment, in which characters often respond to supernatural events with a strange lack of fear, and in which the teleological imperatives of traditional narrative are subverted by the desire to hover in timeless spaces or to explore transgressive possibilities, Berlioz effectively uses the Beethovenian symphonic model sparingly, just enough to enable him to leap away from it, articulating alternative possibilities. (Ritchey 2010 p.183).

In such an example then, the conceptual space in which Todorovian forces are activated can be located within the interface between *audience* and musical work. As Ritchey identifies, the material of the *cinq parties* exhibits sufficient initial behavioural tropes for a socio-culturally contemporaneous audience (at least) to locate it within a certain set of normative expectations. Once framed in this way, Berlioz can instigate events ('leaps away') within this infrastructure that have the potential to radiate hesitation in the mind of the audience through the composer's departure – or friction – with and against such normative precepts.

In the first movement, any expectations of traditional are troubled. The meandering introduction, in C minor, has seemed to some to resemble a theme and variation, albeit without a well-formed theme and with only one even vaguely recognizable variation. "Theme and variation" has thus never been a satisfactory way of understanding this section. (Ritchey 2010 p.176)

But such consideration is not necessarily restricted to the realm of structural design, nor is it bound to notions of intentionality. Since the author died (Barthes 1967), the potential to read the fantastic *into* compositional strategies as an alternative account for their aesthetic frameworks exists. Could, for example, it be possible to reconsider the harmonic language of Claude Debussy in this way?

Even the most peripheral survey of literature on the subject seems to allow such a mapping to be possible. Authors regularly comment on Debussy's tendency for the 'exposition of familiar chordal types in a new structural context' and the 'unearthly' effects that such approaches can manifest in the mind of the listener (DeVoto 2004 p.100).

The tonal framework of *Nuages* can be described as a dialogue between an incomplete classical B minor – that is, a B minor defined by a natural minor scale with chromatic embellishments, in which the complete tonic triad is reduced to the open fifth B – F# - and B-centered tonality in which, let us repeat, the tonic triad is diminished and subsumed within a G7 chord, that is, a chord spelled G-B-F, in which the B[-natural], and not the nominal root G, is the gravitating tone. B minor is implied by the *melodic* presence of D[-natural], either a third above B[-natural] or a fifth above G; but B minor as represented by a B-minor triad is explicit only once, at m. 29. Where a dominant-seventh structure appears, it is incomplete, or else it is part of a major-ninth sonority that is functionally independent [...] Yet harmonic progression does exist within *Nuages*, defined above all by linear association, in which the motion of one chord to another depends on common tones, and the stepwise proximity of differing tones. These relationships are based on classical harmonic practice; but taken together in context; they result in a uniquely altered tonality, a *sui generis* comprehension. (DeVoto 2004 p.114)

Could such a friction between normative expectation and sonic reality invoke a hesitation and thus occupy the threshold between the worlds of the uncanny (the tonal system) and the marvellous (some alternate organisational model)? Could the fantastic account for the 'unworldly' qualities DeVoto attributes to harmonic spectra of this French composer? (DeVoto 2004 p.100). Interestingly, such a preliminary conclusion would seem to re-engage with more planar approaches to material. There is no longer a temporal point within the composition from which hesitation forces are emanating, but as a friction between a state of expectancy and a state of experience.

Thus the most interesting application of the Todorovian operation lies in its potential expansion into a third dimension. The audience is not the only hesitating agent within this aesthetic space, as Todorov explains in relation to the character of Alfonso from Potocki's *Saragossa Manuscript*.

Who hesitates in this story? As we see at once, it is Alfonso – in other words, the hero, the central character. It is Alfonso who, throughout the plot, must choose between two interpretations. [...] The fantastic therefore implies an integration of the reader into the world of the characters; that world defined by the reader's own ambiguous perception of the event narrated. (Todorov 1975 p.31)

It is in regard to these latter observations that my primary speculations as a composer lie.

To what extent can internal (diegetic?) musical material generate a hesitation between an event and the behavioural context into which such an event is placed?

Again, the potential for such a line of enquiry seems extremely large in scope. In a sense, what is being addressed here is a sense of the confrontation of the new against the accepted backdrop of the given. Such a scenario is particularly eloquently introduced in the thought of Deleuze, where the new presents as a direct experiential confrontation of difference-in-itself beneath repetition-for-itself:

The new, with its power of beginning and beginning again, remains forever new, just as the established was always established from the outset, even if a certain amount of empirical time was necessary for this to be recognised. What becomes established in the new – in other words, difference – calls forth forces in thought which are not the forces of recognition, today or tomorrow, but the powers of a completely other model, from an unrecognised and unrecognisable *terra incognita*. (Deleuze 2004 p.172)

Todorov's hesitation could therefore be reconceived in these terms. That is to say that an event (a *new* event) occurring within the behavioural ecology of a musical surface could sit so uncomfortably within its own defining referential connections so as to act as a force against actions to define the behaviour within which it sits, in a manner directly comparable to the processes of erosion and encrustation that this thesis itself has come to understand. The resultant hesitation-force ensuing from such an event necessitates a shunt on the listener from any stable position of knowledge. As our imaginary piece progresses, the event of course has the ability to be retrospectively stabilised, by either assimilating the event into a re-contextualised notion of the music's governing consistency (the marvellous), or, alternatively, being retroactively convinced of the event's inclusion within the *original* behavioural consistency; the resultant vector reminiscent of that of the uncanny.

The conceptual entwining of Deleuze and of Todorov to further explore notions of illuminated ambiguity could even be considered more fully. The Deleuzian confrontation of the new carries with it an implicit notion of strangeness, as documented by Deleuze himself:

In fact, concepts only ever designate possibilities. They lack the claws of absolute necessity – in other words, of an original violence inflicted upon thought: the claws of strangeness or an enmity which alone would awaken thought from its natural stupor or eternal possibility [...]. (Deleuze 2004 p.175)

Consider the resonances here. Within my praxis, concepts (here read as material classes) indeed exist primarily as possibilities, ultimately unknowable meta-temporal behaviours frozen into an instance via computer execution of statistical control. Could the forces of hesitation, as instigated in a potentially fantastically understood musical event activate this scenario, using the forces of strangeness emanating from such an event to further reveal material definition as ambiguous?

Whilst such speculation serves as an interesting catalyst for further musical thought, for me personally it also offers the potential to additionally offer explanations of experiences I feel in relation to music all the time.

Consider the closing bars of Richard Barrett's *Vanity* (1990-94), for large orchestra. For nearly twenty-five minutes, an abrasively dissonant and texturally intricate behavioural environment is occupied by the work. Whether authorial intention has any relevancy in this reading is questionable, but is interesting to note Barrett's own documentation regarding the formation of his ecological system (Barrett 1996), which outlines a set of strict internal behavioural logics within which the piece operates. But the last bar then offers something rather extraordinary within this context: emerging from dense chromatically saturated orchestral textures, a quotation, comprised of a single bar from Schubert's *Death and the Maiden* quartet (No. 14 in D minor, D810, II – Andante con moto) appears, played by a string quartet. Barrett's composition then ends.

For me at least, this particular musical moment has always carried with it an intrinsic sense of 'what on earth was that?!" The event (here, the sudden appearance of Schubert's music) seems so at odds with the ecological environment from which it has materialised³⁰ that I (as witness) am forced into an unclaimed perspectival space: not enough music follows for me to conceptually accommodate this gesture within the behavioural ecology of the preceding music (the uncanny), nor is there enough precedent for me to redefine my notions of the "virtual world" within which I have been located (the marvellous). The quotation thus serves as a conceptual violence and, using Todorovian terms alone, I am pushed into the unclaimed realms of the fantastic.³¹

But the operational plane in which the fantastic interface is evoked is as much about

³⁰ Whilst Barrett does prepare the statement of the Schubert by subtly introducing elements from the quotation within the preceding music, I hold that such material appropriations are far from preparing the presentation of the Schubert quotation as a holistic musical object.

³¹ This is not in any way intended as a criticism of Barrett's orchestral canvas, in fact more the opposite: the disruption evoked in this moment is, for me at least, one of the most fascinating and *pleasing* facets of the score.

stabilisation – or *re*-stabilisation – of behavioural identity as it is about instigating a disruptive force. As such, the framework allows the potential for embellishing understanding of a wide range of aesthetic practices.

Consider eldritch³² Priest's ...soot?aporia (2003) for solo piano. In some senses Priest's aesthetic position is neatly summarised by the title of his recent book on the aesthetics of failure, *Boring Formless Nonsense* (Priest 2013). The composer has described his work in the following way: 'I want to consider the possibility of sense and non-sense in music' (Priest 2003). The piano work exemplifies this position by providing a twenty-five minute stream of curiously related musical objects: fragments of music sewn together in succession, their interrelations too dissimilar to provide continuity and, simultaneously, too self-similar to provide contrast.

Within the conceptual operation now outlined, there seems little doubt to me that the listening experience of this music invokes the *interface* of the fantastic but may not result in the fantastical itself. Priest's material presents as almost traditionally motivic but the ensuing ecologically bizarre compositional grammar through which it passes serves to violate the socio-historical expectation provided by this position. The ensuing force destabilises any expectancy I may hold – for a time at least. I occupy an unclaimed space that could indeed be read as fantastical, as new.

However, in the case of Priest the behavioural fabric of this composition remains in a *consistent* state of bizarreness. As such, I (again, as listener) assimilate such phenomena *out* of the fantastic and *into* the marvellous. In effect, its nature has re-stabilised into a position of at least partial identity.

This is not to suggest that the vector traversed in this process is not relevant. As Todorov himself exposit, the fantastic, conceived now almost as a transitory state through which forces can pass, opens subsidiary spaces for examination:

We find in each case, a transitory sub-genre appears; between the fantastic and the uncanny on the one hand, between the fantastic and the marvelous on the other. These sub-genres include works that sustain the hesitation characteristic of the fantastic for a long period, but that ultimately end in the marvelous or the uncanny. (Todorov 1975 p.44)

In light of these final observations it may be prudent to return to the work of Debussy. Maybe the truly fantastic is *not* the space in which the composer's Puck (*La danse de Puck*,

³² The composer consistently spells his first name in lower case.

Préludes, Book 1, No. 11, 1909-10) ‘learned to dance’. That is obviously not to claim that the *interface* of the fantastic has not been invoked – but it may be that, for example, the composer’s internally consistent personalised harmonic strategy redirects the force of hesitation into the space of the fantastic-marvellous, where there it stabilises once more.

As such, my new conduit becomes visible as a plane of operation: a future syntax is revealed in which Todorovian forces could become the centralised and activated operands of a compositional vocabulary that seeks to render music as ambiguous.

What remains is for this vehicle to be creatively traversed via these terms – and within this territory there is much future work to be done. Using the lexicon here outlined, I am led to speculate as to the nature of future musical work where musical events are instigated in a fantastical sense, to spark ‘forces of hesitation’ that neither resolve into the uncanny or the marvellous, but remain in a perpetual conceptual orbit with proliferates only a process of questioning regarding the material definitions from which it emerged. It intrigues me as to what form and overall substance this future work might take. What compositional mechanisms ‘on the page’ might accommodate or facilitate such conceptual operations and to what forms of musical substance should they be applied? And in what ways, following this line of thought to its ultimate ends, might the ambiguous become the strange?

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Appendix I: Matthew Sergeant, complete list of compositions (2010-2013)

The following list documents all musical work composed within the period stated above and not the contents of the accompanying folio (which itself is described in appendix II).

Title:	<i>bet denagel</i>
Composed:	January - May 2013
Instrumentation:	solo Baroque violin (with gut strings and Baroque bow)
Duration:	Flexible (6' – 20'+)
First Performance:	Edinburgh/St. Cecilia's Hall/16.09.12
Performers:	Emma Lloyd
Title:	<i>ymrehanne krestos</i>
Composed:	October – December 2012
Instrumentation:	flugelhorn, alto trombone and percussion (1 player: 2 conga drums, 2 bongos, 2 tom-toms, vibraphone)
Duration:	12'
First Performance:	Singapore/University of Singapore/01.02.13
First Performers:	ELISION: Tristram Williams (flg)/Ben Marks (atbne)/Peter Neville (perc) / Tony Makarome (cond.)
Second Performance:	Huddersfield/St. Paul's Hall/08.02.13
Second Performers:	ELISION: Tristram Williams (flg)/Ben Marks (atbne)/Peter Neville (perc) / Aaron Cassidy (cond)
Title:	<i>passion bleeds into salt</i> (revised version)
Composed:	July 2012
Instrumentation:	flute (doubling piccolo), clarinet, piano, violin, viola, violoncello
Duration:	10'
First Performance:	Strasbourg/Festival Musica/03.10.12
Performers:	Divertimento Ensemble/Sandro Gorli (cond)
Title:	<i>bete mika'el</i>
Composed:	February June – August 2012
Instrumentation:	solo piano
Duration:	9'
First Performance:	Manchester/Royal Northern College of Music/18.09.13
Performers:	Benjamin Powel (also dedicatee)
Title:	<i>bet ammanuel</i>
Composed:	2012 – March 2012
Instrumentation:	four solo voices
Duration:	8'
First Performance:	Huddersfield/University of Huddersfield/02.05.12 (Workshop performance)
Performers:	EXAUDI Vocal Ensemble

Title: *bet merkarios*
 Composed: December 2011 – May 2012
 Instrumentation: solo violoncello (with scordatura)
 Duration: 18'
 First Performance: Manchester/Nexus Art Café/23.07.12
 Performers: Thomas Bayman (also dedicatee)

Title: *bet maryam*
 Composed: July 2011
 Instrumentation: solo guitar (with scordatura)
 Duration: 6'
 First Performance: Manchester/Nexus Art Café/23.07.12
 Performers: Callum Dewar

Title: *bet giyorgis*
 Composed: June – September 2011
 Instrumentation: flute, oboe, bass clarinet, violin, mandolin, guitar, xylophone, harp, piano, violin, viola, violoncello and double bass
 Duration: 18'
 First Performance: Huddersfield/HCMF/St. Paul's Hall/23.11.11
 Performers: The Nieuw Ensemble; Bas Wiegers (cond.)

Title: rock-hewn church
 Composed: April – May 2011
 Instrumentation: flute, oboe, bass clarinet, violin, mandolin, guitar, tubular bells, harp, piano, violin, viola, violoncello and double bass
 Duration: 16'
 First Performance: Amsterdam/Nieuw Ensemble Rehearsal Studios/19.06.11
 [Workshop Performance]
 Performers: The Nieuw Ensemble; Bas Wiegers (cond.)

Title: three etudes
 Composed: January – February 2011
 Instrumentation: alto flute, cor anglais, bass clarinet, mandolin, harp, piano, violin, viola,
 double bass,
 Duration: 8'
 First Performance: Amsterdam/Nieuw Ensemble Rehearsal Studios/05.03.11
 [Workshop performance]
 Performers: The Nieuw Ensemble; Bas Wiegers (cond.)

Title: *meeting house* [Note: premiered under the title *veils*]
 Instrumentation: clarinet, violin and piano
 Duration: 15'
 First Performance: Huddersfield/St. Paul's Hall/10.03.11
 Performers: Ensemble +/-

Title: *somebody threw a dead dog after him down the ravine*
Composed: August - October 2010
Instrumentation: Bb Clarinet and Piano
Duration: 18'
First Performance: Manchester/RNCM/21.10.10 (Workshop Performance)
Performers: Michael Perrett (cl.)/Benjamin Powell (pno.)

Appendix II: Contents portfolio of compositions

The portfolio contains seven original compositions:

1. *bet giyorgis* (2011, for ensemble)[△]
a3 score (portrait orientation)
performance duration: c.18'
2. *bet maryam* (2011, for solo guitar)
a3 perusal* score (portrait orientation)
performance duration: c.6'
3. *bet merkorios* (2012, for solo violoncello)
a3 perusal* score (portrait orientation)
performance duration: c.18'
4. *bet ammanuel* (2012, for four solo voices)
a3 score (portrait orientation)
performance duration: c.8'
5. *bete mika'el* (2012, for solo piano)
a3 score (portrait orientation)
performance duration: c.9'
6. *ymrehanne krestos* (2012, for brass and percussion)
a3 score (landscape orientation)
performance duration: c.13'
7. *bet denagel* (2013, for solo Baroque violin)
a0 score[†] (landscape orientation)
a3 performance instructions (portrait orientation)
performance duration: flexible - c.6' - c.28'(+)

The portfolio is supplied with two compact discs containing recordings of all the compositions detailed above. Track details are provided overleaf.

Notes:

[△]*bet giyorgis* is published by the University of York Music Press (ISMN M 57036 371 1) and is reprinted here for examination purposes by kind permission of the publisher.

* Perusal scores are intended for study purposes only, not for use by performers (page turns, for example, are simplified in the actual performance materials).

[†]Packaged separately (in a cardboard document tube) due to its size.

Accompanying CDs: Track Details

CD 1 of 2

Track No. Title (and timing)
Performer Details

- 1 *bet giyorgis* (17:54)
The Nieuw Ensemble / Bas Wiegers (Conductor)
- 2 *bet ammanuel* (07:05)
EXAUDI / James Weeks (Conductor)
- 3 *bet maryam* (06:17)
Callum Dewar (Guitar)
- 4 *bet merkorios* (17:32)
Thomas Bayman (Violoncello)

CD 2 of 2

Track No. Title (and timing)
Performance Details

- 1 bet denagel (21:33)
Emma Lloyd (Baroque violin)
- 2 bete mika'el (09:01)
Benjamin Powell (Piano)
- 3 ymrehanne krestos (11:30)
ELISION Ensemble / Aaron Cassidy (Conductor)