Unfurl:
Folio of Compositions with Commentary

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Abstract

This portfolio of compositions is the result of four years of practice-led research. It consists of nine original scores, all of which are written for acoustic instruments and intended for concert hall performance:

5. *Cast* (2016) – piano soloist and nine players

In the commentary, these compositions are discussed in terms of a series of interconnected dialectical relationships: motion and stasis; line and circle; continuity and discontinuity; change and repetition; unity and disunity. These oppositions provide ways of illuminating the shared features of the portfolio, whilst also demonstrating what makes each work unique.

In addition, the commentary reflects the developing nature of my practice over the course of the PhD. It does so by illustrating the continuous process of analysing, refining, and expanding my repertoire of constructive compositional techniques.

Finally, this music represents the confluence of a wide range of influences, musical and otherwise. These are too numerous to acknowledge comprehensively, and so are outlined selectively where they help to elucidate specific aesthetic ideas and technical processes.
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List of Accompanying Material

Scores

*Unfurl* (2014) – mixed sextet
*Uhtceare* (2014) – mixed quartet
*Uncanny Vale* (2014) – wind quintet
*Cast* (2016) – piano soloist and nine players
*Locks of the Approaching Storm* (2016) – mixed octet
*Monologues and Dialogues* (2017) – bass clarinet and piano
*Betelgeuse Astral Funicular* (2017) – sixteen players
*Three Movements for String Quartet* (2017) – string quartet

Audio CD track listing

All scores in this portfolio have been performed and recorded except for Three Movements for String Quartet. Some minor revisions in the orchestration of Ropes of Maui have resulted in discrepancies between the score and recording.

1. *Unfurl*
   *Ensemble 10/10, Christian Lindberg*
   Live recording, Epstein Theatre, Liverpool, 18th March 2014
2. *Uhtceare*
   *Dark Inventions, Christopher Leedham*
   Track 1 from *Firewheel by Dark Inventions*, released by the ensemble in 2016
3. *Uncanny Vale*
   *Britten Sinfonia*
   Live recording, West Road Concert Hall, Cambridge, 2nd December 2014
4. *Ropes of Maui*
   *University of York Symphony Orchestra, John Stringer*
5. **Cast**

Jin Hyung Lim (piano) and the *University of York Chamber Orchestra*, John Stringer

Live recording, Sir Jack Lyons Concert Hall, York, 28th November 2015

6. **Locks of the Approaching Storm**

Members of *Philharmonia Orchestra*, Diego Masson

Live recording, Royal Festival Hall, London, 4th May 2016

7. **Monologues & Dialogues**

SCAW

Live Recording, Sir Jack Lyons Concert Hall, York, 13th June 2017

8. **Betelgeuse Astral Funicular**

*Ulysses Ensemble*, Jonathan Berman

Live Recording, Britten Studio, Snape, 14th July 2017
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Many thanks go to all the musicians who have given such brilliant and committed performances of my music, and have occasionally had to carry unreasonable amounts of percussion around the north of England: Ensemble 10/10, Dark Inventions, Britten Sinfonia, the Philharmonia Orchestra, SCAW, the Ulysses Ensemble, Jin Hyung Lim, the student ensembles at the University of York, and John Stringer. Much gratitude, also, to Sound & Music, the Royal Philharmonic Society, and Aldeburgh Music for giving me invaluable performance and mentoring opportunities.

Finally, special thanks go to my family and extended family for their love, support, patience, and for willingly giving up evenings to experience the (sometimes slightly strange) world of modern classical music.
Author's Declaration

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, university. All sources are acknowledged as references.

*Uhtceare* has been published by the *University of York Music Press* alongside a CD release of the recording included here.

The overall concept for *Cast* was decided upon in collaboration with Jin Hyung Lim, the piano soloist with whom I was jointly awarded the Terry Holmes Composer-Performer Award (a commission given by the Music Department at the University of York).
1 Introduction

1.1 Scope of the commentary

I have nothing to say and I am saying it\(^1\)
– John Cage

In art, ambiguity is an invitation. It leaves room for personal interpretation and engagement in a way that didacticism does not. Fortunately for a composer, music has the potential to be a singularly ambiguous medium. At the *Huddersfield Contemporary Music Festival 2016*, Rebecca Saunders described the commonly-quoted Cage phrase above as a particularly appropriate maxim for a composer\(^2\), as music cannot convey specific meanings in the way that language can. Although describing what music cannot do sounds like a criticism, I would argue that this lack of specificity is one of its strengths, as it allows for many different readings.

Ultimately I would like my own compositions to remain in this state. The most important aesthetic principle in this portfolio is the fact that each piece should work on its own musical terms. It is for this reason that I do not want to present this commentary as an essential part of the music it refers to, or as an exhaustive analysis and deconstruction of its meaning. Instead, it illuminates key underlying artistic concerns, which are expressed in terms of certain dialectical relationships. The idea of the dialectic in and of itself is essential, as I find that the tension between contrary tendencies is a fruitful way of constructing a musical discourse. In addition, the commentary accompanying each piece examines specific technical processes in terms of how they relate to these dialectics.


\(^2\) Rebecca Saunders, interviewed by Sara Mohr-Pietsch, Huddersfield, November 2016.
I also examine the composition process itself. Writing music involves a complicated series of minute decisions, many of which are intuitive and thus impossible to specify, but what I can discuss is how an exploration of constructive techniques has helped develop and expand my musical language. The intuition can fall into certain habitual patterns, and investigating different techniques results in a refreshed perspective and can help guide the intuition towards the exploration of different soundworlds.

My compositions are divided into three categories that reflect the development of my writing process:

1. Those that present my compositional concerns and tendencies in germinal form (Chapter 2. Unfurling)
2. Those that are based on more developed explorations of these features (Chapter 3. Patterns: identifying, developing and breaking)
3. Two concluding pieces that apply these more developed ideas to new formal directions (Chapter 4. New forms)

1.2 Beginnings

It’s as if in the other room there’s a puzzle. All the pieces are together, but in my room they just [appear] one piece at a time...and the first piece I get is just a fragment of the whole puzzle...and it holds a promise for more...having a fragment is more bait on the hook.³

– David Lynch

Like Lynch’s filmmaking process, my approach to beginning a composition for the majority of the music in this portfolio could be described as ‘bottom-up’. In other

words, I start with a fragment of material – or a single jigsaw piece – be that a gesture, melody, motif or texture. Structure comes from the process of finding ways to work around the context of this initial fragment. By way of comparison, ‘top-down’ composition would describe the pre-planning of a structure. Once writing has progressed to the extent that potential large-scale shapes begin suggesting themselves, such 'top-down' decisions start filtering into the composition process. A dialectical relationship is created between these two perspectives, which becomes an essential part of establishing the finished form of a piece.

The first idea for a piece also needs to ‘hold a promise for more’; it must be extensible in some way. In addition, the nature of the initial idea will to a large extent determine the way in which it is developed. This is illustrated by the following comment from Julian Anderson:

I use a starting point that's very common...because I find that if the material you start with is very unusual all you can do...is just state it...but if the material is more pliable than that – and more common material is often much more pliable – you can discover new things and alter it and make it grow.4

I understand the interest in pliability, but the fact that it is often connected to 'common material' (the particular piece he is referring to here is based on a simple modal three-note cell) means that I do not want to limit myself to ideas based solely on this property. Sometimes, I want material to be as vivid and distinctive as possible. Nevertheless, I do want still want it to move, to 'make it grow' in some way, and achieve directionality within the music. Considering the potential motion of material and its 'promise for more' is therefore an important part of finding the right idea for a piece, and its pliability (or lack thereof) will determine the characteristics of how the music develops.

1.3 Dialectical pairings

This idea of motion that I have associated with musical material is dialectically paired with stasis. I usually construct music in paragraphs that are placed somewhere on a spectrum between the two, which informs the structural function of the passage (for instance, whether it gathers in momentum, dissipates, or stays in motionless repose). Jonathan Cross uses the geometrical analogy of lines and circles to illustrate this opposition in relation to the music of Birtwistle, and the same can be to my own music.\(^5\) A line suggests a trajectory (motion); a circle suggests a repeated process (stasis).

There are two main forms of motion: teleological and undirected. Teleology refers to movement towards a definite goal. Undirected motion is not goal-focused, and can be illustrated using another Cross observation about Birtwistle, who ‘likened his attitude to form to that of a traveller in a big and unfamiliar city, who may move around according to a predetermined set of rules’.\(^6\) A set of rules can determine how material moves and changes, without necessarily demanding an end-point.

A number of further dialectical relationships are also important: continuity and discontinuity; change and repetition; unity and disunity. There are clearly many connections between these pairings. For instance, the idea of line can be applied in two instances: lines of continuity between contrasting sections, and lines indicating a trajectory of change. Similarly, the notions of stasis, circles, and repetitions are to some extent synonymous when it comes to their musical manifestations. In addition, repetition at a structural level – for instance in the use of refrains or recurring gestural archetypes – is often the feature that unifies a piece.

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1.4 Technical resources

These conceptual dialectics can be found in a variety of recurring techniques and musical features in the portfolio. Some of them are present in the first piece and are refined throughout, whilst others are introduced at later stages:

1. Varied repetition

Whilst repetition often represents stasis, greater or lesser degrees of variation allow repeated ideas to explore the spectrum between stasis and motion. It is an idea that encompasses a wide range of procedures from material processes to structural conceits, for instance:

- The rearrangement of components within a repeated gesture (e.g. during the opening of *Unfurl*, letter A-E inclusive)
- Processes of rhythmic expansion/contraction that increase or ease the intensity of a repeated gesture, phrase or ostinato over the course of a passage (such as in the tuned percussion line during the opening of *Locks of the Approaching Storm*, letter C, the introduction of the passacaglia bass line in *Ropes of Maui*, letter L, or the scalar figures in *Betelgeuse Astral Funicular*, letter E-H inclusive)
- Varying blocks in ‘mosaic’ passages. Certain passages in my music are constructed using contrasting blocks that are alternated in repeated sequences and varied on each repetition. This is cyclical and discontinuous, but processes of change create a linear thread of motion throughout. Moreover, the refrain-like use of repeated ideas confers order, or unity, despite the disunity conveyed by heterogeneous material. (In *Cast*, the passage from letter P to Z inclusive demonstrates this process particularly clearly.)
- Altered reprises or refrains as a unifying device (as in *Uncanny Vale*)
Lines (directional or cyclical; foreground or background)

Lines as musical (rather than conceptual) features can confer directional motion, but also form variable cyclical structures such as ostinatos or gestural repetitions. They take two main forms:

- Foreground/melody, where the movement is determined by an intuitive sense of phrasing, sometimes combined with the use of directional pitch processes (as in the string parts in Locks of the Approaching Storm, letter E-G)

- Background/structural lines, such as the hill-like undulations of Betelgeuse Astral Funicular that eventually land on the contrabassoon’s low C

Second-level rhythms created by contrasting blocks of material

Distinctive material that lends itself more to being ‘stated’ than manipulated often results in the construction of the aforementioned mosaic passages. The alternations of contrasting blocks creates a second-level rhythm that helps establish the momentum, dissipation or stasis of a passage, depending on its function within the structure of the piece. In this way, music that operates on discontinuous principles can still have linear motion.

Transitioning and foreshadowing

As a counter to discontinuous juxtapositions, some pieces use transitional processes to bridge sections of music with the aim of creating continuity. This often involves foreshadowing material from the latter section within the former, first as an incidental accessory but increasing in significance until it takes precedence (as in the first section of Monologues & Dialogues).

The kaleidoscopic reshuffling of gestural archetypes

Using a select repertory of gestural archetypes within a piece helps to establish a unified identity and a sense of focus. This is a prominent device in the first three pieces of the portfolio.
6. Fusion and stratification

These two ideas reflect different approaches to orchestration. At times, instruments are in a state of fusion, which can take the form of global textural/gestural soundworlds or of the colouring of lines with combinations of unison, parallel motion, different kinds of heterophony and hockets. On occasion, this involves working with the harmonic series (sometimes simplified to a tempered tuning). Conversely, at times I construct music from discrete, contrasting strata. The two perspectives are also combined, with different strata comprised of ‘meta-instruments’. Fusion and stratification thereby provide another perspective on the dialectic between unity and disunity.

7. Manipulating densities using pitch pools

The density of activity within a passage can be controlled through the process of covering more or less pitch material within fixed spaces of time. I use this device as an agent of musical motion or change. It is illustrated by the expansion of pitch pools within 'Kinetic Play 1' of Cast (see letters P, S, V and Z), which in turn increases the density of activity. Another example is the simultaneous increasing and decreasing of pitch pool content in Movement 2 of Three Movements for String Quartet.

From a more conventional perspective, both motif and harmony also have a role to play in the creation of motion. In terms of motif, there are just two examples: Unfurl and Three Movements for String Quartet, movement 3. In both, the principle ‘theme’ goes through different textural, gestural and linear permutations, and in the latter there is more harmonic motion associated with this development. However, these motifs are defined as broad gestural archetypes and do not undergo rigorous forms of ‘classical’ manipulation. Harmonic movement becomes the principle form of motion in very sparse passages such as the middle section of Monologues & Dialogues (letters F-J inclusive) or the opening of Cast (beginning to letter D inclusive), where the slow pace of activity in other parameters emphasises the harmonic element of the music.
1.5 Shaking hands: connections and influences

Arnold Whittall coined the phrase ‘the pleasures of allusion’\(^8\) to counter the idea of the Bloomian notion of the ‘anxiety of influence’.\(^9\) He comments that establishing originality does not rely on ‘minimising the significance of...influences’. Indeed, composers ‘cannot function’ without interacting with other music, or ‘shaking hands’ with other composers.\(^10\) Personally, one of the most rewarding elements of writing music is the process of responding to the ideas of composers past and present. I would like to acknowledge a few of the key influences on my work, including both specific composers and broader ideas.

My mosaic constructions owe a clear debt to the music of Stravinsky, Messiaen and Birtwistle. Moreover, the fact that the blocks within these passages are often defined by sonority and character as much as pitch relationships demonstrates a kinship with Varèse and his use of contrasting ‘zones of intensities’ which are ‘differentiated by various timbres or colors’.\(^11\) Birtwistle is additionally the source of my interest in using the simple opposition of the linear and the cyclical (or cantus and continuum, as he describes it in Secret Theatre)\(^12\) as the basis for constructing complex textures. This method helps set up a musical situation with an inherent opposition between separate layers that behave in different ways.

In terms of broader influences, from chapter 2 onwards, loose adaptations of serial techniques begin to form an integral part of my vocabulary, often used to move between areas of modality and dodecaphony. Statistical/stochastic and spectral

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\(^10\) Ibid., 25.


musical perspectives on the construction and movement of sound are also important. These manifest themselves in my work more in the realm of attitude than in specific techniques such as realising data sets or sonographic analyses.

A common thread that unites the two streams of thought – and one that is of particular interest to me – is their shared sensitivity to psychoacoustics. Xenakis saw statistical processes as a way of introducing perceivable change into complex textures, since 'human perceptual capacity [can] only grasp the global outlines of complex sonorities'. \(^{13}\) Similarly, spectral music is, in part, about a more refined understanding of sound itself in order to conceive musical works 'more closely to the manner in which they will ultimately be perceived'. \(^{14}\) For this reason, in the following commentary I explain the techniques I use in relation to what I believe to be perceivable in the music. In the words of Joshua Fineberg:

> The score is not the actual musical work...the actual piece of music is the sonic result or at least would be in an ideal performance.\(^{15}\)

It is perhaps in the realm of ‘orchestral fusion’ and trying to create situations where ‘individual voices are subsumed in the richness of the overall texture and color’ \(^{16}\) that my music most resembles the surface features of spectral music. In addition, my fascination with the unusual sonic properties of bells is evident in all the pieces that feature tuned metallic percussion.

Moreover, my use of sets of rules that gradually change the properties of musical material are rudimentary expressions of the influence of Xenakis’s stochastic processes. The first movement of *Three Movements for String Quartet* bears the closest audible


\(^{15}\) *Ibid.*, 3.

\(^{16}\) *Ibid.*
resemblance to the textures of this composer, and it is conceived in terms of degrees of divergence from, and convergence to, a certain registral contour. Whilst not a realisation of a specific data set, it is nevertheless about degrees of variation around an overall trend in a quasi-stochastic manner.

1.6 Titles, concepts and extra-musical ideas

Not all of my influences are musical; many of the pieces within this portfolio make reference to some form of extra-musical idea. However, the majority of the music cannot be described as a 'response to' such ideas. In most cases, a connection will be made once the final form of the piece becomes clear; not necessarily when it is finished, but when I have written enough music to know what the piece will become. This is largely because I want to prioritise the music working on its own terms. Yet despite what could be described as an 'absolute' rather than 'programmatic' approach, I find that titles are a welcome opportunity to point in a variety of different directions and create a multivalent frame for the music. Moreover, they offer a small window of creativity in the use of language, which I am inclined to try to exploit to its full potential. I usually look for a combination of the following properties in a title:

1. A word or phrase that is interesting in and of itself.

2. A connection to the music of some sort. This can be as loosely-defined as a phrase being suggestive of a certain atmosphere or mood to help evoke the 'identity' of the piece. Within this portfolio, the extra-musical connections suggest stasis, motion, transition, journeys, repetition, and mechanisms, all of which correspond to my overarching artistic concerns.

3. An allusion (or multiple allusions) to concepts that have inspired me, particularly (but not necessarily) if they have been discovered during the process
of writing the music. (The allusion could be to anything – poetry, natural phenomena, scientific concepts, unusual words or visual art.)

The one instance of an extra-musical impetus initiating the composition process is the piano concerto Cast. This piece is a response to László Moholy-Nagy’s kinetic sculpture Light-Space Modulator (1922-1930), which suggested such a rich seam of musical analogies and interpretations that I was confident it would be a fruitful starting point.
2 Unfurling

- *Unfurl* (2014) – mixed sextet
- *Uhtceare* (2014) – mixed quartet
- *Uncanny Vale* (2014) – wind quintet

The first three pieces of the portfolio initiate the process of analysing my compositional ideas and methods in order to develop and expand my musical language. Many of the ideas and processes presented within this chapter are embryonic, and due to the largely (though not exclusively) intuitive nature of the writing process in this initial phase, they were often identified as significant in retrospect.

The compositions can be differentiated in terms of their predilection towards certain musical ideas, and their structures reflect this. *Unfurl* is about the permutations of a motif, which results in an episodic, variation form. *Uhtceare* is more concerned with textural exploration, and its two-part structure reflects the extension of textural ideas through harmonic changes, particularly in the extensive six-minute first section. *Uncanny Vale* explores the juxtaposition of episodes and blocks.

Despite these differences, they share many of the key principles that I outlined in the introduction. The pieces all rearrange gestural archetypes in a kaleidoscopic way, helping to create continuity and unity, even when the character of the music tends towards discontinuity and disunity. There are also numerous instances of line/circle or cantus/continuum oppositions in the use of material, either through melody paired with ostinato or varied repetitions.

Finally, the extra-musical references and analogies I use all suggest motion: narrative (*Unfurl*), the transition from night to day (*Uhtceare*), and a journey across an imaginary landscape (*Uncanny Vale*).
2.1 Unfurl (2014)

2.1.1 Methods of Unfurling

**Figure 1: Unfurl, bar 1, main motif (M): loud triplet-semiquaver flourishes (M1) and a quiet, sustained tone (M2)**

This sextet is about unfurling the latent possibilities for development within the initial clarinet gesture. The character of the motif is one of opposition: a quiet sustained tone framed by loud triplet-semiquaver flourishes (see Figure 1, above). It therefore suggests an inherent conflict through its diverging tendencies, and the recurrence of its distinctive shape throughout the piece is a unifying focal point. The development of the music is largely concerned with exploring the gesture as a broadly defined archetype than subjecting it to rigorous motivic manipulation.

The title also refers to the fact that the manner in which the gesture moves usually suggests the idea of unfurling across registral space and across the ensemble. For instance:

1. In the clarinet’s opening solo, the sustained tone (M2) gradually unfurls melodically, and the music until letter E inclusive is essentially a series of solos that move in a similar way.
2. The melodic growth of M2 later turns into the unfurling of staggered chords played by the whole ensemble (bars 85-98).
3. Meanwhile, M1 unfurls into a variety of inter-ensemble gestures throughout the piece.
2.1.2 Taut narratives

I wanted to present the exploration of this motif in the clearest way possible, partly influenced by the following comment on storytelling by Kurt Vonnegut: ‘Every sentence should do one of two things – reveal character or advance the action.’\(^\text{18}\)

Although I do not see this as a ubiquitous principle in my work, at the time of writing *Unfurl* I was interested in how it might apply to a musical situation. This was one of the reasons behind my decision to create the piece from a figure with a distinctive shape – or a ‘character’ – whose movements and permutations would be instantly recognisable when transferred to different musical settings. I wanted it to respond to these settings in varying ways, revealing behaviours in a manner that is analogous to the revelation of facets of a character. Ultimately I hoped that this would result in a short, exciting piece with inexorable momentum, or - to paraphrase Vonnegut - advancing action.

This application of Vonnegut’s advice corresponds with some of the dialectical relationships outlined in the introduction. A plot relies on development, which is related to ‘change’ and ‘motion’. A character, whilst often undergoing change, has consistent traits throughout a narrative. (In this case, I am equating ‘consistent traits’ with the notions of repetition and unity.)

The idea of ‘motion’ needs clarification here. Whilst the overall shape of the piece is determined by an intuitive sense of dramatic pacing, it is nevertheless constructed in a non-teleological and episodic manner. In terms of traditional categories, variation form is most apt to describe *Unfurl*, as it consists of contrasting sections that explore the same theme (see Figure 2). Each of these episodes create a sense of motion within themselves through playful rhythmic and orchestrational games.

These games mainly involve applying processes of change to the M2 element of the principle motif (i.e. the central sustained tone). It expands (see Figure 3), contracts (Figure 4), and unfurls into melodies and chords. Meanwhile, M1 (the triplet-semiquaver flourish) becomes a variety of repeated figures and gestures – it dances around and punctuates permutations of M2.

**Figure 3: Unfurl, M and the culmination of the melodic expansion of M2**

**Figure 4: Unfurl, bars 104-7, rhythmic contraction**
These ways of working with the motif are limited, largely due to stasis in the realm of harmony. Each section in *Unfurl* remains fixed in one harmonic or modal area, ranging from hexatonic modes to total chromaticism (see Figure 5). In order to address this limitation, pitch processes become a key area for exploration of the pieces in chapter 3. A precursor to these more fully developed pitch processes can be found in the ostinato played by pizzicato strings during variation 2. As illustrated in Figure 6, it features the incremental addition of pitch classes as a way of transitioning into total chromaticism.

a)

<table>
<thead>
<tr>
<th>LETTER</th>
<th>-</th>
<th>A</th>
<th>F</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>O</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>SECTION</td>
<td>Exposition</td>
<td>Variation 1</td>
<td>Variation 2</td>
<td>Recapitulation</td>
<td>Variation 3</td>
<td>Reprise of V2</td>
<td>Coda</td>
<td></td>
</tr>
<tr>
<td>MODE</td>
<td>Mode 1</td>
<td>12-tone</td>
<td>Mode 1</td>
<td>Mode 2</td>
<td>Mode 3</td>
<td>12-tone</td>
<td>Mode 3</td>
<td></td>
</tr>
</tbody>
</table>

b)

**Mode 1**

**Mode 2**

**Mode 3**

![Figure 5: a) and b): Unfurl, pitch material](image)

Another important germinal feature is the repeated use of sections that act as reprises, refrains or recapitulations - a unifying feature noted in the introduction. *Unfurl* features just two of these ‘return’ sections, but the idea is elaborated in later pieces.
Figure 6: Unfurl, bars 40-6, increasing chromaticism in pizzicato ostinato

2.2 Uhtceare (2014)

2.2.1 A transitional state

Uhtceare is an Old English word meaning 'anxiety before dawn', which resonates with the nocturnal quality of the music and its nervous, restless energy. The word also suggests motion in the idea of night transitioning to day, and stasis in the cyclical nature of anxious thought cycles. The piece is a kind of nocturne, although I am more interested in the ambiguous state of dawn than the night proper. The harmonic language of Uhtceare reflects the ‘instability’ of this transitional state in its persistent use of ambiguous major/minor triads.

In musical terms, movement comes predominantly from the increasing textural density and rhythmic dynamism that give its two sections an overall crescendo shape. This is aided by the way the changing ways in which individual instrumentalists relate to the ensemble as a whole. The climax of the first section, at
Letter F, shows all the instruments at their most independent, resulting in the most dynamic passage of music in the piece. Prior to this, the ensemble is either led by the solo voices of the flute or cello, or is treated as a fused textural entity. In section 2, the overall crescendo is facilitated by the accumulation of instruments joining the initial solo flute line.

In comparison to *Unfurl*, there is more attention to the use of harmonic change as a way of guiding the linear flow of the music. Gestural archetypes and textures move through changing harmonic fields, each of which are associated with a mode/scale. These modes are intervallically related to the chords built around the singing bowl in the opening, in order to maintain a consistent soundworld throughout the piece. They use pitch collections of minor thirds, major seconds and minor seconds and, as mentioned previously, usually imply one or more major/minor triads (some examples of these are given in Figure 7).

Particular prominence is given to inverted pedal notes in the flute part. These occasionally remain static between chord changes in order to create shifts in perspective (see bars 69-70), but also contribute to the linear trajectory of the music. For instance, section 2 is essentially constructed from a series of rising inverted pedal notes until the expressive cello solo at letter J.

![Figure 7: Uhtceare, major/minor triads within chords and modes](image)

Harmonic rhythm also forms an important part of the linear conception of *Uhtceare*. For instance, in the previously described passage at letter F where instrumentalists are at their most independent, the music is structured around a backbone of double-stopped string chords (see Figure 8) moving at a faster rate of harmonic change than anywhere else in the piece. In this way, it integrates harmonic rhythm with this passage’s narrative function as the dynamic apotheosis of the section.
2.2.2 Recurring gestural archetypes

Finally, this quartet focuses on certain gestural archetypes, much like *Unfurl* used its principle clarinet motif. These repeated shapes rearrange kaleidoscopically throughout and their recurrence unifies the piece. There are three main types of these archetypes:

1. *Swelling patterns*

   - Gentle versions of these open the piece in rhythmic unison, forming different chords with the singing bowl drone. Soon the instruments are given their own individual swelling profiles, which are associated with greater timbral complexity in the form of vibrato of varying types, extreme bow positions, harmonic trills, pitches in extreme registers and unstable harmonics (particularly from letter A onwards). Near the end of the first section, the swelling pattern emerges once again in rhythmic unison, but in the form of a more dramatic gesture than at the beginning. Aggressive swelling figures also punctuate the beginning of section 2, and more fragile 'ghosts' of this idea initiate the coda (see Figure 9).
2. *Morse code-like rhythmic patterns*

- First introduced by the flute near the beginning, these are a particularly prominent feature in the flute lines towards the end of Section 1 and at the start of Section 2.

3. *Descending/ascending figures that fall away from and return to an inverted pedal note*

- These are first heard in the flute in section 1, four bars before letter E. However, they form one of the principal characteristics of section 2, during which they are imbued with more melodic shape and their imitative use by an increasing number of instruments drives the momentum of the music.
Figure 9: Uhtceare, examples of swelling patterns A-D

Figure 10: Uhtceare, first appearance of morse-code rhythmic pattern
2.3 Uncanny Vale (2014)

2.3.1 Imaginary landscapes

The title of this piece refers to the fact that it is bookended by descending and ascending passages, as if the music tumbles down into a vale, traverses a strange, imaginary landscape, and then rises up at its conclusion. It also plays on the phrase ‘uncanny valley’, which describes the disturbing effect of representations of human beings that are almost, but not quite, lifelike. (The valley is the dip in familiarity shown on the graph below.) This concept formed a loose connection to Nielsen’s wind quintet, which my piece was programmed alongside, in the sense that his music is also about representations of people: Nielsen wrote each part to portray the personality of the player. In addition, the association with landscape is an allusion to the pastoral in Nielsen’s music:

Nielsen's fondness of wind instruments is closely related to his love of nature, his fascination for living, breathing things...He was also intensely interested in human character, and in the Wind Quintet composed deliberately for five friends, each
part is cunningly made to suit the individuality of each player.\textsuperscript{19}

![Diagram of the uncanny valley](image)

**Figure 12: the uncanny valley\textsuperscript{20}**

In *Uncanny Vale*, I was interested in exploring the wind quintet’s potential for contrast, switching between modes of lyricism and agility. This premise is introduced at the very beginning, where a tranquil horn solo is interrupted by chaotic cascading scalar patterns. This activity is contained within a ternary form structure which, coupled with the structural repetition of the cascade gesture as a kind of ‘refrain’, is intended to create some cohesion across the piece’s heterogeneous material. The cascades intersperse a variety of episodes, or ‘verses’ with a predominantly melodic focus (see Figure 13).

\textsuperscript{19} Robert Simpson, liner notes to *Nielsen: Music for Wind Instruments*, The Athena Ensemble (Chandos CHAN 8680, 1988), CD.

Figure 13: *Uncanny Vale*, formal outline

Again, the kaleidoscope principle is at work here, with certain key ideas recurring in varying permutations, although the focus on juxtaposition and heterogeneity sets it apart from *Unfurl* and *Uhtceare*. The repertory of gestures can be roughly divided into the following categories:

1. Scalar cascades and ascents  
   - These are key structural gestures, defining the outer edges of the ternary structure and splitting the middle section into three parts.
2. Melody type (1) 
   - Legato, *cantabile* lines that are usually modal and occur at moments of repose (examples can be seen in bar 1, bar 15, letters F-G and U)
3. Melody type (2) 
   - Frenetic and chromatic lines with staccato articulations, often making use of wide interval leaps and acciaccature (e.g. at letter J and P)
4. Drones

<table>
<thead>
<tr>
<th>Section</th>
<th>Letter</th>
<th>Subsection/ Formal function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Descent)</td>
<td>-</td>
<td>Introduction and cascades</td>
</tr>
<tr>
<td>2 (Traverse)</td>
<td>B</td>
<td>Verses</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Refrain (cascades)</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Verses</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Refrain (cascades)</td>
</tr>
<tr>
<td></td>
<td>O</td>
<td>Verses</td>
</tr>
<tr>
<td>3 (Ascent)</td>
<td>X</td>
<td>Recapitulation (inverted cascades)</td>
</tr>
</tbody>
</table>
5. Trochee figures (i.e. a long-short rhythmic pairing), with the shorter duration occasionally being used as isolated ‘stabs’

![Diagram](image)

**Figure 14: Uncanny Vale, example of Melodic Type 1, French horn bars 1-5**

![Diagram](image)

**Figure 15: Uncanny Vale, Example of Melodic Type 2, oboe, bars 102-105**

These kinds of material are placed together in varying combinations, forming two or more layers. The scalar cascades and ascents are usually accompanied by various forms of trochee figure, although they also become accompanimental passagework (see letters C and D), gestural anacruses (to letters P, R and T) and are combined with drones and type-2 melodies at letter W.

The melodic types are combined with accompanimental figures, forming *Hauptstimme* and *Nebenstimme* relationships. The *Nebenstimme* is usually some form of drone, a trochee-like derivation, or an ostinato (which creates a *cantus/continuum* division of roles). There are also instances of counterpoint – simultaneous lines of equal importance, usually comprised of melody type 2. This is mainly two-part (e.g. the flute and oboe at letter I and from P onwards), and is usually joined by one of the accompaniment types. An exceptional case is found in the passage at letter M, where the counterpoint is in five parts, with every instrument except the horn playing variations of melody type 2.
The separation of materials into these categories provides a useful model to
analyse the musical activity of the piece, but it is somewhat artificial. There are many
examples of passages that could be argued to fit within different categories. For
instance, the development introduced into some of the Nebenstimme lines means
that they could be considered to be playing an equal part in a passage of
counterpoint, as demonstrated by the horn solo at letter L.

<table>
<thead>
<tr>
<th>Section</th>
<th>Subsection</th>
<th>Letter</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Descent)</td>
<td>Introduction</td>
<td>-</td>
<td>Melody 1</td>
</tr>
<tr>
<td></td>
<td>Initial cascades</td>
<td>A</td>
<td>Descending cascades underpinned by trochee figures</td>
</tr>
<tr>
<td></td>
<td>Verses</td>
<td>B</td>
<td>Melody 2</td>
</tr>
<tr>
<td></td>
<td>Refrain</td>
<td>E</td>
<td>Descending cascades</td>
</tr>
<tr>
<td></td>
<td>Verses</td>
<td>F</td>
<td>Melody 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H</td>
<td>Melody 2 and counterpoint</td>
</tr>
<tr>
<td></td>
<td>Refrain</td>
<td>N</td>
<td>Descending cascades</td>
</tr>
<tr>
<td>2 (Traverse)</td>
<td></td>
<td>O</td>
<td>Counterpoint (three/two-part)</td>
</tr>
<tr>
<td></td>
<td>Verses</td>
<td>P</td>
<td>Two-part counterpoint</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q</td>
<td>Melody 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R</td>
<td>Two variations of previous two blocks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W</td>
<td>Melody 2</td>
</tr>
<tr>
<td>3 (Ascent)</td>
<td>Recapitulation</td>
<td>X</td>
<td>Inversion of Descent subsection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y</td>
<td>Ascents on tempered harmonic series</td>
</tr>
</tbody>
</table>

Figure 16: Uncanny Vale, material types
The recurrence of material types is intended to create links across the episodic structure. The trochee and stab accompaniment figure, for example, is a particularly prominent thread that links different sections. It underpins the scales at A (bassoon and horn) and recurs in various different guises throughout the piece. It is the starting point for the flute solo at B and is developed as an accompaniment line during Letter H-K inclusive.

1. Underpinning cascades
   \[ \text{\textit{Hn.}} \]
   \[ J = \text{c.}130 \]

2. Rhythmic basis for alto flute solo
   \[ B \]
   \[ J = \text{c.}120 \]

3. Accompaniment line
   \[ \text{\textit{Hn. bin.}} \]
   \[ J = \text{c.}100 \]

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**Figure 17: Uncanny Vale, bars 127-129, melody and accompaniment or two equal layers of counterpoint**

**Figure 18: Uncanny Vale, trochee rhythm examples**
Like the structural repetitions and symmetry, these recurring archetypes are a way of creating unity in music of contrasts and juxtapositions.

### 2.3.2 Harmonic language

The pitch structures of the piece are constructed to emphasise contrast. As a general rule, passages are either totally chromatic or modal, with no attempt to transition from one to the other. Any motion in terms of pitch structure within the episodes is determined not by calculated processes but the intuited logic of melodic lines.

A certain kind of hexatonic mode (Mode A) is a particularly important feature of the piece, and forms the basis for section 1 and the first part of section 2. This mode is inverted for the recapitulation. The ‘tempered harmonic series’ passage that ends the piece is harmonically distinct, moving the music in an unexpected new direction. This is primarily because I think it creates a structurally and sonically intriguing ending, but it also corresponds with the idea of climbing the opposite side of the ‘vale’ and finally seeing the previously obscured landscape beyond.

![Hexatonic Mode A and B](image)

**Figure 19: Uncanny Vale, Hexatonic Mode A and B**

### 2.3.3 Structural motion

Although fully-fledged goal-orientation is not the aim in this piece, a degree of teleological purpose is conveyed after the central cascade refrain (letter O ff.). After this point, sparse ascending figures leading to melody type 2 at letters P, R and T foreshadow the ascent passage. Similar figures become the main focus of the anticipatory passage at letter W, where the ascents increase in density until the ascent passage proper.
Moreover, a pre-planned pitch process guides the accumulation of tension at letter W. The melodic line that passes from instrument to instrument weaves chromatically within the limited space of a perfect fourth, but as each instrument takes up this material, the fourth is transposed a semitone higher. This rather simple method of creating directionality in a line by moving it through changing pitch pools is developed in later pieces.

![Pitch pool](image)

**Figure 20: Uncanny Vale, melodies moving through pitch pools**

The process of alternating blocks that begins at Letter P demonstrates another form of structural motion across episodes. The main feature of the ‘Block A’ material is an effervescent duet between flute and oboe (and on the third repetition, alto flute and cor anglais), which is different on each appearance but always has a similar character in terms of register, articulation, intervalllic content and rhythmic shape. A drone and a fixed ostinato pattern also accompany this material. In contrast, ‘Block B’ is much more tranquil and consists of a legato cantabile line against a pedal note. The passages are alternated three times, with the effervescent music shrinking on each recurrence and the tranquil passage expanding (see Figure 21).

This creates a dissipation of energy in the passage, and illustrates how a linear process can inject contrasting, discontinuous episodes with a logical structural function. In addition, this is the first instance of the mosaic approach to musical construction in the portfolio.
Figure 21: *Uncanny Vale*, expansions and contractions from Letters P to U inclusive
3 Identifying and developing patterns

- *Cast* (2016) – piano soloist and nine players
- *Locks of the Approaching Storm* (2016) – mixed octet
- *Monologues & Dialogues* (2017) – bass clarinet and piano

The process of writing the initial three pieces was weighted towards intuitive decision-making. In these four, I was interested in analysing my intuitive predilections and developing them using a variety of constructive processes. In doing so, I wanted to expand my palette of musical colours and create more sophisticated structures.

Almost all of the musical ideas here were conceived with their timbral/instrumental context in mind, and so the application of constructive processes in terms of abstract pitch and rhythmic relationships often first required the deconstruction of a written passage of music in order to greater understand its individual components. A feedback loop was set up between working with the music in both its realised and dissected form, and this helped reveal possibilities for variation and development.

Key features from the previous three compositions are explored with greater rigour in these pieces. For instance, the combination of dodecaphony and modality is more carefully controlled. The use of varied repetition is far more sophisticated, particularly in the processes of change applied to blocks of material in mosaic constructions. There is a further exploration of timbral fusion in the form of a wide variety of unisons, parallel motions and heterophonies. Meanwhile, stratification is more closely examined within its structural context. The combination and nature of

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21 In other cases, the realised and the abstract were developed hand-in-hand, as in the right-hand of the piano and its ‘shadows’ in Kinetic Play 1 of *Cast*. 

43
different strata largely determines the motion/stasis of passages, and therefore plays a large part in how they are heard within the overall form.

The music of this chapter also introduces the idea of transition as an agent of continuity. This is often achieved by foreshadowing musical ideas in germinal fragments before their appearance proper. For instance, Ropes of Maui prepares the passacaglia material of section 2 within section 1. In Monologues & Dialogues, material from section 2 and 3 has precursors in the preceding sections. In Cast the transition from atmospheric opening to energetic perpetuum mobile involves the alternation of the two different kinds of musical activity. Moreover, Locks of the Approaching Storm and Monologues & Dialogues both use metric modulation to transition between episodes and sections.

In addition, the following analyses reveal a process of development and a re-synthesis of ideas throughout the four works. The final piece of the group, Monologues & Dialogues, illustrates this particularly clearly as it integrates the multi-sectional structure of Locks of the Approaching Storm with the varying block interactions of Ropes of Maui and Cast in order to create structural motion and continuity. The duet also represents the fullest exploration of fusion and stratification.

Another feature that becomes increasingly prominent throughout these pieces is line. By the end of the collection it is established as the centre of the compositional process, acting as the backbone for a multitude of possible timbral, textural, harmonic, gestural and melodic embellishments.

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22 The sporadic ascents throughout the second half of Uncanny Vale that prefigure the final ascent passage were the first glimpse of this device.
3.1 Ropes of Maui (2015)

3.1.1 The concept and its inherent oppositions

Ropes of Maui is a synonym for crepuscular rays or sunbeams – the vertical columns of light that stream through gaps in dark clouds at dawn and dusk. A key feature of the phrase and its etymology is that it contains a number of oppositions. The first opposition is that of light and dark, which manifests itself in the music in a variety of ways:

1. The bright bell-like sonorities of the metallic percussion, harp, piano, and celesta\textsuperscript{24} cut through dense and dissonant clusters or 'clouds' high up in the

string section (occasionally joined by a rapid descending figure – a ray falling to earth).

2. Similarly, the brass instruments are treated as another 'bright' sonority that cuts through textures. In the first section of the piece, descending cascades accompany these intrusions.

3. Sub-harmonies within denser ('dark') harmonic areas are revealed through swells and more bell-like chimes (for instance, eight-note chords within twelve-note chords, and further subdivisions thereof).

The phrase originates from a Maori story about the mythological character Maui, who restrains the sun with ropes to make the days longer. There is another opposition within this story: a conflict between the terrestrial and the celestial. To reflect this, a musical conflict exists in the piece between the treble and bass register. It is in two main sections, and the atmospheric first section mainly operates within the middle-to-high registers of the orchestra, with occasional but increasingly frequent bass intrusions. These intrusions are an important formal conceit, as in the second part they form the basis of a circling twelve-tone isorhythmic bass line. In this way, they form a point of continuity between the sections (see Figure 23). Moreover, the increasing activity of the bass register in section 1 and at the beginning of section 2 is part of a loose goal-directed process that results in the *moto perpetuo* of semiquavers at Letter N (see Figure 24).

The two ways of looking at the phrase are interesting in the way they oppose and complement each other. The origin of the word is based on narrative, and the musical application of this idea is the basis for the elements of continuity and development in the piece. The natural phenomenon itself is reflected in more musically static situations in which the high ‘clouds’ of string harmonies remain motionless throughout passages. In short, they present an opposition between stasis and motion.

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24 These instruments are frequently used together throughout the piece, and will be referred to as ‘bells’ from hereon in for the sake of brevity.
Figure 23: Ropes of Maui, bass lines using same 12-note row

<table>
<thead>
<tr>
<th>Section</th>
<th>Letter</th>
<th>Materials</th>
<th>Bass register</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>A</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Swell leading to bell chord</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Threefold repetition of three blocks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I</td>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>J</td>
<td>1.3</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>2)</td>
<td>L</td>
<td>Passacaglia</td>
<td>Ostinato contracts</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Ostinato settles</td>
<td>Continuous semiquavers</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>Ascents and melodic descents</td>
<td></td>
</tr>
</tbody>
</table>

Figure 24: Ropes of Maui, teleology of bass register material
A final musical application of the Maori story involves the structural use of ascending and descending gestures, which add a representational, programmatic touch to the idea of throwing ropes around the sun. The first of these gestures is fairly modest, but at the divide between section 1 and 2, it is expanded into a much more dramatic intervention that extends long into the second part (bars 84-105). It also ends the piece, although the descent element is given a new melodic dimension. The gesture is intended as a series of pillars, or perhaps refrains, that confer order across the structure of the music.

1. First 'rope throw'  
\[ J = 90 \]

\[ \text{Picc.} \]

\[ \text{Woodwind} \]

2. Final 'rope throw' with melodic descent  
\[ J = 80 \]

\[ \text{Fl., ob., vln.} \]

\[ \text{ Strings} \]

![Figure 25: Ropes of Maui, first and last 'rope-throwing' gestures](image)

### 3.1.2 Varied repetitions

*Ropes of Maui* uses a variety of local and structural repetitions that are varied on each recurrence. These occur in previous pieces in rather informal ways, but here there is a more rigorous approach. Section 1 is comprised of three repetitions of a succession of three blocks, or a threefold repetition nested in a threefold repetition (see Figure 24). Each subsection within this passage is changed, expanded and/or elaborated.
The subsections are based on three related chords. The first is the ‘chord of resonance’, named by Olivier Messiaen in *The Technique of my Musical Language*, and is essentially a tempered version of the most prominent partials above a low C. The other two are related inversions. The chords are linked to different transpositions of an eight-note row and the third mode of limited transpositions.

![Chord of resonance](image1)

![Chord of resonance B](image2)

![Chord of resonance C](image3)

**Figure 26: Ropes of Maui, pitch material in Section 1**

The blocks of material and the way they are varied can be summarised as follows:

**Block 1:** The bells present an eight-note row, cutting through a dense twelve-note string chord comprised of the tempered overtone series (or one of its inversions) in the same register as the bells, together with the four-note complement. This gesture always ends with a descending glissando that initiates the cascades of the next gesture. On the second appearance the bell chimes are answered by four notes in the bass that complete a twelve-note set; on the third, the bass responses form an independent ten-note row that closely resembles the passacaglia material.

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Block 2: A swelling brass chord (using sub-harmonies within the corresponding eight-note chord) is echoed by swells in the woodwind (the latter also marked by the bells). These chords become denser on each appearance. Meanwhile, the woodwind and strings play descending cascades and/or glissandi, linking the treble register to the bass register. These use the mode of limited transpositions, and descend a little further on each appearance.

Block 3: A downward arpeggio leads to a staggered cluster on the third mode of limited transpositions, and a loud bass interjection initiates a rapid
scalar ascent. This expands a little on second appearance, and then much more so on the third, where it forms the transition passage.

A more localised type of repetition is introduced in section 2, in the form of its ostinato bass line. In this way, the section provides a completely different perspective on the line and the circle. Whilst section 1 is about a thread of change and motion running through large-scale structural repetition, this is rooted in the opposition of melody and ostinato.

The ostinato is based on two repeating eight-beat isorhythmic patterns (see Figure 29). One of these is overlapped with a twelve-note row and shared between the cellos and basses (amongst other instruments), the other is overlapped with five repeating pitches (played by the violas, bassoons and marimba). Before the 'prime form' appears, the ostinato is introduced at letter L, where it is thirteen crotchets long and incrementally compresses as it approaches letter O. This rhythmic compression is an extension of the increasing density of bass attacks in the first section.
During the ostinato’s compression phase in section 2, the bells carry on ringing in various permutations of the eight-note row, whilst piccolo, clarinet, oboe and solo violin play flourishes in between these chimes (see Figure 30). This is the line that complements the circling ostinato. Once the bass pattern locks into its eight-beat cycle at letter O, the brass uses the row to build chords with staggered entries whilst the slow-moving high violin melody picks out the four-note complements.
Figure 30: Ropes of Maui, solos structured around 8-note-row-based bell chimes

3.2 Cast (2016)

3.2.1 Extra-musical beginnings

Cast is the only piece in this portfolio that was composed with an extra-musical starting point: László Moholy-Nagy’s *Light-Space Modulator* (1922-1930), also known as *Light Prop for an Electric Stage*. This is a moving sculpture made of metal and glass that rotates on a disc whilst various components move in mysterious ‘kinetic plays’: three bars rock ‘on an endless path’, ‘a glass spiral describes a conical path’, ‘a small ball flips between [two discs] in a loop’. In a darkened room, an arrangement of colourful lights illuminate these movements on the wall behind the sculpture, its shifting perforated, translucent, and transparent surfaces creating hypnotic displays of colour and shadow.

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In the piece, the solo piano part is treated as the analogue of this mechanical sculpture: it is surrounded by the ‘walls’ of the ensemble onto which it projects its shapes and movements. Meanwhile, variations of cyclical patterns mirror the ‘kinetic play’ of rotating objects.

The word ‘cast’ was chosen as the title because of its multivalence – it points in multiple different directions. For instance, it refers to the piano ‘casting’ its music onto the ensemble, but also represents a broader metaphor for the casting of Moholy-Nagy’s influence into my work. In addition, it is a nod to the functional way that constructivist works of visual art are titled. Moholy-Nagy himself, an artist closely associated with constructivism, used titles such as Construction, Photogram, and Composition. Cast does not seem out of place amongst this list of names – it could conceivably be the title of a cast metal sculpture. This is also the first and only composition of the portfolio that features the spatialisation of instrumentalists. Whilst

---


28 Interestingly, Moholy-Nagy also saw the sculpture as a catalyst for new work of his own and used it to make his film Light Display, Black and White and Gray (1930), about which he commented: ‘the reflection is more powerful than the original’. László Moholy-Nagy quoted in Sybil Moholy-Nagy, Experiment in Totality, 2nd ed. (Cambridge, Mass.: MIT, 1969), 64.
not a music theatre piece, there is a degree of theatricality in treating the instrumentalists as a cast who can move around the performance space.

3.2.2 Shadows and rotations

Almost everything the ensemble does is some kind of shadow of the piano's material. The most 'temporally faithful' musical analogy for the object-shadow relationship involves the 'shadowing' materials occurring in rhythmic unison with the 'object', and there are many instances of unisons, heterophonies and parallel organum throughout the piece that work on this principle. This approach allowed me to pursue my interest in using instruments in fused states.

However, I also wanted the 'shadows' to be temporally displaced in the form of echoes, canons and sustained resonances that linger after the piano has disappeared. In addition, the 'surfaces' that the piano's shadows are cast upon vary spatially (according to where instruments are positioned) and timbrally (according to how changing instrumental subgroupings relate to the piano – see Figure 32).

The rotating ‘kinetic plays’ of the sculpture bear a close resemblance to the varied repetition that is an integral part of my music as a whole. However, Cast demonstrates a particularly strong focus on this device. Rotation is treated as both a temporal and spatial phenomenon. Temporally, the surface of the music is treated as a fixed point on the sculpture, with three blocks of music or 'kinetic plays' presenting themselves in turn as the sculpture 'rotates' (see section 3). This process represents the most sophisticated manifestation of the mosaic principle in the portfolio so far. The spatial rotation occurs in section 1.2, where the piano's ideas are passed around the three off-stage ensemble groups in a clockwise direction.
3.2.3 Materials and processes

One of the aims of the pieces within this chapter was to be more rigorous in the processes applied to materials and the organisation of structure. In Cast, this approach is integrated with the conceptual notions of shadow and rotation.

In the section 1.1, the ensemble’s shadowing role takes the form of a resonating chamber, sustaining the harmonic fields created by the piano and imitating its sporadic flurries of notes that ‘ripple’ the surface of these harmonies. Although largely static, a subtle sense of movement is created by the changing of harmonic fields. The way the harmonies are articulated gives particular prominence to two similar three-note pitch collections: the interval of a major third with a semitone either below the upper or above the lower pitch in the interval (often presented as

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### Table: Forms of motion and Ensemble Subgroups

<table>
<thead>
<tr>
<th>Section</th>
<th>Letter ff.</th>
<th>Forms of motion</th>
<th>Ensemble Subgroups</th>
<th>Ensemble Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Slow, spacious introduction</td>
<td>Changing harmonic fields</td>
<td>Whole ensemble</td>
<td>1: Spatially arranged</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Spatial rotation</td>
<td>Three groups, defined by position</td>
<td></td>
</tr>
<tr>
<td>2)</td>
<td>Transition</td>
<td>Superimposition and alternation of textural trills and moto perpetuo</td>
<td>Two groups: offstage/onstage</td>
<td>1-2: Moving to stage</td>
</tr>
<tr>
<td>3)</td>
<td>Fast, rhythmically-propulsive perpetuum mobile</td>
<td>Temporal rotation</td>
<td>1. Woodwind and Vln. I (paired with pf.’s right hand) 2. Percussion and remaining strings (with pf.’s left hand)</td>
<td>2: All onstage</td>
</tr>
<tr>
<td>4)</td>
<td>Cadenza</td>
<td>Soloist/ensemble alternation</td>
<td>Whole ensemble</td>
<td>2: All onstage</td>
</tr>
</tbody>
</table>

**Figure 32: Cast, formal outline**
an acciaccatura figure). This intervallic consistency creates a unified soundworld across chord changes.

**Figure 33: Cast, harmonies in Section 1a**

During the ‘spatial rotation’ in Section 1.2, the three repeating objects are:

1. A swelling bisbigliando
2. A jagged staccato ostinato pattern in parallel intervals
3. A high-pitched two-part counterpoint

These move clockwise around the instrumental subgroups. Whilst this is a static and cyclical process, the two-part counterpoint ‘object’ provides a linear way out.

When the offstage musicians begin to move to their second positions in section 2, the music simultaneously transitions. The haze of trills played by the offstage
instruments is an echo of the loud piano tremolando that ends the previous section and continues to occur intermittently throughout section 2. At the same time, the close relationship between the piano and the onstage instruments (cello, double bass, percussion), particularly the short perpetual motion passages that occur from bar 77, foreshadows the character of the music of section 3. In this way, this passage helps bridge the stasis of the previous section to the motion of the subsequent one, creating a degree of continuity between the two contrasting kinds of music.

In section 3, the 'temporal rotation', there are three 'kinetic plays' that vary on each occurrence. The first is a melodic line above a perpetuum mobile bass line; the second consists of alternating right- and left-hand chords (also accompanied by the mechanical ticking of string pizzicato cross-rhythms and glockenspiel); the third is an accelerating rhythm leading to a disjointed line.

![Figure 34: Cast, piano, kinetic play 1 (first appearance, bar 119)](image-url)
As in Ropes of Maui, there is a linear process of change that moves through these repetitions. Kinetic Play 3, for instance, is expanded into a much more substantial passage starting in bar 165, where the accelerating figure is playfully passed from instrument to instrument (see Figure 37). However, it is the alterations to Kinetic Play 1 that really gives this section its forward momentum, and has the most rigorous processes of change applied to it.
Figure 37: (a) Cast, breakdown of Section 3; (b) Kinetic Plays and their corresponding lengths

As shown in Figure 37, there is not much of variation in the length of the ‘Kinetic Play 1’ passage on each appearance. The most significant change is in the realm of
pitch in the piano’s right-hand melody. The pitch pool from which the notes of the melody are drawn becomes increasingly dense, which aids in the line becoming more active as it tries to cover a greater expanse of pitch material in the same amount of time. In Kinetic Play 1.1, the melody is spacious and slow-moving, hovering above the rapid bass line, mainly using rhythmic units of between a crotchet and a minim, whereas in 1.4 the line is very frenetic, using units of triplet semiquavers to (regular) quavers. The addition of pitches also results in the melody transitioning from a hexatonic mode, through octatonicism to a complete chromatic set (see Figure 38).

This right-hand line is consistently heard resonating as sustained pitches played by the piccolo, violin I, oboe and clarinet, all of which play within their own defined space of the piano’s pitch pool. This means that their pitch pools increase alongside the piano’s by one pitch each time, reflecting the four new pitches of the piano line. Their activity also increases, and they develop into four independent-sounding melodies in Kinetic Play 1.4.

\[\text{Figure 38: Cast, pitch pools for piano’s right-hand line during Kinetic Play 1, including how the pitches are divided between the ensemble instruments}\]

This pattern of relationships between the piano's right hand and the ensemble is broken at the beginning of Rotation 3, where a fully orchestrated version of Kinetic Play 1.3 is preceded by a version for just piccolo and piano. The passage is
something of an oddity in the piece, as it is the only place that uses canon to
represent the object-shadow relationship. The canon is rhythmically inexact, but
consistently plays a perfect fourth above the pitches of prime statement. It somewhat
breaks the pattern of the 'rotations', but made intuitive musical sense in terms of the
pacing of the section. In this case, I did not want the system to restrict such decisions.

Figure 39: Cast, canon at the perfect fourth, piccolo and piano, Letter V

Whilst the right hand undergoes the above processes, the bass ostinato is
constructed from a descending scalar figure comprised of minor seconds and major
thirds, liberally shifting the octave at which the scale is being played. It
predominantly moves in semiquavers, except for the occasional quintuplet
semiquaver and triplet quaver. It also pauses for a semiquaver when a pitch from the
right-hand melody line is articulated. So for the sparser melody in Kinetic Play 1.1,
the bass line is almost continuous, but in Kinetic Play 1.4 where the melody is very
dynamic, it is fragmented into percussive 'stabs', often doubled at the octave.

Figure 40: Cast, scale used for piano's bass ostinato (the first twelve notes use
all twelve pitches)

A relationship is established between this bass line and the marimba, violin II,
viola, cello and double bass, although not until the duet between the piano and
piccolo in Rotation 3. These instruments vary between playing in unison and in parallel motion with select parts of the piano's bass line and echoing it in short fragments. During Kinetic Play 1.4, the relationship is more contrapuntal, as the pizzicato and marimba line weaves around the piano’s left-hand stabs.

The treatment of Kinetic Play 1 transforms a melody with a cyclical accompaniment – a familiar idea in this portfolio – into something more gestural and disjointed through a simple collection of rules. This is a prime example of how constructive processes can move established elements of one’s musical language into new territories where they may not have gone through intuition alone.

Finally, during the cadenza, the relationship between piano and ensemble is constructed in a way that is very similar to the right-hand piano music in the previous section but with the following changes:

1. The resonances of the piano are played as an echo after the piano line is finished, rather than in unison.
2. This echo is approximately half the speed of the piano’s line.
3. The line stretches across the whole ensemble, rather than just the top four instruments.

Figure 41: Cast, cadenza line and ensemble response (reduction of bars 199-210)

The cadential passage is a loose link to the traditional ending of the first movement of a concerto. However, this cadenza provides a sedate and
contemplative respite to the preceding intensity of activity, which contrasts to the
dramatic flourish of a traditional cadenza. Perhaps what brings the piece closer to a
concerto proper is the frequent shifting of the relationship between soloist and
ensemble, or the individual and the collective. At times the piano is clearly the soloist
in Cast, but there are other instances where it is an equal part of the ensemble or
dwarfed by the shadows it creates. Furthermore, the opposition between the
individual and the collective can be seen as another manifestation of the unity-
disunity dialectic that pervades all of the music in this portfolio.

3.3 Locks of the Approaching Storm (2016)

3.3.1 Introduction

... there are spread
On the blue surface of thine aëry surge,
Like the bright hair uplifted from the head
Of some fierce Maenad, even from the dim verge
Of the horizon to the zenith's height,
The locks of the approaching storm ...

- Percy Bysshe Shelley

The title of this piece is an evocative phrase taken from Percy Bysshe Shelley's *Ode
to the West Wind*. Shelley's 'locks' are a metaphor for the clouds heralding an
oncoming storm, but the word is also relevant to the music due to the way in which
turbulence is generated through the interaction of interlocking patterns.

29 Percy Bysshe Shelley, 'Ode to the West Wind', in *The Complete Poems of Percy Bysshe
The piece eschews the use of contrasting blocks and structural repetitions in favour of four distinct sections. The degree of linearity and cyclicity in the construction of the material is closely integrated with the function of the section within the dramatic arch of the piece. Section 1 and 4 mainly dwell on repetitions within fixed pitch spaces, acting as symmetrical points of stasis. Section 2 is about a directional line set against cyclical ostinatos, creating motion towards section 3. The focus on line in both strata of the third section imbues it with heightened activity, which is further increased when the counterpoint splits from two-part to three-part. This enables the section to function as the apotheosis of the piece.

<table>
<thead>
<tr>
<th>Section</th>
<th>Letter</th>
<th>Strata</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>One repeated structural line</td>
</tr>
<tr>
<td>2</td>
<td>D-G</td>
<td>One line and two ostinatos</td>
</tr>
<tr>
<td>3</td>
<td>I</td>
<td>Two-part counterpoint</td>
</tr>
<tr>
<td></td>
<td>J-K</td>
<td>Three-part counterpoint</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>Two lines and a drone</td>
</tr>
<tr>
<td>4</td>
<td>N</td>
<td>Two ostinatos</td>
</tr>
</tbody>
</table>

Figure 42: Locks of the Approaching Storm, organisation of strata

### 3.3.2 Varying circles

As in many of the pieces in this portfolio, the repeated patterns often have an inbuilt rhythmic irregularity. The ostinato patterns at letter E (clarinet and violin) and N (clarinet and double bass) demonstrate an informal use of this principle, but the passage at letter C shows a more systematic approach. Here, a single line provides a backbone around which the overall texture is built, and to which a process of gradual expansion is applied (see Figure 43).
There are a number of processes to highlight in relation to this line:

1. The contraction of the rhythmic values that begin the ascending gesture, giving it the impression of speeding up. (The rhythmic values are in brackets in the above diagram. The rate of change is not entirely consistent but the general trajectory is clear.)
2. The addition of a new pitch at the end of the ascending line on each repetition, gradually revealing a seven-note row;
3. The rhythmic expansion of the penultimate pitch of each statement;
4. The overall expansion of the gesture (due to points 2 and 3), which allows more activity to develop in the textural elaborations of the line;
5. The final tritone ‘punctuation mark’ remains a fixed length until the final statement. The tritone to G 'resolution' that marks each repeat of the pattern sounds almost like a perfect cadence, as if the A and E-flat belong to a
dominant 7th chord with a minor 9th. This rhythmically regular harmonic resolution is delayed at the very end by the longer note duration.

3.3.3 Circles against a line

Despite these processes of variation, the passage described above is a moment of relative stasis within the piece. More movement is introduced in section 2. Here, two ostinatos repeat in rhythmically altered variations but stay within the same pitch space. Accompanying this is a line of sustained string tones (usually presented as staggered chords) based on the third mode of limited transpositions. These figures create a transition from the cello solo at E to the dramatic string gestures at H. A number of processes help to achieve this teleological function:

1. The line gradually ascends
2. Entries of the line begin to overlap creating harmonic progress and increasing harmonic density
3. The line (and the quintuplet figures that gather around it) progressively dominates the texture
4. The quintuplets increasingly push against the regular pulse set up by the semiquavers of the ostinatos, and their growing prevalence drives the music forward into a metric modulation
5. The relative fixity of the ostinatos highlights the progress of this linear aspect
As well as the largely stratified principles outlined above, my interest in fusion also manifests itself in this piece. Much of the piece is concerned with presenting musical lines in the most timbrally interesting ways I could find. The opening gesture, for instance, is a single ascending line that is played in full by the vibraphone, embellished with faster chromatic figures and glissandi in the strings, and played in various heterophonic versions by the wind instruments. At letter C the tuned percussion resonances are sustained as chords by the ensemble, which become texturally ‘warped’. A particularly distinctive example is at letter D, where the double bass and alto flute play in unison in very high and low parts of their respective
registers, with additional accents from the French horn and pizzicato strings. This creates a synthesised single instrument, where the attack is defined by the strained high pitches of the bass and the sustain is defined by the breathy flutter-tongued alto flute. The French horn creates a 'stereo delay' effect at the beginning of each phrase.

![Musical notation](image)

**Figure 45: Locks of the Approaching Storm, bars 35-40, composite instrument created through unisons**

I was also interested in using different kinds of parallel motion to emphasise lines. Whilst these are often consistent parallel intervals such as the minor ninths played by the violin and clarinet at letter E, or the perfect fourths in the clarinet and bass at N, there are some more varied intervallic relationships in the upper line at J. Here the distance between the piccolo and viola varies between perfect fourths, augmented fourths and perfect fifths, whilst the violin creates a middle layer by playing at a semitone removed from the piccolo and the viola alternately.
3.4 Monologues & Dialogues (2017)

3.4.1 Fusion, stratification, and continuity

Monologues & Dialogues is a further exploration of different kinds of monody. Both instruments often form part of the same line: they play in unison and heterophony (e.g. during most of section 2 and 4); in octaves and overtones (see the clarinet’s spectral multiphonics at letter P); and as rhythmically interlocking parts of a line (e.g. the semiquaver perpetuum mobile at letter L). Dialogue, conflict and counterpoint between two separate entities are devices that accentuate the most dramatic moments of the piece.

Structural continuity between the four contrasting sections is another key concern. Brief glimpses of ideas foreshadow material that is fully stated later in the piece, thus creating links between sections and subsections (see Figure 46). In the first section, these foreshadowing moments are presented as short blocks that alternate with the principle material of the section, thereby using the mosaic principle as a way of creating inter-sectional continuity. As well as foreshadowing, the piece harks back to previously exposed material: the final section is a kind of reprise, its use of plucked piano strings and clarinet multiphonics recalling those of the second section.

Tempo and rhythm are another agent of continuity. The piece is essentially in two tempos that are related by the ratio of 3:4 (i.e. the second tempo is one third faster, although expressed in double speed in section 3). Accelerating and decelerating rhythms are formal markers at the junctures between each section of the piece. The accelerations are twice paired with metric modulations: the first is very brief (see letter E) and acts as a harbinger of the more important modulation leading into section 3 (starting at letter K). These transitional processes are intended to ‘soften the edges’ between sections (see Figure 46).

Another formal marker that was scrapped in the final version of the piece involved preparing the bass clarinet with a piece of laminated paper over the bell, which would be removed at the end of the first section. On some bass clarinets, this
distorts and subdues the low B-flat, which means that the arrival of the unprepared B-flat in section 3 would sound very different to that of the opening. This would have created a situation in which a structural arch is completed but with the return marked by a timbral change of perspective. Whilst this is an interesting teleological conceit in theory, the preparation technique was not successful on the clarinet model used by the performer with whom I was working.

<table>
<thead>
<tr>
<th>Section</th>
<th>Letter ff.</th>
<th>Materials</th>
<th>Tempo/ Rhythm</th>
<th>Intersectional Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>- Ascents from low B&lt;sub&gt;b&lt;/sub&gt;</td>
<td>♩ = 50</td>
<td>- Accels.</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td></td>
<td>♩ = 67</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 2       | F          | - Pointilistic texture moving through changing harmonic fields | ♩ = 50 | - Accels. into 
             | G          | - Accels, and decels. | ♩ = \text{\textfrac{3}{4}} | - High clarinet glissandi and pizz. piano |
|         | H          |           | (= ♩ in Section 3) |                     |
|         | I          |           |               |                     |
|         | J          |           |               |                     |
| 3       | K          | - Perpetual motions | ♩ = 134 | - Accels. against steady semiquavers |
|         | O          |           |               | - Ascending clarinet scale paired with corresponding piano attack |
|         | W          | - Bass clarinet accel. | - Piano decel. |                     |
| 4       | AA         | - Bass melody with multiphonic harmonies | ♩ = 50 | - Accels. and decels. |
|         |            |           |               | - Reprise of Section 2 textures (pizz. piano and multiphonics) |

Figure 46: Monologues & Dialogues - transition, continuity and unity across sections and subsections
3.4.2 Structural narrative and material processes

Section 1 presents three attempts to ascend from the lowest B-flats on both instruments to the A that begins section 2. The first two of these ascents ‘land’ on blocks of material that prefigure the distinctive textural features of section 2. High bass clarinet tones using lots of vibrato and glissandos are paired with unison piano pitches, often plucked inside the piano. As with similar alternations in previous pieces, the repetitions vary. In this case they expand, with the ascents becoming increasingly active. The expansion of the ‘landing points’ enables section 2 to be perceived as the telos of this process. In other words, the music that was an accessory to the principle material of section 1 expands to become the substance of the next section.

Section 2 is about the instruments trying to achieve a state of fusion. It is comprised of the heterophonic textural embellishment of a line. Nevertheless, it was also constructed in terms of harmonic potential. The piano creates a pointillistic texture that moves through a succession of harmonic fields, with the sustain pedal creating a wash of sound. Meanwhile, the clarinet picks out tones within these harmonies, acting as an extension of the resonance by exploiting techniques that elude the piano – sustain, glissando and vibrato.

![Figure 47: Monologues & Dialogues, harmonic fields in section 2](image)

Section 3 also operates within harmonic fields. The music oscillates between two of these: one is associated with continuous semiquaver movement, mainly in the piano part but complemented by interlocking clarinet attacks; the other is associated with stasis and an ascending, accelerating scalar anacrusis leading back to the first
field. As in the previous section, these fields feature chiming octaves, but differ in that there are many more pitches that move freely between octaves in the perpetuum mobile:

![Diagram of Perpetual Motion and Stasis](image_url)

**Figure 48: Monologues & Dialogues, pitch materials in section 3.1**

The perpetuum mobile music disintegrates from bar 111 onward, and the high E-flat octaves announce the next part of the section at letter O. The fact that the piano octaves and the clarinet’s scalar figure are now the substance of the passage, rather than the accessory, is another manifestation of the process that connects sections 1 and 2. This is the most dynamic music of the piece, with the instruments at their most contrasting, and can therefore be considered as the opposition to the fused and static nature of section 2.

The bass line of this climactic section – both the doubled melody and the accents that mark the beginning of each bass clarinet scale – weaves through descending pitch pools to land on the low B-flat in bar 175, completing the arch of the piece. The difference between foreground and background usage of a line is demonstrated particularly clearly here, as the bass line alternates between a prominent melodic role and a more accessorial role (see Figure 49).
Figure 49: Monologues & Dialogues, bass line moving through a descending series of pitch pools
4 New Forms

- Betelgeuse Astral Funicular (2017) – sixteen players
- Three Movements (2017) – string quartet

To progress from the developments noted in the previous chapter, I decided to change the way I approached form to see how this would affect the moment-to-moment development of material. These final two pieces are concerned with creating shorter forms. Betelgeuse Astral Funicular is four-and-a-half minutes in length and Three Movements for String Quartet is comprised of three two-to-four minute movements. The necessity of completing a musical argument within a short space of time creates more focus in these final two works.

These compositions summarise many of the concerns of previous pieces whilst presenting them with greater clarity. For instance, the string quartet uses single structural lines that complete very specific teleological processes as the basis for its first two movements (one a directional glissando, the other a repeating row). These form backbones that extend through the length of each movement, allowing a concentrated musical discourse to be constructed around them. The second movement does this in an arguably more successful way, with the first functioning more as an experimental tangent into a completely textural domain. In addition, the third movement synthesises the juxtaposition of contrasting and varying blocks with motivic and harmonic development, presenting a new perspective on how motion can operate within my musical language.

Betelgeuse Astral Funicular combines numerous familiar ideas, including contrasting episodes, lines paired with circles, lines coloured with unisons and parallel intervals, ascents and descents as structural markers, expansions and contractions, harmonic fields, and bell-like chimes. However, it expresses these with greater precision and the diverse materials are unified within an overarching teleology.
4.1 Betelgeuse Astral Funicular (2017)

4.1.1 Starting points

The first material to be composed for *Betelgeuse Astral Funicular* was a melodic line played by the flute (and canonically echoed by crotales) coupled with a staggered scalar gesture in steady semiquavers orchestrated across the ensemble. The scalar figure is built from an eleven-note row and uses a familiar process of rhythmic contraction. The top note of each scalar run forms a second more important layer: an accelerating scalar line. The flute melody is freer and structured around a series of pitch centres, the first being G-flat (i.e. the pitch omitted from the 11-note row).

There are three phrases of this material, which also contract in length, and these are separated by dramatic upward flourishes, led by the French horn's harmonic glissandos. Each phrase is paired with a descending glissando played by the clarinet.

![Figure 50: Betelgeuse Astral Funicular, first phrase of flute melody with accompaniment, including 11-note row](image-url)
The second idea was a more lyrical oboe melody, again paired with a layer of accompaniment and harmonic glissandi (this time from the French horn, bass clarinet and strings) as formal markers. The accompaniment idea in this case is a bell-like chime that repeats and fades away.
4.1.2 Constructing a teleology in reverse

The rest of the process of composition involved linking these two passages and then composing backwards from this point, the oboe melody passage becoming the final section of the piece. Linking the above two ideas is a passage of slow ascending arpeggios, led by harp harmonics, which echoes the previous scalar movements. The descending clarinet glissando is continued by the cello and double bass, slowly moving into an as yet unexplored realm of the bass register. The end of this glissando is marked by the contrabassoon’s low C, which initiates the next section.

Composing backwards from this point involved constructing a series of episodes that act as precursors to the primary two ideas. The accelerating ascending scalar figure idea is given three ‘false starts’, using different transpositions of the 11-note row (see the A sections in Figure 53). The first opens the piece as a grandiose rhetorical gesture and the third ‘evaporates’ away rapidly, with the second acting as a middle ground. The first two lead to different versions of the fading bell-like chime, pre-empting that which accompanies the oboe melody. They are also followed by passages that resemble the ‘echo’ passage built around the harp solo (B sections in Figure 53).

Another significant part of the architectural shape is a series of ‘arches’ that eventually lead to the contrabassoon’s low C. Each ascent leads to a slow-moving descent in the form of glissandos, creating an undulating structure to the piece that finally roots itself on one of the lowest pitches of the orchestra in bar 63. This moment represents the telos of the piece.
**SECTION** | A | B | A1 | B1 | A2 | A3 | B2 | C | CODA
--- | --- | --- | --- | --- | --- | --- | --- | --- | ---
Bar ff. | 1 | 11 | 22 | 28 | 36 | 39 | 54 | 63 | 77
**A** (ascent with accelerating rhythms) | 19.4” | 13.3” | 5.5” | 34.3” |
Dramatic and rhetorical | Middle-ground | Rapidly dissolves into silence | - Chaotic, explosive and more fully developed | - Includes flute solo

**B** (repeated lines with textural embellishments) | 25.6” | 15.5” | 47” | 20” |
Increasing dynamic and level of activity | Very sparse and quiet | Pitch material of harp solo directly echoes that of previous section | Final chord presented linearly by piano, harp and tuned percussion

**C** | Fading bell chime | Fading bell chime | 56” |
- Oboe solo | - Fading bell chime

ARCHES | Ascent, Descent, Ascent, Descent, Ascent, Hn. ascents/cl. descents, Vc. and db. continue descent | Low C (cbsn.)

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**Initial material 1:**

**Initial material 2:**

Figure 53: Betelgeuse Astral Funicular, form
4.2 Three Movements for String Quartet (2017)

4.2.1 Introduction

The broad structural model here is Stravinsky's Three Pieces for String Quartet (1914/18): three contrasting character pieces that are focused on one particular musical argument. Each movement is about a certain kind of motion.

4.2.2 Contours – Movement 1

Movement 1 consists of a series of textures that follow a contour around the registral space of the ensemble. This is its principle form of motion. In a quasi-stochastic manner, the lines pursued by the different instruments move in varying degrees of divergence from (and convergence with) this contour. Unlike stochastic music, the 'data set' was only imagined, not generated. The piece was roughly conceived as an undulating line that falls and rises twice before descending to the cello's low C, which the upper instruments adorn with material related to the harmonic series on C.

Additionally, the descents are split in half at a mid-point axis, where passages are formed by pitches moving in expanding intervals around this centre before a further descent. The music was composed intuitively with these overall rules in mind. In this way, the composition process held an equal balance between bottom-up and top-down construction.

Despite being texturally distinct from previous pieces, the principles of varied repetition still apply to the treatment of these ideas. After an introductory passage based on a sustained C6, the first fall of the line (from the same pitch) begins in bar 12. This initiates a passage where several lines of different speeds and characters act independently before converging on the 'axis' of middle C in bar 25:

1. A temporally regular glissando falling from C6-C4 (bar 13-26), sul ponticello
2. An exponentially accelerating glissando from C6-C2 (bars 15.4 to 19), ordinary bow position. Once it reaches the low C, this splits into two:

- A temporally regular ascending glissando, cello, sul tasto, trilled
- A rapid ascent to C8 (initiated by a harmonic glissando), which then falls at an exponentially accelerating speed, ordinary bow position

The next descent at letter E is turned into a monorhythmic pizzicato gesture. This decision was influenced by the occasionally counterintuitive realisation of data sets by Iannis Xenakis. For instance, in his string quartet ST/4 – which is composed using computer-generated data – there is a passage in which a glissando parameter is realised as a pizzicato chromatic scale (bars 222.3-248.1) in minim beats, despite the clear ability of the strings to play it continuously with the bow. Similarly, I created a 'digital realisation' of my imagined continuous data, quantised to the pitches of the harmonic series (see Figure 54). The descent at letter H is played arco again, although here the line is more harmonically dense and rhythmically active due to the use of double stops and accented tremolos.

![Figure 54: Three Movements for String Quartet, Movement 1, digital glissando](image)

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30 Technically, it is a transcription of a large ensemble piece – ST/10 – which itself is a realisation of a data set.

Similarly the central ‘axis’ on which these descents land, as well as the instruments’ behaviour once they reach it, is varied. The middle C at bar 26 is quickly replaced by a process based around pitch class A4 in bar 31, where the ensemble (using pizzicato cross-rhythms) moves in widening circles around the A, all in independent speeds which accelerate at individual rates (see Figure 55). The second axis is the middle C at letter F, which features symmetrical movement away from the focal pitch (in both directions, and in two different speeds divided by outer voices and inner voices). The third axis (D4) is reached at letter I, during which the circling motion spins out of control and turns into a frantic climactic passage at letter J.

![Figure 55: Three Movements for String Quartet, Movement 1, glissandos at varying speeds causing changes in voicing](image)

Of all the music in the portfolio, this movement bears the strongest imprint of the textures of Ligeti and Xenakis, particularly their string quartets. Certain archetypes from these two pieces are put through different processes and placed within different formal contexts. Along with the rudimentary use of spectral ideas (i.e. the harmonic series), I aimed to create a synthesis of different influences that was unique enough to function on its own terms. Within the portfolio, this movement functions as an experiment into applying my processes of varied repetition, directional line and contrasting blocks to very different materials. Moreover, the
relationship between convergence and divergence offers a new perspective on the dialectic between unity and disunity.

4.2.3 Transference – Movement 2

This movement is about the transformation of one musical idea into another. It is constructed entirely from the application of a set of rules applied to a single line - a repeated twelve-note row. The cyclical use of this row as an ostinato becomes a linear process as it undergoes an incremental series of changes in timbre, articulation, registration, instrumentation and rhythm. This can be seen as an extension of the composite line idea that is first seen in fledgling form in the pizzicato ostinato of Unfurl.

The two ideas that form the starting point and the destination of this piece are:

1. Ensemble material: a legato ostinato pattern played by violin II, viola and cello (the 'ensemble'). This figure is played in an extreme sul tasto position, creating a panpipe-like sonority.
   - Constructive features: a twelve-note row within the narrow pitch space of a chromatic scale. (During the introductory passage at letter N this pitch space descends to its 'prime' position rooted on C3.)

2. Violin material: a wild staccato gesture played by the violins (with the transfer process mainly led by the first violin).
   - Constructive features: the twelve-note row (in the same pitch form) occupying as wide a compass as possible within the limits of the violin.
The movement between these two ideas is achieved by setting the first violin in opposition to the rest of the instruments (or 'ensemble'). Pitches gradually move from the ensemble's layer to the violin's layer, changing in registral position and character/articulation.

The violin begins by playing its pitches using a range of different articulations and techniques, often with repeated notes, although as its pitch pool gradually expands, single staccato or staccatissimo articulations become more prominent in order to accommodate the increased density of activity. Meanwhile, the ensemble's note values expand in conjunction with its diminishing pitch pool, turning into intermittent glissandi towards the end of the process.

Pitches are transferred in ascending order according to their registral position in the violin material, and once they have all been moved at letter I, they are removed in the same order. This results in D, E and B-flat acting as a kind of 'tonic' pitch collection, since they are the final three pitches of both of these processes.
4.2.4 Echoes – Movement 3

This movement is about a motif moving through changing harmonies, tuning systems, textures and tempos. It is constructed from the potential of the initial juxtaposition of two contrasting blocks, built from the same motif. These blocks alternate and vary. The motif traverses chord changes, the unisons move out-of-sync, block lengths are expanded (and sometimes contracted), and the relatively static echo passages are eventually given more movement through the use of harmonic glissandos.

The harmonic language was retroactively devised from the echo passages, which are limited to the pitches available as natural harmonics (many of which are very unstable). Figure 58 shows how the harmonic and stopped pitches relate linearly, whilst the pizzicato chord is a six-note collection that includes the pitches of the four-note motif. This is how the vertical harmony was conceived, to support the movements of the line, and in turn the line moves on varying ‘journeys’ to different pitch collections that can also be approximated in natural harmonics.

The motion here is arguably more undirected than teleological. However, at letter AA the ‘statement’ and ‘echo’ material are heard simultaneously and build up to the passage at BB where the motif is thrown into the highest and lowest registers of the string quartet. This point could be considered the telos of the movement, where the motif turns into a wild duet with loosely canonic properties.
Figure 59: Three Movements for String Quartet, Movement III, synthesis of the two contrasting blocks

Figure 60: Three Movements for String Quartet, Movement III, quasi-canonic duet
5 Unfurled

In this commentary, I have tried to illustrate a continuous process of analysing, developing, refining and varying my compositional methods. To my ears, the final two pieces of this portfolio demonstrate greater clarity in the realisation of musical arguments, and I believe that the portfolio as a whole shows a developmental trajectory that leads to this point.

The interaction between constructive processes and my musical intuition has formed a key part of this development. Jonathan Cross provides a particularly elegant description of this kind of interaction in a comparison of the work of Paul Klee and Harrison Birtwistle:

Klee talks of ‘loose’ and ‘rigid’ continuity, the tension between the regular and the irregular, between natural, immutable laws (such as the force of gravity) and human will (the desire to escape from that gravitational pull). In Birtwistle, too, a similar tension can be found between the inevitability of regular and symmetrical schemes and structures, and the disruptive will of the composer who works against such schemes while never fully escaping their influence.32

To apply Cross’s description to my own compositions could involve equating my intuition with the force that pushes against the ‘gravitational pull’ of constructive processes. This certainly seems to be how he applies the idea to Birtwistle’s music. On the other hand, I also use such schemes in order to resist the ‘gravitational’ tendencies of my intuition, or habits that I want to break. In any case, this interaction

has been invaluable as a method of exploring the possibilities of musical material and varying my musical language.

Whilst I have emphasised change and development, the pieces clearly share many characteristics and are the result of the same compositional voice. It is also notable that the core dialectical relationships I outlined in the introduction are consistent concerns throughout the portfolio. Motion and stasis; line and circle; continuity and discontinuity; change and repetition; unity and disunity: these ideas manifest themselves in new ways from piece to piece, and have become both an aesthetic focus and a practical aid to solving creative problems. Moreover the fact that, as concepts, they do not necessitate specific techniques creates the freedom for my musical language to change.

Ultimately, I would like to view this whole portfolio as a source of possibilities for future musical explorations. There are some ideas that only make brief appearances and could be seen as signposts to new directions. For instance, I would like to explore the possibilities of microtones beyond their largely colouristic function in this portfolio. The spatialisation of instrumentalists demonstrated in Cast could also be developed further. In addition, I would like to use stochastic and spectral techniques more literally in order to provide new ‘gravitational forces’ to work with and against.

There will also, no doubt, be unpredictable changes of direction in my music, depending on my widening and evolving interests and influences. Wherever the next step will take me, the lessons learned whilst composing this collection of pieces will provide a solid foundation for music to come.
Bibliography

Literature


Scores


Audio


Websites


Video


Images